

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

THIRD YEAR EXAMS

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يكون توزيع المقررات فى الفرقة الثالثة وعدد الساعات والدرجة المخصصة لكل مقرر ووسائل الاختبار علي النحو التالي :

الدرجة النهائية	الاختبارات	عدد الساعات		المقرر الدراسى
		عملى	نظري	
٣٠٠	اختباران تحريريان مدة كل منهما ساعتان ● عملية ● شفوية	١٢٠	١٢٠	الباثولوجيا
٣٠٠	اختبارات تحريريان مدة كل منهما ساعتان ● عملية ● شفوية	٦٠	١٢٠	الفارماكولوجيا
٢٠٠	اختبار تحريري مدته ساعتان ونصف الساعة ● عملية ● شفوية	٦٠	٩٠	الميكربولوجيا الطبية والمناعة
١٥٠	اختبار تحريري مدته ساعتان ونصف الساعة ● عملية ● شفوية	٦٠	٦٠	الطفيليات

PATHOLOGY DEPARTMENT
Final Examination Paper I Pathology

Answer all questions :

1. A) **What are the protective mechanisms against injury to stomach mucoa & enumerate the types of chronic gastritis.** (6 marks)
B) Describe the microscopic picture & complications of carcinoma of the sigmoid colon. (6 marks)
C) Define liver cirrhosis and describe its general pathological features. (6 marks)
D) Enumerate the complications of Gall bladder stones. (5 marks)
2. A) **List 6 risk factors for development of atherosclerosis.** (6 marks)
B) Describe the gross & microsopic picture of a carcinoma of the urinary bladder which is commonly associated with the metaplastic change (leukoplakia)(due to Bilharziasis in Egyptians. (6 marks)
C) List 6 glomerular lesions associated with nephroic syndrome. (6 marks)
D) What disease is characterized by : Permanent over distention of air spaces distal to the terminal bronchioles with destruction of alveolar walls. Describe the mechanism, the gross picture of the lung & the complications of this type of disease. (8 marks)
3. A) **What is the term used for splenic enlargement? Enumerate its causes.** (6 marks)
B) Describe the gross and microscopic picture of fibrocystic disease of the breast & list the changes associated with increased risk of development of carcinoma. (6 marks)
C) Enumerate tumours arising from chondroblasts & describe the microscopic picture of one malignant tumour arising from them. (6 marks)
D) Enumerate neoplastic & non neoplastic ovarian cysts & describe the microscopic picture of one neoplastic cyst. (8 marks)

Cairo University
Time allowed: 2hrs
Date 6/6/2010

Faculty of Medicine
Total allocated marks: 75
June. Exam: Third year

PATHOLOGY DEPARTMENT

Final Examination Paper 2 Pathology

Answer All questions

1. A) Describe the pathological features of chronic fibrocaceous pulmonary tuberculosis. (10 marks)
B) What is steatosis? Describe the gross & microscopic picture in the liver. (5 marks)
C) Enumerate the factors influencing healing by fibrosis? (5 marks)
D) Compare & contrast in a table form between hyperplasia & neoplasia. (5 marks)
2. A) A woman comes complaining of cyclic abdominal pain that coincides with her menses. Attempts to become pregnant have failed over the past 5 years & by laparoscopy you find numerous hemorrhagic 0.2 to 0.5 cm lesions over the peritoneal surfaces of the uterus and ovaries. Which of the following ovarian lesions do you suspect? Give reasons why you chose this lesion. (3 marks)
 1. Fibroma
 2. Brenner tumor\
 3. Endometriotic cyst
 4. Krukenberg tumor
 5. Mature cystic teratoma
6. Mucinous cystadenocarcinoma
B) Give a short account on etiology & gross features of a brain abscess. (5 marks)
C) What are the premalignant lesions of prostatic carcinoma & describe the mode of spread of this carcinoma. (5 marks)
D) What is meant by goiter? Discuss the pathogenesis of colloid nodular goiter & what are the pathologic features of this disorder. (7 marks)
3. Case (10 marks)
A 7 year old child suffered from fever and a sore throat. Two weeks after his recovery, he presented with abrupt onset of fever, malaise, oliguria and hematuria. On clinical examination he was found to be hypertensive, he was edematous (particularly around the eyes). His urine analysis showed gross hematuria., proteinuria & azotemia (higher levels of urea & creatinine).
 - A. What is the diagnosis & course of the disease? (2 marks)
 - B. Mention the cause & mechanism of the disease in this case. (4 marks)
 - C. Describe the microscopic picture of the kidney. (4 marks)

PATHOLOGY EXAM PAPER I

All Questions are to be answered

QUESTION 1 (25 Marks)

A) A male patient aged 30 years complained of intermittent fever, night sweats and loss of weight. Examination and investigations of this patient revealed generalized lymph node enlargement involving cervical, axillary, paraortic & inguinal lymph nodes, together with splenic enlargement. One of the cervical lymph nodes was biopsied and showed a mixture of lymphocytes, plasma cells, eosinophils and histiocytes together with large atypical cells including characteristic (diagnostic) large cells having 2-4 mirror image nuclei and large eosinophilic nucleoli.

- 1- What is the diagnosis of this condition? (1mark)
- 2- What is the name of the diagnostic cells detected in biopsy? (1mark)
- 3- What is the disease stage in this condition? (0.5mark)
- 4- Mention the histological types (Rye's Classification) of this disease (2.5mark)
(total 5 marks)

B) A female patient aged 35 years had repeated attacks of menorrhagia. Investigations revealed multiple well defined intramural and subserous uterine masses

- 1-What is your diagnosis? (1 mark)
 - 2- Describe five secondary changes (2.5 marks) & three complications (1.5 marks) of these masses (total 5 marks)
- C) Write a short note on each of the following (5 marks each; total 15 marks)
- 1- Staging of colonic carcinoma (T.N.M staging & modified Dukes staging)
 - 2- Microscopic features of chronic viral hepatitis
 - 3- Chronic pyelonephritis: Gross features, microscopic features & complications

QUESTION 2 (25 Marks)

- A) Define each of the following (1 mark each, total 5 marks)
- 1- Linitis plastica
 - 2- Dysgerminoma
 - 3- Paget's disease of the breast
 - 4- Peau d'orange
 - 5- Hydronephrosis
- B) Write a note each of the following (5 mark each, total 20 marks):

- 1- Bronchiectasis: Definition and gross features
- 2- Grave's disease: Pathogenesis, gross and microscopic features
- 3- Acute hematogenous osteomyelitis: Aetiology, pathogenesis & complications
- 4- Risk factors & precancerous lesions of breast carcinoma

QUESTION 3 (25 Marks)

A) Complete the following statements (1 mark each, total 5 marks):

- 1- Multiple hamartomatous gastrointestinal polypi, associated with melanin pigmentation of face, lips, oral mucosa and digits constitute a syndrome called-----
- 2- Duodenal peptic ulcers develop most commonly in association with gastritis caused by-----
- 3- The total plasma level of----- correlates strongly with The atherosclerosis
- 4- Nephroblastoma is histologically a triphasic tumor composed of: a)-----, b) epithelial cells & c) mesenchymal elements
- 5- pilocytic astrocytoma anatomically occurs in the----- of children & is WHO grade----- tumor.

B) Cross match (5 marks)

- a) myoepithelial cell proliferation
- b) Granulosa cell tumor
- c) Mesothelioma
- d) Hurthle cell adenoma
- e) Insulinitis

- 1- Is seen in type I diabetes mellitus
- 2- Is seen in type II diabetes mellitus
- 3- Is a benign tumor of thyroid
- 4- Is an ovarian sex cord stromal tumor
- 5- Is an ovarian germ cell tumor
- 6- Is predisposed to be asbestosis
- 7- Is seen in cases of sclerosing adenosis

C) Multiple choice questions. For each only one answer

(1 mark each, total 15 marks)

1- Which of the following statements is true about rheumatic fever:

- a) It most commonly affects adults above the age of 25 years
- b) It follows staphylococcal infection
- c) It may be complicated by acute infective endocarditis
- d) It may be complicated by subacute by subacute infective endocarditis

2- Which of the following is true about bladder cancer:

- a) Adenocarcinoma is the most common histological type of bilharzial cancer.
- b) Most cases arise in the lateral & posterior walls of the bladder
- c) Lymphatic spread mainly occurs to inguinal lymph nodes
- d) Transcoelomic spread may occur

3- which of the following tumors has the most aggressive behaviour:

- a) Osteosarcoma

- b) Giant cell tumor of bone
- c) Carcinoid tumor of lung
- d) Vesicular mole

4- which of the following tumors spreads by blood more common than by lymphatics:

- a) Papillary carcinoma of thyroid
- b) Follicular carcinoma of thyroid
- c) Urothelial carcinoma of the bladder
- d) Squamous cell carcinoma of the tongue

5- which of the following tumors is malignant:

- a) Meningioma
- b) Glioblastoma multiforme
- c) schwannoma
- d) Neurofibroma

6- which of the following is true about prostatic carcinoma:

- a) Increased serum oestrogen is a strong predisposing factor
- b) Tumor cells secrete alkaline phosphatase
- c) Metastatic bone deposits are frequently osteolytic
- d) Most cases arise in the peripheral subcapsular zone of the prostate

7- Cholesteatoma is:

- a) A complication of hypercholesterolemia.
- b) A complication of otitis media
- c) A complication of cholecystitis
- d) None of the above.

8- which of the following is an essential feature of nephrotic syndrome?

- a) Hematuria
- b) Formation of stag horn stones
- c) Proteinuria
- d) Acute renal failure

9- which of the following breast lesions can be associated with cancer en cuirasse?

- a) Fibrocystic disease
- b) infiltrating duct carcinoma
- c) intraduct carcinoma
- d) Duct ectasia

10- which of the following conditions is related to repeated anovulatory cycles:

- a) Dysfunctional uterine bleeding.
- b) Choriocarcinoma.
- c) Ovarian corpus luteum cyst.
- d) Ectopic pregnancy.

11- which of the following stones develops in the urinary bladder

- a) Triple phosphate stone.
- b) Calcium carbontate stone.
- c) Pigment stones.
- d) All of the above.

12- which of the following diseases is autoimmune

- a) Hashimoto's thyroiditis.
- b) chronis cervicitis.
- c) Rhinoscleroma.
- d) Secondary biliary cirrhosis.

13- All of the following conditions may be associated with hemoptysis except.

- A) Leukemia.
- b) Gastfric cancer.
- c) Bronchitis.
- d) Bronchiectasis.

14- which of the following features is true about cirrhosis:

- A) It is localized damage of liver parenchyma leading to focal nodular transformation
- b) In Egypt, alcoholic cirrhosis is more common than post hepatitis cirrhosis
- c) It is precancerous predisposing to hepatic carcinoma
- c) All of the above.

15- which of the following factors does not predispose to urinary stones:

- a) Polyuria.
- b) Urinary infection.
- c) Gout.
- d) Urinary tract obstruction.

PATHOLOGY EXAM PAPER II

All Questions are to be answered

QUESTION 1 (25 Marks)

A) A female patient aged 50 years had repeated attacks of hemoptysis. Investigations revealed a right lung irregular cavity.

- 1- Mention two lung diseases characterized by cavity formation (1 mark)
 - 2- Describe the possible complications of one of these two diseases (4 marks)
- (Total 5 markd)

B) Amale patient aged 70 years had an irregular cheek ulcer having an indurated base with rolled in beaded edges:.

- 1- What is the possible diagnosis of this lesion? (1 mark)
 - 2- What is the behavior of this lesion? (1mark)
 - 3- Mention one predisposing factor for this lesion (1mark)
 - 4- Describe the Microscopic features (2mark)
- (Total 5 markd)

C) Write a short note on each of the following (5 Marks each; total 15 marks):

- 1- Compare the pathological features of acute and chronic inflammation
- 2- Aetiology & Pathogenesis of chronic general venous congestion
- 3- Complications of bilharzial cystitis

QUESTION 2 (25 marks)

A) Define the following terms (1 mark each, total 5 marks)

- 1- false aneurysm
- 2- silicosis
- 3-systemic lupus erythematosus
- 4- Endometriosis
- 5- Cholangiocarcinoma

B) Mention one disease charactertiz by the following

(1 mark each, total 5 marks) .no details required)

- 1- Crypt abscess
- 2- Retracted nipple
- 3- Bone sequestration
- 4-Bilaterally contracted kidneys with finely granular surface.
- 5- Cirrhosis, bile duct injury & increased serum antimitochondrial antibodies.

C) write a note on each of the following (5 Marks each; total 15 marks):

- 1- Mechanism of healing of wounds by primary union
- 2- Gross features, effects and complications of nodular hyperplasia of the prostate
- 3- Types and complications of cerebral aneurysms

QUESTION 3: (25 marks)

A) Complete the following statements (2 Marks each; total 10 marks)

- 1- Teratoma is a composite tumor containing structures derived from-----,----- and-----the tumor arises from-----cells The most common sites of this tumor are the-----& the-----
- 2- Neurofibromatosis type 1 (NFI) is characterized by multiple -----,-----,----- and -----
- 3- In diabetic microangiopathy there is-----of capillary basement membranes This may lead to serious effects such as-----,-----and-----
- 4- The main two viruses causing chronic hepatitis are-----&-----The most important complications of chronic Viral hepatitis are-----,-----&-----
- 5- Multiple myeloma arise from-----cells. Examination of the patient's urine may show----- The kidney may show -----leading to-----

B) Multiple choice questions. For each question chose only one answer (1 Marks each; total 15 marks)

1- All of the following statements about emphysema are correct except: a) Emphysema is permanent over-distension of the air spaces proximal to terminal bronchioles.

- b) It may be caused by alpha 1 antitrypsin deficiency (q 1-AT deficiency)
- c) It may be complicated by right sided heart failure
- d) The affected lungs do not collapse on opening the chest

2- Which of the following statements is not true about lentigo maligna:

- a)It is considered a type of melanoma in situ.
- b) The most common presentation is a pigmented macule in the face.
- c) It mainly occurs in the elderly and may become invasive within 10-15 years
- d) It is more dangerous than nodular melanoma

3- Which of the following tumors arise from embryonic cells:

- a) Osteoblastoma
- b) Chondroblastoma.
- c) Nephroblastoma
- d) All of the above

4- Which of the following is not a feature of pott's disease

- a) It is blood - borne tuberculosis of vertebrae.

- b) It spares the intervertebral discs.
- c) It may lead to paraplegia.
- d) It may lead to kyphosis

5- Which of the following organs is most commonly affected by metastases in case of carcinoma of stomach

- a) pancreas
- b) Liver
- c) Brain
- d) Bones

6- Which of the following colonic polyps is liable to malignant transformation:

- a) Bilharzial polyp
- b) Adenomatous polyp
- c) Hyperplastic polyp
- d) Juvenile polyp

7- All of the following conditions may be associated with melena except:

- a) piles
- b) Duodenal peptic ulcer
- c) Oesophageal varices
- d) Gastric carcinoma

8- which of the following statements is true about duodenal peptic ulcer:

- a) It is precancerous
- b) It has undermined edges
- c) It is more common in females
- d) It may be related to gastrinoma

9- Which of the following intestinal diseases is characterized by mucosal fissures transmural inflammation & granulomas:

- a) Crohn's disease
- b) Ulcerative colitis
- c) Bacillary dysentery
- d) Amoebic dysentery

10- Which of the following conditions is not a feature hepatic failure

- a) Hyperglycemia
- b) Ascites

- c) Renal feture
- d) Elevation of blood oestrogen

11- Which of the following statements is true about seminoma:

- a) It is a benign tumor of the seminiferous
- b) t is a radioresistant tumor
- c) It most commonly affects children.
- d) The stroma of the tumor is rich in lymphocytes

12- Which of the following is the most common microscopic type of cervical cancer:

- a) Adenocarcinoma
- b) Squamous cell carcinoma
- c) Transitional cell carcinoma
- d) Choriocarcinoma

13- Which of the following mammary neoplasms has the highest incidence of bilateral breast involvement:

- a) Lobular carcinoma
- b) Medullary carcinoma
- c) Pagt's disease
- d) mucoid carcinoma

14- Which of the following statements is true?

- a) Hypersplenism leads to pancytopenia
- b) Ectropion is a type of cervical cancer
- c) Complement activation does not occur in post - streptococcal glomerulonephritis
- d) Squamous cell carcinoma of the larynx is most commonly infraglottic

15- Which of the following statements is true:

- a) Acute post streptococcal glomerulonephritis may be associated with hematuria
- b) Crescentic glomerulonephritis may be associated with nephrotic syndrome
- c) Non- Hodgkin's lymphomas may be associated with leukemia.
- d) All of the above.

PATHOLOGY EXAM PAPER I

All questions are to be answered

QUESTIONS GROUP 1 (total 25 marks)

A) A male patient aged 50 years complained of attacks of left renal colic and hematuria. Investigations revealed a left ureteric stone and markedly enlarged non-functioning left kidney. The right kidney was normal. Considering the non-functioning state of the left kidney. Left nephrectomy (surgical removal of the kidney) was performed (to avoid complications). Postoperative pathological gross examination revealed markedly enlarged left kidney with bossy surface & markedly dilated pelvis and calyces, distended with urine, associated with marked thinning (atrophy) of renal parenchyma. (Total 9 marks).

- 1-What is the diagnosis of this unilateral renal condition? (1 mark)
- 2-What is the mechanism of atrophy of renal parenchyma? (1 mark)
- 3-List two other ureteric causes (other than stones) that can lead to this condition (2 marks)
- 4-List two complications of this unilateral condition (2 marks)
- 5-If this condition is bilateral (affecting both kidneys) mention:
 - a) Four causes (2 marks)
 - b) An additional complication which is uncommon in unilateral conditions (1 mark)

B) A male patient aged 40 years had repeated attacks of epigastric pain and dyspepsia. Upper endoscopy revealed a rounded duodenal ulcer, 1 cm" in diameter having a smooth floor and sharp edges (Total 6 marks).

- 1-is this ulcer more likely to be benign or malignant? Mention the possible diagnosis (1 mark)
- 2-Mention four other GIT sites (other than duodenum) in which this ulcer type can develop (2 marks)
- 3-Mention two possible complications of this duodenal ulcer (1 mark)
- 4-Mention one syndrome characterized by multiple ulcers of this type (1 mark)
- 5-This condition may have genetic predisposition. Give two evidences of this assumption (1 mark)

C) List (Total 10 marks):

- 1- Four causes of right sided heart failure (2 marks)
- 2- Four complications of bronchiectasis (2 marks)
- 3- Four causes of dysfunctional uterine bleeding (2 marks)
- 4- Four predisposing factors of bronchogenic carcinoma (2 marks)
- 5- Four types of breast masses (2 marks)

QUESTIONS GROUP 11 (total 25 marks)

A) Define each of the following (1mark each, total 5 marks):

- 1- CIN-III
- 2- Bronchopneumonia
- 3- Cryptorchidism
- 4- Craniopharyngioma
- 5- Chronic interface hepatitis

B) Write a note on each of the following (total 20 marks)

- 1-Mention the clinical features of nephrotic syndrome (2 marks) and list 6 causes of this condition (3 marks) (Total 5 marks)
- 2-List four types of thyroid carcinoma (2 marks) & describe routes of their spread (3 marks) (Total 5 marks)
- 3-Describe the mechanism of gastric and duodenal lesions caused by Helicobacter pylori infection (5 marks)
- 4-Describe aetiology & complications of acute haematogenous osteomyelitis (5 marks)

QUESTIONS GROUP III (25 MARKS)

A) Complete the following statements {2 marks each total marks):

- 1-The clinical presentation of post-streptococcal glomerulonephritis is known as.....syndrome , while the clinical presentation of minimal change glomerulonephritis is known as syndrome
- 2-A hybrid chromosome resulting from reciprocal translocations between chromosomes 9 & 22 is called chromosome .It is seen in some cases of leukemia
- 3-Splenic enlargement leading to pancytopenia is known as It may be primary or secondary. The secondary type may be seen in infections affecting spleen such as.....
- 4-Endometrial carcinoma is predisposed to by.....,The microscopic types include , and
- 5-Osteosarcoma commonly arises in children and young adults below age of 20 years. It may sometimes develop in elderly people on top of.....The most common sites are ends of long bone around the joint.

B) Put right (✓)or wrong (X) in front of each answer and correct the wrong answer (1 mark each, total10 marks) Note that some but not all underlined words are wrong and have to be corrected:

- 1-Berry aneurysms are congenital aneurysms of aorta
- 2-The most common cause of massive cerebral hemorrhage is leukemia
- 3-Medullary carcinoma of thyroid arises from parafollicular cells
- 4-Breast carcinoma , 6 cm in longest dimension, invading and ulcerating the skin corresponds to stage T3 (in TNM staging system)
- 5-Hodgkinís lymphoma involving cervical lymph nodes, axillary lymph nodes, paraortic lymph nodes and spleen corresponds to disease stage IV
- 6-Pigment stones are the most common type of gall bladder stones
- 7-Prostatic adenocarcinoma most commonly arises from the peripheral parts of the prostate
- 8-Fibrinoid necrosis may be seen in the synovium in cases of osteoarthritis
- 9-Mitral stenosis does not lead to hypertrophy of the left ventricle
- 10-Dysgerminoma of the ovary is microscopically similar to seminoma of the testis

C) Multiple choice questions . For each question chose only one answer (1marks each, total 5 marks)

1- Which of the following tumors secretes alpha fetoprotein :

- | | |
|---------------------|-----------------------------------|
| a) Wilmís tumour | b) Leydig cell tumour of testis. |
| c) Hepatoblastoma . | d) Granulosa cell tumour of ovary |

2-Which of the following tumors arises from neuroendocrine cells :

- | | |
|----------------------|------------------------------------|
| a) Ependymoma | b) Carcinoid tumour |
| c) pituitary adenoma | d) Follicular carcinoma of thyroid |

3- Which of the following lesions can cause melena :

- | | |
|--------------------------|-----------------------|
| a) Oesophageal carcinoma | b) Colonic carcinoma |
| c) Piles . | d) Ulcerative colitis |

4- Which of the following tumors is predisposed to by aflatoxins

- | | |
|-----------------------------|--|
| a) Bronchogenic carcinoma. | b) Renal cell carcinoma |
| c) Hepatocellular carcinoma | d) Urothelial carcinoma of the bladder |

5- Which of the following tumors is a surface epithelial tumour of ovary:

- | | |
|-----------------------|--------------------------------|
| a) Serous cystadenoma | b) Theca cell tumour (thecoma) |
| c) Mature teratoma. . | d) Granulosa cell tumour |

PATHOLOGY EXAM PAPER II

All questions are to be answered

QUESTIONS GROUP I(25marks)

A) Write a note on (total 10 marks):

- 1- Mechanism of fibrosis (6 marks)
- 2- Mechanism of pus formation (4 marks)

B) A male patient aged 45 years had repeated attacks of abdominal pains. Endoscopy revealed multiple terminal ileal transversely warranged ulcers, having ragged undermined edges and yellowish floor.

- 1-What is the possible diagnosis of these ulcers? (1 mark)
- 2-Explain why these ulcers are transversely arranged (1 mark)
- 3- What is the aetiology of this condition? (1 mark)
- 4- List six complications of this condition (3 marks)

C) A female patient aged 55 years had repeated attacks of vaginal bleeding. Investigations revealed an irregular cervical ulcer , having everted edges and hemorrhagic floor (total 4 marks).

- 1-V\hat is the most possible diagnosis of the cervical lesion? (1 mark)
- 2-Enumerate four predisposing factors of this cervical lesion (2 marks)
- 3-Enumerate two microscopic types of this lesion (1 mark)

D) Define hypertrophy and write a note its aetiology & types (5 marks)

QUESTIONS GROUP II (25marks)

A) Define the fllgwiug terms (1 mark each, total5 marks)

- | | | |
|------------------------|-----------------|--------------------|
| 1-Lentigo maligna | 2-Sarcoidosis | 3-Peau
d'orange |
| 4-Paradoxical embolism | 5-Neuroblastoma | |

B) Mention a disease characterized by the following (1 mark each, total 5 marks. details reggirgd):

- 1-Joint disease characterized by degeneration of articular cartilage and development of osteophytes
- 2-Eczema of nipple , microscopically characterized by intraepidermal large clear cells with dark nuclei
- 3-A commonly fatal condition characterized by severe toxæmia with toxic injury of organs, blood hemolysis , acute splenic swelling, acute respiratory distress syndrome & acute adrenal insufficiency .

4-A swelling in the back of neck characterized by multiple subcutaneous communicating abscesses opening into the skin by multiple sinuses.

5-A WHO grade I cystic tumor occurring in the cerebellum of children

C) Write a note on each of the following (5marks each, total 15 marks):

1- Gross & microscopic features , effects and complications of bilharzial hepatic fibrosis

2-Define empyema (of the pleura) and write a note on its aetiology & complications

3-List 5 causes of lymph node enlargement. Describe the microscopic features of one of them

QUESTIONS GROUP III (25marks)

A) Complete the following statements (1 mark each, total 5 marks)

1- Papillary cystadenoma lymphomatosum is a benign tumor of
It is also called

2- Phyllodes tumor occurs in the It is usually benign , but may be malignant.

3- Rapidly progressive glomerulonephritis is characterized by glomerular, that is why it is called.....glomerulonephritis .

4- The type of retinopathy in diabetes mellitus may beor.....

5-A syndrome characterized by polycystic ovaries, associated with oligomenorrhea, hirsutism and infertility is known as syndrome

B) Put right (✓)or wrong (X) in front of each answer and correct the wrong answer (1 mark each, tota 10 marks).

Note that some but not all underlined words are wrong and have to be corrected:

1-hurthle cell adenoma is a benign tumor of the prostate

2-Bence Johns proteinuria is seen in many types of glomerulonephritis

3-Superficial spreading melanoma has a better prognosis than nodular melanoma

4-Byssinosis is a type of pneumoconiosis caused by inhalation of cotton

5-Perforation of valve cusps can occur in case of subacute infective endocarditis

6-Breast carcinoma positive for ER & PR (hormone receptors) is treated by herceptin

7-Glioblastoma multiforme .is a WHO grade II tumor of brain

8-Actinomycotic abscesses may occur in the brain

9-Constrictive pericarditis may be caused by tuberculosis

10-The karyotype of complete vesicular mole is usually diploid

**C) Multiple choice questions . For each question chose only one answer
(1 mark each, total 10 marks)**

1-A loop of intestine twisted upon itself is known as;

- a) Volvulus
- b) intussusception
- c) Strangulated hernia
- d) Paralytic ileus

2-Which of the following tumors has the worst prognosis:

- a) Signet ring cell carcinoma
- b) Giant cell tumor of bone
- c) Rodent ulcer
- d) Bronchial carcinoid

3-Which of the following is true about bronchial asthma:

- a) It is type III hypersensitivity
- b) It may be type II hypersensitivity
- c) It predisposes to emphysema
- d) It is a restrictive lung disease

4-A child 10 years old developed a tumor arising in the medullary canal of his left femur microscopically the tumor consists of malignant round cell rich in glycogen .This tumor is most likely;

- a) Hodgkin's lymphoma
- b) Non-Hodgkin's lymphoma
- c) Metastatic neuroblastoma
- d) Ewing's sarcoma

5-Pyogenic granuloma is a lesion resembling:

- a) Capillary hemangioma
- b) Foreign body granuloma
- c) Sarcoidosis
- d) Abscess

6-All of the following are ovarian sex cord stromal tumors except:

- a) Dysgerminoma
- b) Granulosa cell tumor
- c) Theca cell tumor
- d) Androblastoma

7-Which of the following malignant tumors commonly give rise to osteosclerotic bone metastases?

- a) Bronchogenic carcinoma
- b) Thyroid follicular carcinoma
- c) Prostatic adenocarcinoma
- d) Renal cell carcinoma

8- Which of the following diseases is characterized by lesions rich in eosinophils?

- a) Urticaria.
- b) Pseudomembranous inflammation
- c) Serofibrinous inflammation
- d) Actinomycosis

9-Which of the following conditions is not due to metaplasia:

- a) Localized myositis ossificans
- b) Cirrhosis
- c) Cystitis glandularis
- d) Leukoplakia

10-Which of the following tumors is commonly associated with cannon ball type lung metastases :

- a) Colonic adenocarcinoma
- b) Breast duct carcinoma
- c) Renal cell carcinoma
- d) Thyroid follicular carcinoma

PATHOLOGY EXAM: PAPER (1)

All questions have to be answered

Exam: 3 short questions (40 minutes each) 2pages

QUESTION (I)

(total 25 marks)

Answer the following questions: (5 marks each)

- A- Describe** the pathological features of acute hematogenous osteomyelitis and **list** the complications.
- B- Mention** the clinical features of nephrotic syndrome & **List** the causes of this syndrome.
- C- Discuss** cerebral aneurysms (types & complications).
- D- Write an account** on ulcerative colitis: (definition, gross and microscopic pictures).
- E- What** are the effects and manifestations of hepatocellular failure.

QUESTION (II)

(total 25 marks)

Discuss the Pathology of: (5 marks each)

- A- Bronchiectasis** (aetiology & complications).
- B- Chronic ischemia** (aetiology& complications).
- C- Nodular hyperplasia** of the prostate (gross picture & complications)
- D- Intraductal breast carcinoma** (Duct Carcinoma insitu) (gross, microscopic pictures & prognosis)
- E- Chronic viral hepatitis** (causes & microscopic picture).

Question (III)

(total 25 marks)

Answer the following questions:

(5 marks each)

A- What is the disease characterized by: Permanent over distension of the air spaces distal to the terminal bronchioles with destruction of alveolar walls.

Describe pathogenesis & complications of this disease.

B- What are the types of infective endocarditis.

Discuss their aetiology, pathogenesis & valve lesions.

C- Write an account on the benign cystic surface epithelial tumours of the ovary (gross, microscopic pictures & complications)

D- List causes of haematuria.

E- Define puerperal sepsis and **write its** aetiology and complications.

PATHOLOGY EXAM: PAPER (2)

All questions have to be answered

Exam: 3 short questions & 20 MCQ

QUESTION (I)

(total 20 Marks)

Answer the following questions: (4 marks each)

- A- **List 8** causes of death in malignant tumours ?
- B- **What are** the pathological features of AIDS (final stage)?
- C- **What is** the course of blood tumour emboli depending on the anatomical sites ?
- D- **What are** the types of necrosis? **Give an example** of each type.
- E- **Write the name** of the basic microscopic lesion of tuberculosis.
List six complications of secondary intestinal tuberculosis.

QUESTION (II)

(total 15 marks)

Answer the following questions: (3 marks each)

- A- **What are** the functions of the inflammatory fluid exudate?
- B- **What are** the radiological features of :
 - 1- Giant cell tumour of bone
 - 2- Osteosarcoma
 - 3- Chondrosarcoma
- C- **What are** the causes of increase & deficiency of melanin pigmentation (hyperpigmentation & hypopigmentation)?
- D- **Describe** the gross & microscopic pictures of the thyroid gland in Grave's disease (Diffuse toxic goiter).
- E- **List** the histological types of Hodgkin's lymphoma . **What is the name** of the characteristic neoplastic cell in this disease?

(Questions are continued on the back of this page) (1)

Question (III)

(total 20 marks)

A-Case (1)

(5 marks)

A male patient complains of epigastric pain and vomiting. Endoscopy shows a round sharp ulcer situated on the lesser curvature of the stomach.

- A- What is the most likely diagnosis?
- B- What is the most common cause of this ulcer?
- C- List other possible sites of this ulcer
- D- What are the complications of this ulcer?

B-Case (2)

(5 marks)

A Pregnant woman underwent caesarean section.

- A- What is the type of healing of the surgical wound?
- B- Describe the features of this type of healing.
- C- Explain why this woman may suffer from incisional hernia later on.
- D- One year later, the patient showed a cystic skin nodule at the site of incision. What is the possible diagnosis of this cyst?

C- Define:

(5 marks)

- 1-Adenomyosis
- 2- Dysplasia
- 3- Cellulitis
- 4- Phlebothrombosis
- 5- Empyema

D-Complete:

(5 marks)

- 1- Hydatid cyst wall consists of outer.....and inner.....
- 2- Glioblastoma multiforme is a tumour that affects..... and is graded as WHO grade.....
- 3- Serum marke: **1-....2-....**
- 4- Dry gangrene of the lower limb is due to.....
- 5-The most common site of breast cancer is the

QUESTION (IV) :

(total 20 marks)

Answer all question in your exam copy book: (one mark each)

A- Write True (T) or False (F) and correct the false one:

Note: Some but not all underlined words are wrong and have to be corrected.

- 1- Breast cancer positive for ER & PR and negative for Her 2 is much better than breast cancer negative for ER & PR and positive for Her2
- 2- Barrett's oesophagitis predispose to squamous cell carcinoma .
- 3- Craniopharyngioma is a malignant tumour of thyroid gland.
- 4- Heart failure cells are seen in the myocardium of ischaemic heart.
- 5- Phosphate stones develop in alkaline urine while oxalate stones develop in acidic urine
- 6- In dystrophic calcification: blood calcium level is high and calcium is deposited in dead tissue.
- 7- Bread and butter appearance is a feature of rheumatic myocarditis
- 8- Pott's disease of vertebrae sparing the intervertebral discs while metastatic tumours destroy them.
- 9- Basal cell carcinoma (Rodent ulcer) is characterized by undermined edges
- 10- Bleeding tendency is commonly associated with vitamin D deficiency.

B) Choose the Correct Answer:

(one mark each)

- 1- In acute haemorrhagic pancreatitis the diagnosis may be established by the presence of an excess:
 - a) Acid phosphatase
 - b) Alkaline phosphatase
 - c) Amylase
 - d) Creatine kinase

- 2- Cystitis glandularis in urinary bladder bilharziasis means transformation of urothelium into:
 - a) Non keratinized squamous epithelium
 - b) Keratinized squamous epithelium
 - c) Columnar epithelium
 - d) Dysplastic epithelium

- 3- These tumours are characterized by psammoma bodies **EXCEPT**:
 - a) Serous papillary carcinoma of the ovary
 - b) Papillary carcinoma of the thyroid
 - c) Meningioma
 - d) Follicular carcinoma of the thyroid

- 4- The chemical mediators in acute inflammation are responsible for
 - a) Localization of infection
 - b) Increased vascular permeability
 - c) Coating of bacteria
 - d) Phagocytosis

- 5- Which of the following lesions can cause melena:
 - a) Oesophageal varices
 - b) Piles
 - c) Cancer colon
 - d) Ulcerative colitis

- 6- The most common cause of splenomegaly in Egypt is:
- a) Leukaemia
 - b) Congestive
 - c) Amyloidosis
 - d) Lymphoma
- 7- The following are causes of Left sided heart failure **EXCEPT:**
- a) Aortic stenosis
 - b) Mitral incompetence
 - c) Hypertension
 - d) Emphysema
- 8- Rickets is characterized by:
- a) Excess proliferation of cartilage
 - b) Increased bone density
 - c) Early closure of fontanelles
 - d) Deposits of excess osseous tissue (mineralized bone)
- 9- The factors required for tumour growth and spread are called:
- a) Cytokines
 - b) Chemotactic
 - c) Angiogenesis
 - d) Tumour marker
- 10- Which of the following is **True** about bladder cancer:
- a) Adenocarcinoma is the most common histological type
 - b) Most cases arise in the lateral & posterior wall of the bladder
 - c) Most cases arise in the lateral and anterior wall of the bladder
 - d) Transcoelomic spread may occur.

Cairo University
Faculty of Medicine
Department. Pathology

Date. 1/ 6/2014
Time allowed. 2 hours
Total Marks allocated.75

PATHOLOGY EXAM :PAPER (1)
All questions have to be answered
Exam :3 questions -2 pages

QUESTION (1)

(total 25 marks)

Answer the following:

(5 marks each)

A-Describe gross µscopic features of emphysema.

B-Discuss aetiology of urinary calculi (stones) &enumerate its complications.

C-Discuss histological classification of Hodgkin's lymphoma (Rye'sClassification).

D-Define true aneurysm& discuss its aetiology& complications.

E-Discuss the pathogenesis& gross features of chronic peptic duodenal ulcer

QUESTION (2)

(total 25 marks)

Discuss the following:

(5 marks each)

- A- Aetiology & microscopic features of endometrial hyperplasia.
- B- Microscopic features of fibrocystic disease of the breast.
- C- Pathological features of acute haematogenous osteomyelitis.
- D- Aetiology & complications of nodular goiter.
- E- Pathology of cerebral hemorrhage (types, causes & gross picture).

QUESTION (3)

(total 25 marks)

Answer the following

(total 5 marks each)

- A- Describe the microscopic features of chronic viral hepatitis.
- B- Compare the gross picture of recent & healed myocardial infarction.
- C- Discuss predisposing factors of urinary bladder carcinoma.
- D- Discuss pre-malignant lesions of the prostate & describe modes of spread of cancer prostate.
- E- Discuss gross & microscopic features of bronchogenic carcinoma.

Cairo University

Date: 3 /6/2014

Faculty of Medicine

Time allowed: 2 hours

Department: Pathology

Total Marks allocated:75

PATHOLOGY EXAM :PAPER (2)

All questions have to be answered

Exam :3 questions&20 MCQ-6 pages

Question (1)

(total 20 marks)

Discuss the following:

(4 marks each)

A-Fate& complications of thrombi.

B-Complications of chronic fibrocaceous pulmonary tuberculosis.

C-Causes of death from malignant tumors (enumerate).

D-Mechanism of healing by secondary intention.

E-Aetiology&pathogenesis of acute diffuse proliferative glomerulonephritis (post-streptococcal glomerulonephritis) and mention its course&fate

Question (2)

(total 15 marks)

Answer the following questions:

(3 marks each)

A -Discuss the pathological features of cellulitis.

B- Define apoptosis & discuss its morphological features.

C-Discuss complications of lobar pneumonia.

D- Pathological features of basal cell carcinoma (grossµscopic pictures).

E-Discuss the pathological features of splenic amyloidosis (grossµscopic).

QUESTION (3)

(total 20 marks)

A-CASE (1)

(5 marks)

A child was admitted to the hospital suffering from severe abdominal pain, vomiting & dehydration. Exploration revealed invagination of the terminal ileum into the caecum forming a sausage shaped mass.

a-What is your diagnosis?

b-What are the possible causes of this condition?

c-What are the local intestinal changes (effects) that could be detected in this condition?

B- CASE (2)**(5 marks)**

A farmer 35 years old suffers from severe attack of hematemesis. On examination there is shrunken liver, splenomegaly & ascites. Liver biopsy was done & it revealed preserved architecture (framework) and portal tract fibrosis.

a-What is your diagnosis?

b-What is the cause & pathogenesis of hematemesis in this case?

c-What is the microscopic picture of the spleen in this case?

C- DEFINE**(total 5 marks-1 mark each)**

a- Bronchiectasis

b-Acute haemorrhagic pancreatitis

c-Aschoff bodies

d-Ulcerative colitis

e-Osteoarthritis

D-COMPLETE**(total 5 marks-1 mark each)**

a-..... is used for cytological screening of early malignant cervical lesions, while.....cytology is used for sampling from superficial breast masses.

b- Structural chromosomal abnormalities include.....&.....

c- Seminoma is a malignant tumor arising from.....cells&has a.....prognosis.

d-&.....are benign ovarian surface epithelial tumors.

e-&.....are malignant tumors of bone marrow.

MCQ

(total 20marks)

Answer all questions in your exam copy book

Only one answer is correct

(1 mark each)

1-The following are true about Inflammatory fluid exudate EXCEPT:

a-Bring antibodies

b- Low fibrinogen content

c-Bring chemical mediators

d- Specific gravity>1015

2-Stable cells are cells which:

a- Divide continuously

b-No capacity for division

c- Divide when needed

d-Nerve cells are an example

3-Keloid is :

a- Excess keratin formation

b-Chronic ulcer

c- Cyst filled with keratin

d- Protuberant scar

4-Differentiation of squamous cell carcinoma depends on amount of:

a- Acinar formation

b-Papillary formation

c- Cell nest formation

d-Stromal invasion

5-Epithelioid cells are modified:

a- Macrophages

b-Lymphocytes

c- Epithelial cells

d-Plasma cells

6-Sarcoidosis is characterized by all of the following EXCEPT:

a- Schaumman bodies

b-Asteroid bodies

c- Russel bodies

d-Langhan's giant cells

7-Wedge shape of the infarct is related to :

- a- Nature of the organ affected
- b- Nerve supply to the organ
- c- Blood supply to the organ
- d- Lymphatic supply to the organ

8-Carcinoma in situ is NOT characterized by:

- a- Diffuse cellular atypia
- b- Invade basement membrane
- c- May be difficult to detect grossly
- d- Involve whole epithelial thickness

9-Bilharziasis of the large intestine cause all of the following EXCEPT:

- a- Haemorrhage
- b- Bilharziasis of liver
- c- Dysentery
- d- Cancer colon

10-Focal embolic glomerulonephritis (flea-bitten kidney) occur in:

- a- Subacute infective endocarditis
- b- Acute infective endocarditis
- c- Immune complex disease
- d- Systemic lupus erythymatosis

11-Laminated esinophilic material in prostatic hyperplasia is called:

- a- Psammoma bodies
- b- Corpora amylacea
- c- Corpora lutea
- d- Corpora albicans

12-Adenomyosis is defined as presence of endometrial foci in:

- a- Myometrium
- b- Ovary
- c- Peritoneum
- d- Fallopian tube

13-Fat necrosis of the breast is due to:

- a- Ischaemia
- b- Trauma
- c- Autoimmune
- d- Metabolic disorder

14-Inflammation in lobar pneumonia is:

- a- Pseudomembranous
- b-Suppurative
- c- Catarrhal
- d- Fibrinous

15-The following is NOT true about osteosarcoma:

- a-Starts in the diaphysis
- b- Common around knee joint
- c- Sun ray appearance in X ray
- d- In children& young adults

16-The following pathological type of thyroid carcinoma has best prognosis:

- a- Medullary
- b-Follicular
- c- Papillary
- d-Anaplastic

17-Primary biliary cirrhosis is caused by:

- a- Viral
- b-Extrahepatic bile duct obstruction
- c- Metabolic disease
- d- Autoimmune

18- The following are true about hypersplenism EXCEPT:

- a- Decreased destructive activity
- b-Pancytopenia
- c- Splenic enlargement
- d-May be primary or secondary

19-The following are true about nephroblastoma EXCEPT :

- a- Embryonal tumor
- b-In infancy& childhood
- c- Triphasic tumor
- d-Yellowish mass in a kidney pole

20-The following are true about dry gangrene EXCEPT :

- a- Due to arterial occlusion
- b-Occur in internal organ
- c- Prominent line of demarcation
- d-Slow putrefaction

Final Exam Pathology

Paper (1)

All questions are to be answered

Question (1) Give an account on

- A) Fate & complications of recent myocardial infarction.
- B) Etiology & pathogenesis of bronchiectasis.
- C) The pathogenesis of post streptococcal glomerulonephritis. Describe the changes in the glomeruli, including EM & immunofluorescence.
- D) Simple goiter (definition, etiology, pathogenesis of its subtypes).

5 marks each

Question (2) Discuss

- A) Causes of acute intestinal obstruction.
- B) Microscopic features of chronic viral hepatitis.
- C) Complications of meningococcal meningitis.
- D) Pathological features of acute osteomyelitis.
- E) The general microscopic features of a lymph node with Hodgkin disease.
(classification of different types is **NOT** required)

5 Marks each

Question (3)

1. Describe the gross picture of

- A) Carcinoma of the stomach.
- B) Serous cystadenoma of the ovary.
- C) Acute pyelonephritis.

5 Marks each

2. Enumerate

- A) Types of urinary calculi.
- B) Microscopic types of bronchogenic carcinoma.
- C) Effects and manifestations of hepatocellular failure.

5 Marks each

Paper (2)

All questions are to be answered

Question (1)

A) A 58 year old female comes to the outpatient clinic with a hard and fixed breast lump 5 cm in diameter. She says the mass was first noticed since 9 months but increased rapidly in size during the last 3 months. On examination, the axillary lymph nodes on the same side were enlarged. Mammography showed microcalcifications.

- 1) What is your provisional diagnosis? 2 Marks
- 2) Discuss the classification and pathological features of the different histological types of this disease? 8 Marks

B) Define

- 1) Seminoma.
- 2) Leukemia.
- 3) Ewing's sarcoma.
- 4) Pheochromocytoma.
- 5) Hydrocele. 2 Marks each

Question (2)

1. Give an account on

- A) Smoking and disease (enumeration only).
- B) Diabetic gangrene (pathogenesis and pathology).
- C) Gross and microscopic staining of amyloid. 5 Marks each

2. Complete:

- a) Pannus in rheumatoid arthritis represents.....and leads to.....
- b) Gleason score is used for grading.....
- c) Common malignant neoplasms in AIDS are.....and.....

1 Mark each

Question (3)

1. Discuss

- A) The lymphatic and blood spread of malignant tumors. 8 Marks
- B) Pott's disease of the spine (etiology and pathological features). 8 Marks

2. Define

- A) Carbuncle.
- B) Pyemia. 2 Marks each

Question (4) MCQ

1 Mark each

1. Frozen section preparation of tissues is used for

- A) Rapid screening for cancer breast
- B) Rapid intra-operative diagnosis of breast masses
- C) Immunohistochemistry as this type of stain cannot be applied to paraffin sections
- D) Preparation of specimens for electron microscopy
- E) Preparation of hard specimens such as bone

2. A common Etiology of cerebral aneurysm is

- A) Bilharzial
- B) Syphilitic
- C) Congenital
- D) Dissecting
- E) Traumatic

3. Serum tumor markers that can be used in diagnosis of neoplasia include all of the following except

- A) PSA
- B) Alpha fetoprotein
- C) Carcinoembryonic antigen
- D) P53
- E) CA125

4. Vascular changes seen in benign essential hypertension include

- A) Fibrinoid necrosis
- B) Hyalinosis
- C) Hyperplasia of smooth muscle cells
- D) Thrombosis
- E) Elastic fragmentation

5. Which is true about apoptosis

- A) It is reversible cell injury.
- B) It leads to inflammation
- C) It occurs in pathological condition only.
- D) It is a programmed cell death.
- E) It is accompanied by increase size of the cell.

6. Medullary carcinoma of thyroid is

- A) Tumor of parafollicular cells (C cells)
- B) Tumor of follicular cells
- C) Tumor of stromal cells
- D) Tumor of parathyroid
- E) Malignant change in thyroid adenoma

7. Common cause of thyrotoxicosis

- A) Multinodular goiter
- B) Pituitary adenoma
- C) Grave's disease
- D) Well differentiated thyroid carcinoma
- E) Follicular adenoma

8. Amyloid is observed in the pancreas in:

- A) Acute pancreatitis
- B) Chronic pancreatitis
- C) Cancer pancreas
- D) Type I diabetes mellitus
- E) Type II diabetes mellitus

9. Osler's nodules are pathognomonic of

- A) Subacute infective endocarditis
- B) Rheumatoid arthritis
- C) Rheumatic fever
- D) Thrombocytopenia
- E) Cyanotic heart disease

10. Mac Callum patch is a feature of

- A) Acute rheumatic fever
- B) Chronic rheumatic heart disease
- C) Healed Infective endocarditis
- D) Chronic ischemic heart disease
- E) Hypertension

11. Cytology is useful in screening for

- A) Cancer breast
- B) Cancer cervix
- C) Lymphoma
- D) Cancer thyroid
- E) AIDS¹²

12. Primary intestinal tuberculosis presents mainly by

- A) Flask shaped ulcers
- B) Transverse ulcers with undermined edge
- C) Tuberculous peritonitis
- D) Tabes mesenterica
- E) Intestinal perforation and septic peritonitis

13. Which of the following is true about hepatic bilharziasis

- A) The portal tracts show dilated vascular channels
- B) The Kupfer cells contain excess bile pigments
- C) The liver is markedly enlarged at a late stage
- D) Piece meal necrosis of hepatocytes is a prominent feature
- E) The hepatic framework is markedly disturbed

14. All of the following lead to edema except:

- A) Increased capillary hydrostatic pressure
- B) Decreased capillary permeability
- C) Decreased plasma osmotic pressure
- D) Lymphatic obstruction
- E) Salt & water retention

15. Actinomycosis

- A) Is a fungal infection
- B) Characterized by the presence epithelioid granuloma
- C) Shows multiple sinus formation
- D) An acute disease
- E) Commonly spread by lymphatics

Pharmacology Exam (Paper 1)

Short questions (80 marks)

Answer ALL of the following questions :

(8 questions, 19 marks each, 5 marks for each items a, b)

1. Explain :

- a. Factors, related to the patient, affecting oral absorption of drugs.
- b. The mechanism of action of angiotensin converting enzyme inhibitors and calcium channel blockers as anti-hypertensive drugs.

2. Classify with examples :

- a. B-blockers according to generation. Mention the action of B-blockers on cardiovascular system.
- b. The positive inotropic drugs. Explain the mechanism of the positive inotropic action of digitalis.

3. Enumerate :

- a. 5 (five) uses and 5 (five) side-effects of loop diuretics.
- b. 5 (five) therapeutic uses of prostanoids.

4. Describe :

- a. Treatment of dry-non productive cough (anti-tussives).
- b. Manifestations and treatment of atropine toxicity.

5. Mention the different mechanisms of action, with examples, of the following groups of drugs :

- a. Anti-emetics.
- b. Anti-platelet drugs.

6. Describes :

- a. Mechanism of action of salicylates as anti-rheumatic and analgesic.
- b. Therapeutic uses, adverse effects and advantages of fluoxetine (selective serotonin reuptake inhibitor).

7. Enumerate:

- a. 5 (five) preparations with examples and 5 (five) adverse effects of penicillins.
- b. Ten adverse effects of glucocorticoids.

8. Compare and contrast the following pairs of drugs regarding mechanism of action, adverse effects and mention one example for each group:

- a. Sulphonylurea and biguanide anti-diabetic drugs.
- b. Quinolones and aminoglycosides anti-microbial drugs.

MEDICAL PHARMACOLOGY PAPER 1

- > the exam is composed of one paper= 2pages and contains 8 essay questions.
- > Each question= 10 Marks. Total marks = 80 Marks.
- > Allocated time= 2 Hours.
- > Answer ALL questions.
- > Start each question on q new page.

Question 1:

a- Enumerate the factors affecting action and dosage of drugs (3 marks).

describe in particular, why special care is needed while giving drugs to a female patient? (2 marks)

b- Enumerate factors affecting oral absorption of drugs (3 marks) Describe in particular the effect of presence of food and other drugs (2 marks)

Question 2: what is/ are the possible mechanism/s of action of:

a- Angiotensin converting enzyme inhibitors (ACE.I) as antihypertensive agents. (5 marks)

b- Metformin as an euglycemic agent. (5 marks)

Question 3: Describe the pharmacological actions of:

a- Theophylline on cardio - vascular system (C.V.S.). (5 marks)

b- Morphine on central nervous system (C.N.S) (5 marks)

Question 4: what are the contraindications to the use of:

a- Non - selective B- adrenergic receptor blockers. (5 marks)

b- Combination oral contraceptive pills. (5 marks)

Question 5: what are the possible drug interactions of:

a- Oral anticoagulants. (5 marks)

b- Phenytoin. (marks)

Question 6: what are the adverse toxic effects of:

a- penicillins. (5 marks)

b- Long use of a large dose of glucocorticoids. (5 marks)

Question 7: Compare the following:

a- Nitrates and Propranolol in treatment of angina pectoris, regarding:

- Mechanism of action as an antianginal. (2 marks)
- Use in acute and chronic angina. (1 mark)- Use in different types of angina. (1 mark)
- Concurrent use of verapamil. (1 mark)

b- Metoclopramide and Hyoscine in treatment of vomiting, regarding:

- Mechanism of action as an anti - emetic. (2 marks)
- Use in different types of vomiting including motion sickness. (1 mark)
- Effect on gastro - intestinal motility. (1 mark)
- Safety in patients with coexisting glaucoma and parkinson's disease. (1 mark)

Question8: comment on the following statements as "True" or "False"

Explain your answer. (2 marks each)

- a- Aspirin is the antipyretic analgesic of choice in patients with bronchial asthma.
- b- Glipizide, a sulphonylurea, is useful in treatment of type - I diabetes mellitus.
- c- prescribing erythromycin necessitates the readjustment of the dose of theophylline.
- d- The anti - secretory effect of omeprazole outlasts its plasma half life ($t_{1/2}$).
- e- Frusemide is better than spironolactone, as a diuretic, in treatment of severe edema in patients with renal insufficiency.

MEDICAL PHARMACOLOGY

PAPER 1

- * The exam is composed of One paper = 2 Pages and contains 8 Essay questions.
- * Each question = 10 Marks. Total marks = 80 Marks.
- * Allocated time = 2 Hours.
- * Answer ALL questions.
- * Start each question on a new page.

Question 1:

- a- What are the definition (1 Mark), calculation (1 Marks) and the clinical significance (3 Marks) of apparent volume of distribution of drugs.
- b- Explain, how do the psychological (2 Marks) and pathological (3 Marks) conditions of the patient affect the dose and response to drugs'?

Question 2: What is/are the possible mechanisms of action of:

- a- Cortisol as an anti-inflammatory anti-rheumatic agent. (5 Marks)
- b- Hydrochlorothiazide as an anti-hypertensive agent. (5 Marks)

Question 3: Describe the pharmacological actions of:

- a- Verapamil on the cardio-vascular system (C.V.S.). (5 Marks)
- b- Benzodiazepine group of drugs. Examples are not needed. (5 Marks)

Question 4: What are the contraindications to the use of:

- a- Systemic salicylates such as aspirin. (5 Marks)
- b- Sulfonylurea oral hypoglycemic drugs. (5 Marks)

Question 5: What are the possible drug interactions of:

- a- Theophylline. (5 Marks)
- b- Furosemide. (5 Marks)

Question 6: What are the adverse toxic effects of:

- a- Aminoglycosides group of antimicrobial agents. (5 Marks)
- b- Organophosphorus compounds: Mechanism and clinical manifestations. (5 Marks)

Question 7: Compare the following:

- a- Phenytoin and Sodium valproate in the treatment of epilepsy, regarding:

- Possible mechanism/s of action as an antiépileptic. (2 Marks)
 - Use in epilepsy. (2 Marks)
 - Effect on the hepatic microsomal enzymes. (1 Mark)
- b- Methimazole and Lugol's iodine in the treatment of hyperthyroidism, regarding:
- Possible mechanism/s of action as an anti-thyroid. (2 Marks)
 - Onset of the anti-thyroid effect. (1 Mark)
 - Effect on the size and vascularity of the thyroid gland. (1 Mark)
 - Continued use for more than a month. (1 Mark)

Question 8: Explain the pharmacological basis of the following statements

(2 Marks each)

- a- Propranolol treats angina of effort, but worsens variant angina.
- b- Montelukast is effective in treatment of aspirin induced bronchial asthma.
- c- In the treatment of haemophilus influenza infection, we use a combination of amoxicillin and clavulanic acid.
- d- Low molecular weight heparins (LMWH) such as enoxaparin have replaced unfractionated heparin (UFI-I) for most of the clinical indications.
- e-Dlphenhydramine is better than metoclopramide in treatment of vomiting in patients with Parkinson's disease.

MEDICAL PHARMACOLOGY

PAPER II

- The exam is composed of Q pages containing 100 questions.
- For each question select only ONE answer.
- Read carefully The instructions present on The answer sheet.
- MCQs (1-75) are To be answered in The "Section A" of The answer sheet.
- Matching Qs (1-25) are To be answered in The "Section B" of The answer sheet.
- Allocated Time: TWO hours.
- Total Marks = L/_Q marks. .

* Section A:

- M.C.Qs are To be answered in "Section A" of The answer sheet
- For each of The following M.C.Qs choose only ONE answer

1- The following statement is CORRECT:

- a- The higher the therapeutic index, the more potent is the drug.
- b- Ionized drugs of low lipid solubility pass easily the blood brain barriers.
- c- Sublingual administration exposes drugs to gut and hepatic first pass metabolism.
- d- Plasma half life ($t_{1/2}$) is the time it takes to decrease the biological effect of a drug by 50%.
- e- Oral administration of drugs has the most variable bioavailability.

2- The following interaction is INCORRECT:

- a- Drinking milk interferes with oral absorption of tetracyclines.
- b- Probenecid decreases the renal excretion of penicillin.
- c- Phenytoin accelerates hepatic metabolism of warfarin.
- d- Liquid paraffin increases the oral absorption of fat soluble vitamins.
- e- Sodium bicarbonate increases renal excretion of aspirin.

3- The following statement is INCORRECT:

- a- Drugs with first order kinetics have a linear disappearance curve.
- b- Drug metabolism can be affected by genetic variations.
- c- Weak acid drugs are trapped in acidic media.
- d- Drugs with first order kinetics reach their steady state concentration after regular administration for 4-5 half lives.
- e- Partial agonists produce an effect in the absence of the agonist.

All the following drug combinations produce the paired drug interaction EXCEPT :

- a- Physostigmine and acetylcholine at muscarinic receptors :Potentiation
- b- Trimethoprim and sulfamethoxazole as an antibacterial :Synergism
- c- Heparin and protamine sulfate as an anticoagulant :Neutralization
- d- Atropine and acetylcholine large dose on blood pressure :Reversal
- e- Morphine and naloxone on opiate receptors : Chelation.

5- Drug "A" itself has no effect, but it causes nonparallel shift to the right and decreases the Em., of the dose/response curve of the agonist. Drug "A" is:

- a- a pure agonist.
- b- a competitive reversible antagonist.
- c- a partial agonist.
- d- a non-competitive antagonist.
- e- a reverse agonist.

6- The physician considers prescribing propranolol for a patient. Which of the following . preexisting conditions would contraindicate the safe use of this drug'?

- a- Chronic stable angina of effort.
- b- Heart block.
- c- Moderate hypertension.
- d- 1-lyperthyroidism.
- e- Open angle glaucoma.

7- A 38-year-old farmer is brought to the emergency room by his wife with symptoms of poisoning with an insecticide within 20 minutes. The patient is emergently intubated. The following drugs are used in such an emergency EXCEPT;

- a- Pralidoxime.
- b- Physostigmine.
- c- Atropine.
- d- Diazepam.
- e- Activated charcoal.

8- Subcutaneous administration of adrenaline to a patient resulted in a severe hyperkalemia and hypertension without tachycardia. Which of the following drugs might the patient have previously taken?

- a- Atropine.
- b- Propranolol.
- c- Prazosin.
- d- Tamsulosin.
- e- Phenoxybenzamine.

9- The physician prescribed prazosin for a 69year-old male suffering from hypertension with coexisting benign prostatic hyperplasia. What a significant side effect should the physician warn the patient about?

- a- Bronchospasm.
- b- Postural hypotension.
- c- Colored vision.
- d- Cold extremities.
- e- Bradycardia. .

10- The following statement is INCORRECT:

- a- Methyldopa stimulates directly the central α -2 receptors.

- b- Sudden stop of clonidine therapy results in rebound hypertensive crisis.
- c- Moxonidine stimulates the central imidazoline (I-1) receptors.
- d- Labetalol blocks both α and β adrenergic receptors.
- e- Phenoxybenzamine produces non-competitive irreversible α -blocking effect.

11- A school bus driver is complaining of allergic rhinitis with frequent sneezing, the following anti-histaminic is the most appropriate for this patient:

- a- Diphenhydramine.
- b- Dimenhydrinate.
- c- Fexofenadine.
- d- Chlorpheniramine.
- e- Promethazine.

12- Regarding cough therapy, the following statement is WRONG:

- a- Tincture ipecacuanha is used as a nauseant expectorant .
- b- Potassium iodide indicated to treat cough due pulmonary T.B.
- c- Acetylcysteine is useful as a mucolytic agent as well as in treatment of acute paracetamol poisoning.
- d- Benzonatate produces anti-tussive effect by both central and peripheral actions.
- e- Dextromethorphan is used in treatment of chronic non-productive cough.

13- Each of the following diuretics is paired with a probable adverse effect EXCEPT:

- a- Hydrochlorothiazide : Hyperuricemia
- b- Spironolactone : Antagonizes the action of carbenoxolone
- c- Furosemide : Ototoxicity.
- d- Mannitol : Transient expansion of the extracellular fluid.
- e- Amiloride : Hypokalemia.

14- The following diuretic is considered to be the specific treatment of edema and hypertension due to hyperaldosteronism secondary to Conn's syndrome:

- a- Hydrochlorothiazide.
- b- Furosemide.
- c- Triamterene.
- d- Spironolactone.
- e- Mannitol.

15- A diabetic hypertensive patient came to you complaining of irritant dry cough that started with the intake of an anti-hypertensive drug. This drug is most likely:

- a- Lisinopril.
- b- Diltiazem.
- c- Bisoprolol.
- d- Minoxidil.
- e- Valsartan.

16- Each of the following drugs is matched with a possible mechanism of action EXCEPT:

- a- Atorvastatin : Inhibition of HMG CoA reductase enzyme.
- b- Losartan : Inhibition of angiotensin converting enzyme.
- c- Digoxin : Inhibition of Na⁺/K⁺ ATPase enzyme.
- d- Nitroglycerine : Release of nitric oxide.
- e- Verapamil : Block of L-type voltage-dependent calcium channels

23- A 65-year-old man with history of cerebral thrombosis. To prevent recurrence of this disease, the patient is most likely to be treated indefinitely with following antiplatelet drug:

- a- Aminocaproic acid.
- b- Aspirin.
- c- Paracetamol.
- d- Lepirudin.
- e- Warfarin.

24- Erythropoietin is used in treatment:

- a- Anemia due to chronic renal failure.
- b- Deep venous thrombosis.
- c- Familial hypercholesterolemia.
- d- Pernicious anemia developed after total gastrectomy.
- e- Hypoprophthrombinemia due to liver cell failure.

25- The following are favorable anti-hyperlipidemic combinations EXCEPT:

- a- Cholestyramine and niacin in combined hyperlipidemia.
- b- Cholestyramine and lovastatin in severe hypercholesterolemia.
- c- Simvastatin and ezetimibe in severe hypercholesterolemia.
- d- Niacin and atorvastatin in severe LDL elevation.
- e- Full doses of statins and fibrates in combined hyperlipidemia

26- Regarding buspirone, the following statement is WRONG:

- a- Partial agonist on presynaptic 5-1-IT1A-receptors.
- b- Anxiolytic with minimal sedation.
- c- No hypnotic or muscle relaxant effects.
- d- No cross tolerance or dependence with benzodiazepines or barbiturates.
- e- Its anxiolytic effect appears in the same day of initiation of treatment.

27- Morphine has the following pharmacokinetic characteristics EXCEPT:

- a- High oral bioavailability more than 75%.
- b- Passes blood brain and placental barriers.
- c- Conjugated in the liver into active morphine66-glucuronide.
- d- Excreted in stomach and bile.
- e- its plasma t_{1/2} is about 2-3 hours.

28- Morphine is used in treatment of:

- a- bronchial asthma
- b- neurogenic shock
- c- itching
- d- constipation
- e- epilepsy

29- A patient who received a large dose of one of the non-steroidal anti-inflammatory drugs for a long period, developed tinnitus, blurring of vision, GIT upset, irritability and hyperventilation. Fortunately, these symptoms and signs were reversible after stopping the drug. Which of the following drugs was the most likely cause of these adverse effects?

- a- Ketoprofen b- Naproxen . c- Acetylsalicylic acid
d- Piroxicam e- Indomethacin

30- All of the following are involved in the anti-inflammatory effect of aspirin EXCEPT:

- a- inhibition of prostaglandin synthesis
b- inhibition of leukotriene synthesis
c- Inhibition of kinin synthesis d- inhibition of migration of polymorphs
e- Stabilization of lysosomes.

31- Aspirin is useful in treatment of:

- a- Bronchial asthma. b- Bleeding tendency. c- Peptic ulcer.
c- Rheumatic arthritis. e- Viral infection in children.

32- The following statement is WRONG:

- a- Meperidine has both morphine-like and atropine like actions.
b- Tramadol stimulates opiate receptors and inhibits uptake of noradrenaline and 5-HT.
c- Large dose of salicylates follow zero order kinetics.
d- Diclofenac potassium is concentrated in synovial fluid 4 times more than the plasma.
e- Celecoxib is a selective COX₁ inhibitor.

33- A patient suffering from hyperuricemia with frequent formation of uric acid renal stones. The following drug can decrease uric acid level in both serum and urine.

- a- Allopurinol. b- Probenecid. c- Colchicine.
d- Hydrochlorothiazide. e- Aspirin small dose (1-2 g).

34- A young boy who has been treated for epilepsy for a year is referred to a dentist for evaluation of massive overgrowth of his gingival tissue. Which of the following drugs was the most likely cause of the oral pathology?

- a- Lamotrigine b- Lorazepam c- Phenobarbital
d- Phenytoin e- Valproic acid

35- Which of the following antiépileptics is contraindicated in patients with history of hypersensitivity to tricyclic anti-depressants:

- a- Phenytoin. b- Carbamazepine. c- Ethosuximide.
d- Phenobarbital. e- Sodium valproate.

36- Chlorpromazine, an anti-psychotic, produces the following adverse effects EXCEPT:

- a- Parkinsonism. b- Tardive dyskinesia. c- Galactorrhea.
d- Hypertension. e- Neurolept malignant syndrome.

37- The following drug-interaction with levodopa (I-DOPA), in the treatment of Parkinson's disease, is INCORRECT:

- a- Carbidopa increases oral bioavailability of l-DOPA.
- b- Pyridoxine (Vitamin B-6) decreases peripheral decarboxylation of l-DOPA.
- c- Selegiline decreases central metabolism of dopamine by MAO-B enzyme .
- d- Entacapone decreases peripheral metabolism of l-DOPA by COMT enzyme.
- e- Bzotropine enhances the anti-Parkinson effect of I-DOPA by improving the dopamine/Ach balance in the basal ganglia.

38- Regarding imipramine, a tricyclic anti-depressant, the following statement is WRONG:

- a- inhibits neuronal uptake-1 of both noradrenaline and serotonin.
- b- its anti-depressant effect appears after 2-3 weeks of continued use.
- c- Produces sedation specially at beginning of treatment.
- d- Has an anti-epileptic effect by elevating the seizure threshold.
- e- has anti-muscarinic effect.

39- Cheese reaction with drinks and food containing tyramine occurs with:

- a- The anti-anxiety benzodiazepines.
- b- The anti-psychotic phenothiazines.
- c- The anti-depressant MAO-inhibitors.
- d- The anti-Parkinson COMT-inhibitor.
- e- The anti-hypertensive ACE-inhibitors.

40- Regarding methyl-xanthines, the following statement is INCORRECT:

- a- Slow I.V. injection of aminophylline produces minimal change in heart rate and blood pressure.
- b- Theophylline produces bronchodilatation.
- c- Theophylline has a wide safety margin.
- d- Caffeine has a potent C.N.S. and skeletal muscle stimulant effects.
- e- Pentoxifylline improves RBCs flexibility.

41- Each of the following drugs is paired with a probable adverse effect EXCEPT:

- a- Sodium bicarbonate : Systemic alkalosis.
- b- Calcium carbonate : Milk alkali syndrome.
- c- Magnesium hydroxide : Constipation.
- d- Aluminum hydroxide : Hypophosphatemia.
- e- Cimetidine : Hepatic microsomal enzyme inhibition.

42- The following statement is WRONG?

- a- Misoprostol is effective in treatment of NSAID-induced peptic ulcer.
- b- Biological half life of omeprazole outlasts its plasma half life.

- c- Carbenoxolone sodium is a suitable anti-ulcer in patient with coexisting hypertension
- d- The mucosal protective effect of sucralfate is antagonized by the anti-secretory drugs.
- e- Colloidal bismuth is a mucosal protective and helps in eradication of H. pylori.

43- Each of the following drugs is paired with a relevant action EXCEPT:

- a- Magnesium trisilicate : Chemical and physical antacid.
- b- Ranitidine : Histamine H-2 receptor blocker.
- c- Pantoprazole : irreversible inhibition of parietal H⁺/K⁺ ATPase.
- d- Tincture Ipecacuanha : Central anti-emetic.
- e- Ondansetron : Blocks 5-HT₃ receptors in CTZ.

44- The following is a lubricant purgative suitable for chronic constipation:

- a- Liquid paraffin. b- Phenolphthalein.
- c- Magnesium sulfate.
- d- Bisacodyl. e- Castor oil.

45- The following purgative is used with neomycin in treatment of hepatic encephalopathy:

- a- Methyl-cellulose. b- Bisacodyl. c- Senna.
- d- Lactulose. e- Croton oil.

45- Regarding the drug interactions of the oral antidiabetic sulphonylureas, all of the following are correct EXCEPT:

- a- They are displaced from plasma proteins by salicylates.
- b- Phenytoin inhibits their metabolism.
- c- Propranolol mask the hypoglycemic manifestations except sweating.
- d- Hydrochlorothiazide decrease their hypoglycemic effect. ✓
- e- Sulphonylureas displace oral anticoagulants.

47- Insulin is contraindicated in:

- a- All cases of type 1 diabetes mellitus. ✗
- b- Hyperkalemia due to renal failure. ✓
- c- Emergency treatment of hypoglycemic coma.
- d- Emergency treatment of diabetic ketoacidosis.
- e- Emergency treatment of non-ketotic hyperosmolar diabetic coma.

48- Each of the following anti-diabetic drugs is matched with a possible mechanism of action EXCEPT:

- a- Glibenclamide : Block of ATP-sensitive K⁺-channel of β-cells of pancreas.
- b- Metformin : Increases sensitivity of tissues to insulin.
- c- Rosiglitazone : Bind to specific PPAR-γ nuclear receptors.
- d- Acarbose : Stimulation of intestinal α-glucosidase enzyme.
- e- Sitagliptin : inhibition of di-peptidyle peptidase IV enzyme.

49- Regarding the thyroid hormones T-3 and T-4, the following statement is WROIQ:

- a- They stimulate specific nuclear receptors.
- b- They slow down metabolism and decrease BMR.
- c- Oral absorption of T-4 is affected by food. -
- d- More than 99% are bound to plasma proteins.
- e- T-3 is more active 4 times than T-4.

50- Concerning treatment of hypothyroidism, the following statement is INCORRECT:

- a- Replacement therapy of cretinism should be initiated as early as possible.
- b- Levothyroxine alone is suitable replacement therapy in cases of panhypopituitarism.
- c- Levothyroxine is better than liothyronine for routine treatment of hypothyroidism.
- d- Higher dose of L-T4 often is required in hypothyroid patients who become pregnant.
- e- Myxoedema coma is treated by I.V. liothyronine.

51- The following is suitable to treat hyperthyroidism during pregnancy:

- a- Propylthiouracil
- b- Carbimazole
- c- Lugol's iodine
- d- Radioactive iodine Im
- e- Liotrix

52- Regarding regulation of calcium homeostasis, the following statement is wrong:

- a- Parathyroid hormone increases resorption of Ca^{+2} from bone to blood.
- b- Active Vitamin D (calcitriol) increases intestinal absorption of Ca^{+2} and phosphate.
- c- Calcitonin is a hypercalcemic hormone by increasing bone resorption.
- d- Thiazide diuretics decrease renal Ca^{+2} excretion.
- e- Cortisol increases osteoclast and decreases osteoblast activities.

53- The following is not useful in patients with osteoporosis:

- a- Estrogen replacement therapy in menopausal females.
- b- Selective estrogen receptor modulator such as raloxifene.
- c- Loop diuretics such as furosemide.
- d- Vitamin D such as cholecalciferol.
- e- Bisphosphonates such as alendronate.

54- Regarding the mechanism of action of cortisol, the following statement is WRONG:

- a- At first inactive cortisol should be converted into active cortisone.
- b- Binds to cytoplasmic glucocorticoids receptors then to nuclear receptors.
- c- May cause gene expression and synthesis of proteins such as lipocortin-1.
- d- May cause gene repression and inhibit synthesis of proteins such as COX-2.
- e- Non-genomic by binding to membrane receptors e.g. in Hippocampus.

55- Glucocorticoids, such as prednisolone, produce all of the following actions QEEI:

- a- Negative feedback effect on pituitary ACTH.
- b- insulin like effect and hypoglycemia.
- c- Catabolic effect on lymphatic tissue.
- d- Free water clearance.
- e- Stimulation of erythropoiesis and increases release of RBCs from bone marrow.

55- Estrogen may produce all of the following actions EXCEPT:

- a- increases renal excretion of salt and water.
- b- Increase HDL and decreases LDL.
- c- Enhances the coagulability of blood
- d- Mild anabolic action.
- e- inhibits FSH during the early part of the follicular phase.

57- Regarding the estrogen receptors modulators (SERMS), the following statement is WRONG:

- a- They display an agonist effect on estrogen receptor α (ER α) on bone and lipid.
- b- They display an antagonist effect on estrogen receptors β (ER β) on pituitary.
- c- They antagonize the action of estrogen on endometrium and blood coagulation.
- d- Tamoxifen is used in treatment of cancer breast.
- e- Clomiphene is used in induction of ovulation.

58- Estrogen is indicated in treatment of:

- a- Induction of ovulation
- b- Endometrial carcinoma
- c- Migraine headache.
- d- Impotence in males
- e- Replacement therapy in primary hypogonadism.

59- The mechanism of action of combination oral contraceptives includes all of the following EXCEPT:

- a- Estrogen inhibits the release of FSH.
- b- The progestogen inhibits the release of LH.
- c- Alter the endometrium in such a way as to discourage implantation.
- d- improve the coordinated contractions of cervix, uterus and fallopian tubes.
- e- Bleeding that occurs after withdrawal of the progestogen.

60- The following is a possible drug interaction with oral contraceptives EXCEPT:

- a- They antagonize the effect of oral anticoagulants.
- b- They augment the hypoglycemic effect of the anti-diabetic drugs.
- c- Phenytoin increases the hepatic metabolism of oral contraceptives.
- d- Liquid paraffin decreases intestinal absorption of oral contraceptives.
- e- Tobacco smoking increases the incidence of thrombo-embolism.

61- Regarding rifampicin, the following statement is WRONG:

- a- It inhibits DNA-dependent RNA polymerase enzyme.
- b- Used, with isoniazide, as first line treatment of T.B.
- c- Drug of choice in prophylaxis of meningococcal meningitis.
- d- Produces hepatic microsomal enzyme inhibition.
- e- Produces orange-red discoloration of secretions such as sweat.

62- Blood and sputum cultures taken in critically ill 26-year-old woman indicate the presence of methicillin-resistant staph aureus (MRSA). Which of the following drugs is most likely to be effective in this condition'?

- a- Vancomycin.
- b- Carbenicillin.
- c- Aztreonam.
- d- Cephalexin.
- e- Ampicillin plus sulbactam.

63- Clavulanic acid is added to amoxicillin, because clavulanic acid:

- a- increases oral bioavailability of amoxicillin.
- b- decreases renal excretion of amoxicillin.
- c- protects amoxicillin from inactivation by the hepatic microsomal enzymes.
- d- protects amoxicillin from inactivation of by the B-lactamase enzymes.
- e- has a direct bactericidal effect by a mechanism different from that of amoxicillin.

64- The following precautions about the use of tetracycline are true EXCEPT:

- a- The presence of food in the stomach impairs its absorption.
- b- Milk and other dairy food chelate it.
- c- Contraindicated during pregnancy and in young children.
- d- Can be used safely after its expiry date.
- e- Prolonged oral use may cause super-infection and vitamins K and B deficiency.

65- Each of the following antibacterial agents is paired with an appropriate mechanism of action EXCEPT;

- a- Penicillins - inhibit a late step in cell wall synthesis.
- b- Vancomycin - inhibits an early step in cell wall synthesis.
- c- Erythromycin - inhibit cell membrane synthesis. "
- d- Co-trimoxazole - inhibits folic acid synthesis. y
- e- Ciprofloxacin - inhibits DNA-gyrase enzyme.

66- Each of the following antimicrobial agents is paired with a relevant adverse effect EXCEPT:

- a- Vancomycin - red man syndrome.
- b- Benzyl penicillin G - grey baby syndrome in premature neonates.
- c- Chloramphenicol - aplastic anemia.
- d- Tetracycline - affect growing teeth and bone.
- e- Gentamicin - ototoxicity.

67- Metronidazole is gg; used in the treatment of:

- a- Eradication of H. pylori infection in patients with peptic ulcer.
- b- Antibiotic associated pseudo-membranous colitis.
- c- Pulmonary tuberculosis.
- d- Anaerobic bacterial infections.
- e- intestinal and hepatic amebiasis.

68- Penicillins may produce the following adverse effects EXCEPT:

- a- Allergic reactions up to anaphylactic shock
- b- Jarisch-herxheimer reaction is syphilitic patients
- c- Skeletal muscle relaxant effect
- d- Oral ampicillin may cause diarrhea due to superinfection
- e- intramuscular injection of benzathine penicillin produces pain and indurations

69- The following antibiotic does not need dose readjustment in renal patients:

- a- Doxycycline. b- Gentamicin. c- Vancomycin.
- d- Ciprofloxacin. e- Chlortetracycline.

70- The following antibiotic passes easily normal blood brain barriers:

- a- Benzyl penicillin b- Cephalexin c- Chloramphenicol
- d- Gentamicin e- Erythromycin .

71- The following penicillin is injected deep intramuscular every 2-4 weeks to prevent recurrent streptococcal infection in prophylaxis of rheumatic fever:

- a- Benzyl penicillin G. b- Phenoxymethyl penicillin V. c- Methicillin.
- d- Oxacillin. e- Benzathine penicillin G.

72- The following antimicrobials are paired with appropriate therapeutic uses EXCEPT:

- a- Cefotaxime - Gram negative meningitis.
- b- Ciprofloxacin - Syphilis.
- c- Clindamycin - Dental abscess.
- d- Vancomycin - Enterococcal endocarditis.
- e- Nlinocycline - Eradication of meningococcal carrier

73- The following antibiotic has an anti-ADH action, useful in treatment of syndrome of inappropriate ADH secretion (SIADH), and can cause diabetes insipidus-like adverse effect;

- a- Demeclocycline. b- Streptogramine. c- Linezolid.
d- Levofloxacin. e- Teicoplanin

74- The following drug interaction with aminoglycoside antibiotics is INCORRECT:

- a- Synergistic effect with neuromuscular blockers.
b- Increased ototoxicity if combined with salicylates in large doses.
c- Furosemide prevents the nephrotoxicity of aminoglycosides.
d- Synergistic effect with penicillins, provided they are not mixed in the same container.
e- Chloramphenicol decreases the active uptake of aminoglycosides. by bacteria.

75- Regarding erythromycin, the following statement is INCORRECT:

- a- It inhibits bacterial protein synthesis by an action on the ribosomes.
b- It is the drug of choice in treatment of whooping cough and diphtheria in children.
c- It is used in sexually transmitted diseases in pregnant females.
d- It has a prokinetic effect through stimulation of motilin receptors.
e- It induces CYP 450 enzymes and decreases plasma level of theophylline.

Section {B}

- **Matching questions are to be answered in "Section B" of the answer sheet**
- **For the following matching questions, choose the most appropriate ONE drug for each statement, each drug may be chosen once or more or not at all.**

- a- Physostigmine b-Dopamine c- Naphazoline
d- Pilocarpine e- Dimenhydrinate f- Cetirizine
g- Mannitol h- Dexamethorphan i- Furosemide

- 1- Direct parasympathomimetic used as eye drops in treatment of glaucoma.
2- Vasopressor sympathomimetic used as nasal decongestant.
3- Sedating anti-histamine effective in prophylaxis of motion sickness.
4- Non-narcotic central anti-tussive.
5- Used IV. in treatment of acute pulmonary edema.

- | | | |
|-----------------------|--------------------|------------------|
| a- Hydralazine | b- Metoclopramide | c- Aprepitant |
| d- Sodium picosulfate | e- Phytomenadione | f- Dabigatran |
| g- Protamine sulfate | h- Docusate sodium | i- Trimetazidine |
- 6- Anti-ischemic and cytoprotective used orally in treatment of angina of effort.
7- Used to treat bleeding due to overdose of warfarin.
8- Oral direct thrombin inhibitor anticoagulant.
9- Anionic surface active agent used orally as stool softener.
10- An antiemetic, it is a neurokinin receptor blocker.

- | | | |
|----------------|---------------|----------------|
| a- Naloxone | b- Loperamide | c- Risperidone |
| d- Atomoxetine | e- Flumazenil | f- Cholchicine |
| g- Zolpidem | h- Febuxostat | i- Fluoxetine |
- 11- Nonbenzodiazepine B2-receptor agonist.
12- Potent inhibitor of xanthine oxidase enzyme useful in treatment of gout.
13- Atypical antipsychotic that blocks D2, D4 and 5-HT2 receptors.
14- A selective noradrenaline reuptake inhibitor, useful in treatment of attention deficit hyperkinetic disorder (ADHD) in children.
15- Selective opiate p-receptor antagonist.

- | | | |
|--------------------|---------------------|------------------|
| a- Insulin lispro | b- Teriparatide | c- Alendronate |
| d- Fludrocortisone | e- Insulin glargine | f- Mifepristone |
| g- Exemestane | h- Exenatide | i- Dexamethasone |
- 16- Rapid acting insulin analogue
17- Recombinant parathormone, used intermittently in treatment of osteoporosis.
18- Potent pure glucocorticoid with almost no mineralocorticoid activity.
19- Progesterone antagonist, used as postcoital contraceptive.
20- Steroidal aromatase enzyme inhibitor that inhibits the synthesis of estrogen.

- | | | |
|----------------|------------------|-------------------|
| a- Isoniazid | b- Cephadrine | c- Fusidic acid |
| d- Ceftriaxone | e- Carbenicillin | f- Levofloxacin |
| g- Doxycycline | h- Linezolid | i- Co-Trimoxazole |
- 21- Third generation cephalosporin, excreted in bile and precipitate with calcium to form biliary sludge.
22- Anti-TB that may produce peripheral neuritis especially in slow acetylators patients.
23- Produces sequential block of the synthesis of folic acid.
24- A steroid anti-microbial used mainly in treatment of staphylococcal infection.
25- Third generation quinolone, with improved activity against gram positive bacteria.

Medical Pharmacology
Part I

- The exam is composed of 2 pages
- Each question = 10 Marks, Total Marks = 80 Marks
- Allocated time = 2 hours
- Answer all questions
- Start each question in a new page

Question 1: What is/are the possible mechanism/s of action of:

- a) Salicylates as analgesics antipyretics (5 Marks)
- b) Angiotensin converting enzyme inhibitors (ACEI) as antihypertensive agents (5 Marks)

Question 2: What are the adverse effects of:

- a) Quinolone group of antimicrobial agents (5 Marks)
- b) Oral contraceptives (5 Marks)

Question 3:

- a) Enumerate the factors affecting action and dosage of drugs (3 Marks), "Pediatric doses differ from adult doses" Explain (2 Marks)
- b) Enumerate four predictable undesirable adverse effects (2 Marks). Explain with examples. (3 Marks)

Question 4: What are the contra-indication to the use of:

- a) Beta blockers (5 Marks)
- b) Sulfonyl urea oral hypoglycaemic drugs (5 Marks)

Question 5: Compare & contrast:

- a) Frusemide (loop diuretic) and spiro lactone (potassium sparing diuretic)_ regarding their pharmacological actions (3 Marks) therapeutic uses (2 Marks)
- b) Heparin and warfarin regarding their pharmacokinetics (2 Marks), actions (2 Marks) and antidote (1 Mark)

Question 6: Describe

- a) The pharmacological actions of morphine on CNS (5 Marks)
- b) Mechanism of action (2 Marks) and adverse effects (3 marks) of organic nitrates

Question 7: Enumerate:

- a) Two anti-emetic drugs having different mechanism of action. For each explain this mechanism and the specific use in vomiting (4 Marks)
- b) Two anti-epileptic drugs. Discuss mechanism of action and adverse effects of one of them (4 Marks)
- c) Four adverse effects of anti-histaminics (2 Marks)

Question 8: Comment on the following statements as TRUE or FALSE. Explain your answer

(Each 2.5 Marks)

- a) Pralidoxime and atropine are used in treatment of organophosphorus poisoning.
- b) Sulbactam protects ampicillin from inactivation by some bacteria.
- c) Acetylcysteine is used as acetaminophen antidote.
- d) Misoprostol is given safely in treatment of peptic ulcer in pregnant female

**Medical Pharmacology Department
Cairo University
Faculty of Medicine**

**14/6/2014
Third Year**

**Medical Pharmacology
Part I**

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Question 1: What is/are the possible mechanism/s of action of:

- a) Salicylates as analgesics antipyretics (5 Marks)
- b) Cortisol as an anti-inflammatory anti-rheumatic agent (5 Marks)

Question 2: What are the adverse effects of:

- a) Cephalosporins group of antimicrobial agents (5 Marks)
- b) Phenytoin (5 Marks)

Question 3:

- a) Enumerate four predictable undesirable adverse effects (2 Marks)
Explain with examples (3 Marks)
- b) Write on factors related to the patient affecting oral absorption of drugs (5 Marks)

Question 4: What are the contra-indication to the use of:

- a) β blockers (5 Marks)
- b) Thiazide diuretics (5 Marks)

Question 5: Compare & contrast:

- a) Sulphonyl ureas and Biguanides regarding their mechanism of action as anti-diabetic drugs (5 Marks)
- b) β_2 agonists and corticosteroids regarding the possible mechanism/s of action (3 Marks) & side effects in treatment of bronchial asthma (2 Marks)

Question 6: Describe

- a) Actions (2 Marks), uses (1 Mark) & side effects (2 Marks) of heparin
- b) Mechanism of action (2 Marks) and adverse effects (3 marks) of organic nitrates

Question 7: Enumerate:

- a) Two physical purgative drugs having different mechanism of action. Write the disadvantages of one of them (4 Marks)
- b) Two anxiolytic drugs. Write adverse effects and therapeutic uses of one of them (4 Marks)
- c) Four therapeutic uses of prostanoids (2 Marks)

Question 8: Comment on the following statements as TRUE or FALSE. Explain your answer

(Each 2.5 Marks)

- a) Pralidoxime and atropine are used in treatment of organophosphorus poisoning.
- b) Weak acid drugs such as aspirin are easily excreted in alkaline urine.
- c) Ergotamine is used to terminate acute migraine headache in patients with coronary heart disease
- d) The anti-secretory effect of omeprazole outlasts its plasma half life.

Medical Pharmacology

Part I

- The exam is composed of 2 pages
- Each question = 10 Marks, Total Marks = 80 Marks
- Allocated time = 2 hours
- Answer all questions
- Start each question in a new page

Question 1: Write on:

- a) Factors affecting hepatic microsomal enzyme activity (5 Marks)
- b) Acquired tolerance (5 Marks)

Question 2: What is/are the possible mechanism of action of :

- a) Quinolone group of antibiotics (3 Marks)
- b) Salicylates as anti-rheumatic and anti-inflammatory (4 Marks)
- c) Heparin (3 Marks)

Question 3: What are the adverse effects of:

- a) Frusemide (3 Marks)
- b) Metoclopramide (2 Marks)
- c) Nitrates (5 Marks)

Question 4: Describe the pharmacological actions of:

- a) Verapamil on C.V.S. (5 Marks)
- b) β blockers on C.V.S. (5 Marks)

Question 5: Compare:

- a) Thiourea derivatives and iodides regarding their mechanism of action (3 Marks) and adverse effects (2 Marks)
- b) Colchicine and allopurinol regarding their therapeutic uses (2 Marks) and side effects (3 Marks)

Question 6: What are the contra-indications to the use of:

- a) Morphine (5 Marks)
- b) Sulfonyl ureas oral hypoglycaemic drugs (5 Marks)

Question 7: Enumerate:

- a) FOUR adverse effects of anti-histaminics (2 Marks)
- b) THREE mucolytic agents and mention pharmacodynamics of ONE of them (4 Marks)
- c) THREE adverse effects of aminoglycosides antibiotics (3 Marks)

Question 8: Comment on the following statements as TRUE or FALSE. Explain your answer

(Each 2.5 Marks)

- a) Pralidoxime and atropine are used in treatment of organophosphorus poisoning.
- b) Dopamine is given at a high rate of infusion 10-12 $\mu\text{K/g/min}$ to increase renal blood flow.
- c) Baclofen acts as a central spasmolytic by inhibiting glutaminergic transmission in the CNS
- d) Flunarizine is a serotonin agonist used in prophylaxis of migraine headache.

**Medical Pharmacology Department
Cairo University
Faculty of Medicine**

**Medical Pharmacology
Part II**

- The exam is composed of **12** pages containing 100 questions
- For each question select only **ONE** answer
- Read carefully the instructions present on the answer sheet
- **MCOs** (1-75) are to be answered in the **"Section A"** of the answer sheet
- **Matching Qs** (1-25) are to be answered in the **"Section B"** of the answer sheet.
- Allocated time: **TWO** hours
- Total Marks = 70 marks

Section A

- **M.C.Qs are to be answered in "Section A" of the answer sheet**
 - **For each of the following M.C.Qs choose only ONE answer**
1. **Regarding absorption of drugs, the following statement is WRONG:**
 - a. Slow systemic circulation as in cases of shock slows the absorption of drugs especially after IM and SC injection.
 - b. Addition of adrenaline increases the rate of absorption of local anesthetics after their SC injection.
 - c. Grapefruit juice inhibits P. glycoprotein responsible for the reversed transport of drug.
 - d. Drinking milk interferes with oral absorption of tetracyclines
 - e. Drinking tea interferes with oral absorption of iron.

 2. **Regarding distribution of drugs, the following statement is INCORRECT:**
 - a. The bound fraction of a drug to plasma albumin is inactive and is considered as a depot form.
 - b. Quaternary ammonium compounds are unionized at physiological pH and distributed mainly intracellularly.
 - c. Redistribution from the CNS to less perfused organs occurs with highly lipid soluble drugs such as thiopentone.
 - d. Inflammation may increase the permeability of blood brain barriers especially to penicillin.
 - e. The apparent volume of distribution of some drugs may exceed the sum volume of the total body fluids.

 3. **Concerning biotransformation of drugs, the following statement is INCORRECT:**
 - a. May lead to activation of drugs.
 - b. May lead to the formation of toxic metabolites.
 - c. Phase-2 metabolism may occur before a phase-1 process.
 - d. Auto-induction of the drug's own metabolism may explain the tolerance to some drugs.
 - e. Non-selective β -blockers, such as propranolol, increases hepatic blood flow and may be considered as a non-specific hepatic microsomal enzyme inducer.

4. Each of the following drugs is matched with an appropriate mechanism of action| EXCEPT:
- | | |
|--|--|
| a. Dimercaprol in treatment of arsenic poisoning | - Chemical chelation. |
| b. Protamine sulfate as a heparin antidote | - Chemical neutralization. |
| c. Physostigmine as a parasymphathomimetic | - Inhibits choline esterase enzyme, |
| d. Mannitol as a diuretic | - Osmotic effect. |
| e. Verapamil as a myocardial depressant | - Activation of Na ⁺ channel. |
5. The following is considered as type-B adverse drug effect:
- Dry mouth induced by atropine when used in treatment of intestinal colic.
 - Abstinence syndrome after sudden stop of amphetamine in an addict
 - Angioedema induced by captopril in an allergic patient.
 - Tolerance to the anti-anginal effect of nitrates after their continued prolonged use.
 - Tachyphylaxis to the hypertensive effect of ephedrine after its repeated injections.
6. Regarding factors affecting the dosage and action of drugs the following statement is WRONG:
- In most of drugs, there is a range for the therapeutic dose, due the presence of biological variations among different individuals.
 - Geriatrics can tolerate, more than young adults, drugs that produce postural hypotension.
 - Pregnancy contraindicates the use of ergotamine in the treatment of acute migraine headache.
 - Cumulation occurs when the rate of administration exceeds the rate of elimination.
 - Response to drugs is affected by the psychology and pathology of the patient.
7. Each of the following parasymphathomimetics is paired with an appropriate use EXCEPT:
- | | |
|-----------------|-----------------------|
| a. Methacholine | - Bronchial asthma. |
| b. Pilocarpine | - Glaucoma. |
| c. Parathion | - Insecticide. |
| d. Neostigmine | - Myasthenia gravis. |
| e. Donepezil | - Alzheimer's disease |
8. Atropine produces the following action:
- Decreases milk secretion.
 - Bronchodilatation and reduces bronchial secretions.
 - An initial tachycardia followed by prolonged bradycardia.
 - Spasm of GIT and urinary bladder walls,
 - Increases rigidity and tremors in Parkinson's disease.
9. Phenylephrine produces all of the following actions EXCEPT:
- | | |
|------------------------|-----------------------------------|
| a. Active mydriasis. | d. Generalized vaso-constriction. |
| b. Bronchodilatation. | c. Hypertension elevating both |
| c. Reflex bradycardia. | systolic and diastolic pressures. |
10. Regarding prazosin, the following statement is INCORRECT:
- Selective α -1 adrenoceptor blocker.
 - Mixed balanced vaso-dilator.
 - Decreases both pre-and after-loads of the heart.
 - Bradycardia is a common side effect.
 - Usually started by initial small dose at bed time to avoid first dose hypotension.

- 11. Propranolol produces all of the following actions EXCEPT:**
- Initial beta receptors stimulation,
 - Depresses all cardiac properties,
 - Anti hypertensive effect after prolonged use (4 weeks).
 - Inhibits hepatic glycogenolysis.
 - Hyperkalemia.
- 12. The following statement is INCORRECT:**
- Carvedilol is a β -blocker with additional α -blocking and an anti-oxidant effects.
 - Methyldopa is considered as a pro-drug.
 - Sudden stop of clonidine therapy results in rebound hypertension.
 - Propranolol augments and masks the hypoglycemic effect of insulin.
 - Phenoxybenzamine is a competitive reversible selective α_1 blocker.
- 13. First generation anti-histaminics, such as chlorpheniramine, have the following characteristic:**
- Antagonize the action of histamine on gastric acidity,
 - Antagonize the stimulant action of histamine on the heart,
 - No sedation
 - Used in treatment of urinary retention due to prostatic hypertrophy.
 - Useful in mild allergic reactions such as allergic rhinitis.
- 14. The following statement is INCORRECT:**
- Dihydroergotoxine is used in cerebral ischemia.
 - Methylergometrine is used in the treatment of postpartum hemorrhage.
 - Ergometrine is used in treatment of Prinzmetal (variant) angina pectoris.
 - Sumatriptan is a 5-HT_{1D} receptor agonist used in the treatment of severe acute attack of migraine headache
 - Flunarizine is a CCB used in prophylaxis of migraine headache.
- 15. Regarding eicosanoids, the following statement is WRONG:**
- TXA₂ produces vaso-constriction and increases platelet aggregation.
 - PGE₂ produces an oxytocic effect.
 - LTC₄ has a powerful bronchoconstrictor effect.
 - Zileuton inhibits the synthesis of prostaglandins.
 - Misoprostol is used orally to prevent NSAID-induced peptic ulcer.
- 16. Regarding the use of corticosteroids in bronchial asthma, the following statement is WRONG:**
- They inhibit the production of inflammatory cytokines.
 - The inhalation of low dose corticosteroids, such as budesonide, is the preferred long term prophylaxis of mild persistent asthma.
 - Oral preparations, such as prednisolone, may be used as long term controller in severe persistent asthma,
 - Intravenous preparations, such as hydrocortisone sodium succinate, are used in treatment of acute severe asthma.
 - They have the advantage that the patient can safely switch immediately from oral to inhaled preparations.

- 17. Regarding anti-tussives, the following statement is WRONG:**
- They are cough suppressants used mainly in treatment of dry useless cough,
 - Liquorices are effective in treatment of cough due to pharyngitis and sore throat,
 - Benzonatate has a dual mechanism of action.
 - Dextromethorphan suppresses the sensory nerve endings that initiate cough reflex,
 - Steam inhalation of Tincture Benzoini Co acts by promoting secretion of protective mucus.
- 18. Concerning cough therapy the following statement is INCORRECT:**
- Guaiacol stimulates the healing of chronically inflamed respiratory mucosa.
 - Tincture ipecacuanha acts as by reflex stimulation of bronchial secretions and dissolve thick sputum.
 - Potassium iodide is contraindicated as an expectorant in pulmonary TB,
 - Bromohexine acts as a central anti-tussive.
 - Acetylcysteine has both mucolytic and anti-oxidant effects.
- 19. Thiazide diuretics produce all of the following actions EXCEPT:**
- They inhibit NaCl reabsorption mainly from the cortical diluting segment of the nephron.
 - They increase R.B.F. and G.F.R.
 - They decrease calcium excretion in urine.
 - They have anti-diuretic effect in patients with nephrogenic diabetes insipidus.
 - They worsen digitalis toxicity.
- 20. Regarding diuretics, the following statement is INCORRECT:**
- Hydrochlorothiazide has a direct arterial vasodilator effect.
 - Metolazone is effective as a diuretic even when GFR < 20 mL/min.
 - Furosemide interferes with efficacy of the renal counter-current multiplayer system,
 - Spirolactone is a logic choice to treat edema due to hyperaldosteronism.
 - There is cross allergy between ethacrynic acid and thiazide diuretics.
- 21. The following statement is WRONG:**
- Probenecid potentiates the diuretic effect of hydrochlorothiazide.
 - NSAIDs, such as aspirin, antagonizes partially the anti-hypertensive effect of chlorothiazide.
 - Furosemide is preferred than thiazides in the treatment of hypertension in patients with renal insufficiency.
 - Mannitol is used IV for rapid lowering of I.O.P.
 - Indapamide is used in subdiuretic doses as a direct vaso-dilator.
- 22. Each of the following anti-anginal agents is paired with an appropriate mechanism of action EXCEPT**
- Isosorbid mononitrate - Release of NO to produce veno-dilatation.
 - Amlodipine - Activation of Cl channels to produce hyperpolarizatiol
 - Propranolol - Decrease cardiac work and O₂ needs
 - Trimetazidine - Anti-ischemic cytoprotective.
 - Dipyridamol - Inhibition of platelet aggregation.

23. Regarding the use of glyceryl trinitrate in treatment of angina pectoris, the following statement is WRONG:

- a. Decreases mainly the preload of the heart.
- b. The oral dose is smaller than the sublingual dose.
- c. May be used by buccal spray in treatment of acute attack of angina pectoris.
- d. Produces postural hypotension as a side effect.
- e. Metabolized in the liver to an active dinitrate metabolite.

24. Regarding the anti-anginal drugs, the following statement is WRONG:

- a. Nifedipine opens mainly the small coronaries and may cause the coronary steal phenomenon.
- b. Verapamil is preferred in prophylaxis of stable angina with co-existing heart block.
- c. Ranolazine prevents abnormal opening of the late Na⁺ channels.
- d. Nicorandil produces vasodilatation by both NO release and opening of K⁺-channels.
- e. Non-selective beta-blockers are contraindicated in variant angina.

25. ARBs, such as valsartan, produce their beneficial effects through the following actions EXCEPT:

- a. Inhibit the conversion of angiotensin-1 to angiotensin-II.
- b. Decrease the vasoconstriction.
- c. Decrease sympathetic activity.
- d. Decrease synthesis and release of aldosterone.
- e. Decrease the hypertrophy and remodeling of heart and blood vessels.

26. One of the following anti-hypertensive drugs is paired with a specific side effect:

- a. Losartan - dry irritant cough
- b. Hydralazine - reflex bradycardia
- c. Minoxidil - alopecia
- d. Diazoxide - hypoglycemia
- e. Sodium nitroprusside - cyanide poisoning

27. Regarding anti-dysrhythmic drugs, the following statement is INCORRECT:

- a. Amiodarone has a relatively very long t_{1/2}.
- b. Propranolol is suitable to treat sympathetic induced arrhythmia.
- c. Verapamil in supraventricular arrhythmia
- d. Lidocaine is the drug of choice to treat emergency ventricular arrhythmia without heart block.
- e. Digoxin is used to treat ventricular arrhythmia with heart block.

28. Effects of morphine on the CNS include all of the following EXCEPT:

- a. Analgesia
- b. Miosis
- c. Respiratory depression
- d. Inhibition of ADH release
- e. Depression of cough reflex

29. Effects of morphine on the GIT include all of the following EXCEPT:

- a. Decreased biliary, pancreatic and intestinal secretions
- b. Decreased gastric motility
- c. Increased tone of small intestine
- d. Increased propulsive peristaltic waves in colon
- e. Increased intrabiliary pressure

30. Adverse effect of morphine include all of the following **EXCEPT**:
- | | |
|--|------------------------|
| a. Physical and psychological dependence | d. Bronchoconstriction |
| b. Constipation | e. Hyperthermia |
| c. Respiratory depression | |
31. Which of the following statements is **INCORRECT**:
- Morphine depresses the cough centre
 - Naloxone is a pure opioid antagonist
 - Meperidine does not constrict the pupil
 - Fentanyl is mixed agonist antagonist opioid
 - Papaverine is a direct spasmolytic of smooth muscles
32. Which of the following analgesics is not opioid:
- | | |
|---------------|--------------|
| a. Fentanyl | d. Codeine |
| b. Alfentanil | e. Celecoxib |
| c. Meperidine | |
33. Aspirin could be used prophylactically for which one of the following conditions:
- | | |
|----------------------------------|-----------------|
| a. Bronchial asthma | d. Peptic ulcer |
| b. Thrombo-embolic diseases | e. Hypertension |
| c. Paroxysmal atrial tachycardia | |
34. Benzodiazepines can produce the following effects on the CNS **EXCEPT**:
- | | |
|-------------------|--------------------|
| a. Anxiolytic | d. Akathisia |
| b. Anticonvulsant | e. Muscle relaxant |
| c. Hypnotic | |
35. Benzodiazepines produce their actions on the CNS by:
- Blocking "Chloride" channel associated with GABA_A receptor
 - Potentiating the effect of GABA on GABA_A receptors
 - Reducing the effect of GABA on GABA_A receptors
 - Acting as agonists at GABA_B receptors
 - Acting as antagonists at GABA_B receptors
36. Which of the following drugs acts as a competitive benzodiazepine receptor antagonist?
- | | |
|---------------|------------------|
| a. Naloxone | d. Flunitrazepam |
| b. Flumazenil | e. Disulfiram |
| c. Flurazepam | |
37. Disadvantages of benzodiazepines include the following **EXCEPT**:
- | | |
|------------------------|-----------------------------|
| a. Cardiac arrhythmias | d. Anterograde amnesia |
| b. Tolerance | e. Confusion in the elderly |
| c. Physical dependence | |
38. Gingival hyperplasia and hirsutism are side effects of which one of the following anticonvulsant drugs?
- | | |
|------------------|------------------|
| a. Carbamazepine | d. Phenobarbital |
| b. Phenytoin | e. Clonazepam |
| c. Valproic acid | |

39. Sodium valproate is:

- a. An inducer of hepatic microsomal enzyme system
- b. A dopamine antagonist
- c. Safe in pregnancy
- d. Effective against absence seizures
- e. Metabolized to Phenobarbital

40. Agents useful in therapy of parkinsonism include all of the following EXCEPT:

- a. Haloperidol
- b. Carbidopa/levodopa
- c. Bromocriptine
- d. Amantadine
- e. Tolcapone

41. Carbidopa:

- a. Is a peripheral dopa decarboxylase inhibitor
- b. Is a selective inhibitor of monoamine oxidase, type A
- c. Is a selective inhibitor of monoamine oxidase, type B
- d. Promotes regeneration of dopaminergic neurons
- e. Prevents breakdown of dopamine

42. All of the following drugs can induce ovulation EXCEPT:

- a. Metformin
- b. Clomiphene citrate
- c. Letrozole
- d. Danazol
- e. Human menopausal gonadotrophins

43. All of the following are side effects of thiourea EXCEPT:

- a. Agranulocytosis
- b. Allergy
- c. Hepatitis
- d. Loss of hair
- e. Atrophy of thyroid gland

44. Acarbose is an inhibitor of the following enzyme:

- a. Phosphodiesterase
- b. Phospholipase
- c. α -glucosidase
- d. Cyclo-oxygenase
- e. Cholinesterase

45. Adverse effects of metformin include all of the following EXCEPT:

- a. Lactic acidosis
- b. Hypoglycemia
- c. Loss of appetite
- d. Nausea
- e. Interfere with vitamin B₁₂ absorption

46. Which of the following drugs, is an insulin sensitizer:

- a. Chlorpropamide
- b. Rosiglitazone
- c. Tolbutamide
- d. Glipizide
- e. Glyburide

47. Patients under long use of glucocorticoids are advised NOT to:

- a. Check body weight
- b. Check for blood glucose
- c. Eat diet rich in potassium and calcium
- d. Decrease intake of dietary salt
- e. Stop suddenly the steroid therapy

48. Which of the following statements is **WRONG**:
- Carbimazole is used in treatment of hyperthyroidism
 - Levothyroxine is used in treatment of hypothyroidism
 - Methimazole is metabolized into carbimazole
 - Propylthiouracil can be used during pregnancy
 - Agranulocytosis is a side effect of carbimazole
49. All of the following statements regarding rosiglitazone are correct **EXCEPT**:
- It promotes insulin release from the pancreatic beta-cells
 - It is used in type 2 diabetic patients
 - It acts as an insulin sensitizer
 - It can counteract insulin resistance
 - None of the above
50. A young woman was diagnosed to have endometriosis. The most appropriate therapy for this patient would be:
- Danazol
 - Estradiol
 - Finasteride
 - Flutamide
 - Tamoxifen
51. The following is contraindicated in patients with osteoporosis:
- Estrogen replacement therapy in menopausal females
 - Selective estrogen receptor modulator such as raloxifene
 - Glucocorticoids such dexamethasone
 - Vitamin D such as cholecalciferol
 - Bisphosphonates such as alendronate
52. Hypothyroid coma can be treated by the following **EXCEPT**:
- Liothyronine
 - L-thyroxin
 - Hydrocortisone
 - Propranolol
 - Glucagon
53. Hyperthyroidism can be treated by the following **EXCEPT**:
- Carbimazole
 - Carbamazepine
 - Propranolol
 - Propylthiouracil
 - Radioactive iodine
54. Estrogen partial agonist used in infertility is:
- Anastrozole
 - Raloxifene
 - Clomiphene
 - Cyproheptadine
 - Dantrolene
55. The insulin preparation which can be given intravenously is:
- Isophane insulin (NPH)
 - Protamin zinc insulin
 - Regular insulin
 - Insulin zinc suspension
 - Insulin lispro
56. Corticosteroids should be avoided in all the following **EXCEPT**:
- Diabetes mellitus
 - Bronchial asthma
 - Hypertension
 - Peptic ulcer
 - Osteoporosis

- 57. Corticosteroids are used in treatment of the following conditions EXCEPT:**
- Anaphylactic shock
 - Organ transplantation
 - Osteoarthritis
 - Hypertension
 - Allergy
- 58. Overdose of which of the following drugs causes excessive cardiac stimulation:**
- A fluroquinolone antibiotic
 - Sulfonylurea drugs
 - Insulin
 - Levothyroxine
 - Propylthiouracil
- 59. Which of the following steroids has a powerful sodium retaining effect:**
- Cortisone
 - Cortisol
 - Prednisolone
 - Fludrocortisone
 - Dexamethasone
- 60. Which is not an inhibitor of bacterial cell wall synthesis?**
- Bacitracin
 - Cycloserine
 - Sulphamethoxazole
 - Ciprofloxacin
 - Teicoplanin
- 61. The following is a narrow spectrum antibiotic:**
- Chloramphenicol
 - Ampicillin
 - Penicillin G
 - Carbenicillin
 - Oxytetracycline
- 62. Hemolytic anemia induced by sulfonamides is related to:**
- Glucose-6-phosphate dehydrogenase deficiency
 - Inhibition of carbonic anhydrase enzyme
 - Denaturation of hemoglobin
 - Circulating antibodies
 - Inhibition of folic acid synthesis
- 63. The following anti-microbial agents are contra-indicated during pregnancy EXCEPT:**
- Chloramphenicol because of gray baby syndrome
 - Sulfonamides because of risk of kernicterus
 - Quinolones because of damage to growing cartilage
 - Penicillin because of auditory toxicity
 - Tetracycline because of effect on teeth & bones
- 64. Vancomycin acts through:**
- Inhibition of cell wall synthesis
 - Inhibition of fungal protein synthesis
 - Reduction of ergosterol synthesis
 - Inhibition of DNA synthesis
 - Inhibition of RNA synthesis
- 65. The following is a centrally acting emetic drug:**
- Ipecacuanha derivatives
 - Promethazine
 - Sibutramine
 - Octopamine
 - Apomorphine

66. Which one of the following drugs is not a laxative agent:
- Methylcellulose
 - Diphenoxylate
 - Liquid paraffin
 - Lactulose
 - Bisacodyl
67. Among laxatives, castor oil is classified as:
- Lubricating laxative
 - Anthraquinone laxative
 - Irritant laxative
 - Stool softening laxative
 - Bulk producing laxative
68. Ranitidine produces one of the following effects:
- Blockade of M₁ receptors
 - Blockade of H₁ receptors
 - Blockade of H₂ receptors
 - Acid neutralization
 - Inhibition of Na/K ATPase
69. Myopathy is an adverse effect of all the following agents EXCEPT:
- Lovastatin
 - Simvastatin
 - Pravastatin
 - Gemfibrozil
 - Ezetimibe
70. One of these vitamins should be avoided during oral anticoagulant therapy:
- Vitamin A
 - Vitamin B
 - Vitamin C
 - Vitamin D
 - Vitamin K
71. Which of the following statements about antiplatelet drug is FALSE:
- Abciximab binds to the glycoprotein IIa/IIIb receptors
 - Aspirin decreases formation of thromboxane
 - Ticlopidine is a thrombin antagonist
 - Dipyridamole inhibits phosphodiesterase enzyme
 - Clopidogrel decreases binding to ADP receptors on platelets
72. The Antidote of Heparin is:
- Vitamin K
 - Prothrombin
 - Fibrin
 - Protamine sulphate
 - Vitamin C
73. Each of the following drugs is paired with an appropriate use EXCEPT:
- Warfarin : Oral anti-coagulant during first trimester of pregnancy
 - Alteplase : Dissolve recently formed coronary thrombus
 - Lepirudin: Patients who developed heparin-induced thrombocytopenia
 - Debigatran: Prevention of stroke in patients with non-valvular atrial fibrillation
 - Aminocaproic acid: Hemorrhage induced by overdose of streptokinase
74. Each of the following lipid lowering drugs is paired with an appropriate mechanism of action EXCEPT:
- Lovastatin - Inhibition of HMG-CoA reductase enzyme.
 - Fenofibrate - Inhibition of lipoprotein lipase enzyme.
 - Cholestyramine - Binds to bile acids and bile salts.
 - Ezetimibe - Inhibits intestinal absorption of cholesterol.
 - Niacin - Inhibits lipolysis in adipose tissue.

75. A 43-year-old man has familial hypercholesterolemia. Total cholesterol and LDL are markedly elevated, while HDL, VLDL and triglycerides were almost normal. The patient was started on atorvastatin, it is important to routinely monitor:

- a. Blood urea nitrogen.
- b. Uric acid.
- c. Platelets.
- d. Red blood cells.
- e. Hepatic transaminase enzymes.

Section B

- Matching questions are to be answered in "Section B" of the answer sheet
- For the following matching questions, choose the most appropriate answer

Match with the appropriate answer:

1. Tetracycline
2. Chloramphenicol
3. Clindamycin
4. Gentamicin
5. Rifampicin
 - a. May cause ototoxicity and nephrotoxicity
 - b. May cause discolouration of teeth in children
 - c. May cause red discoloration of secretions
 - d. May cause Gray Baby syndrome in neonates
 - e. May cause fatal pseudomembranous colitis

6. Brimonidine
7. Tiotropium
8. Xylometazoline
9. Sildenafil
10. Tamsulosin
 - a. Nasal decongestant alpha-1 agonist
 - b. An alpha-2 agonist used in treatment of glaucoma
 - c. Selective alpha-1A receptor blocker used to treat benign prostatic hypertrophy
 - d. Should be avoided in patients taking nitrates
 - e. An anti-cholinergic used to relieve bronchospasm in COPD

11. Digoxin
12. Lisinopril
13. Amiloride
14. Propranolol
15. Hydralazine
 - a. Used to correct the thiazide diuretics induced hypokalemia
 - b. Indicated in prophylaxis of stable angina but contraindicated in variant angina
 - c. Direct arteriolar V.D that may produce peripheral neuritis
 - d. Drug of choice in treatment of heart failure with atrial fibrillation
 - e. Non SH containing ACE inhibitor active drug not metabolized.

16. Clorgyline
17. Fluoxetine
18. Oxazepam
19. Imipramine

20. Lithium

- a. Is a selective serotonin reuptake inhibitor used in the treatment of depression
- b. Is a short acting benzodiazepine without active metabolites
- c. Is a tricyclic antidepressant
- d. Is mainly used to treat bipolar depression
- e. Is a reversible monoamine oxidase A inhibitor

21. Ranitidine

22. Aluminium hydroxide

23. Bisacodyl

24. Ondansetron

25. Itopride

- a. Is a prokinetic agent
- b. Is an irritant laxative
- c. Is an effective anti emetic drug in patients undergoing chemotherapy
- d. Is a H₂ receptor antagonist used in the treatment of peptic ulcer
- e. May cause hypophosphatemia

Microbiology and Immunology

Final exam

ESSAY QUESTIONS

Answer all questions :

1. Mention the most important member of Enterobacteriaceae that causes each of the following diseases : (Total 6 marks)

- a) Plague
- b) Urinary tract infection
- c) Food poisoning
- d) Traveler's diarrhoea
- e) Bacillary dysentery
- f) Pneumonia

2. Meningitis is the infection and inflammation of the meninges.

(Total 9 marks)

- a) What is the organism that causes epidemic cerebrospinal meningitis? Discuss its mode of transmission and prevention. (4 marks)
- b) What are the organisms that cause neonatal meningitis? Describe the morphology of each one. (3 marks)
- c) Mention 4 organisms that cause aseptic meningitis. (2 marks)

3. Enumerate :

(Total 10 marks)

- a) Four disease conditions in which carries play an important role. (2 marks)
- b) Four disease conditions in which direct microscopical examination is sufficient for diagnosis. (2 marks)
- c) Diseases caused by Chlamydia trachomatis. (3 marks)
- d) Types of hand hygiene. (3 marks)

4. For each of the following virulence factors, mention : (Total 15 marks)

- One organism possessing it.
 - Its importance in pathogenesis.
 - One important disease caused by the organism.
- a) Protein A b) Theta toxin c) M protein
 - d) Shiga toxin e) Cord factor

5. Mention the causative organism and mode of transmission of each of the following : (Total 10 marks)

- a) Epidemic relapsing fever
- b) Jungle yellow fever
- c) Infectious mononucleosis
- d) Undulant fever
- e) German measles

6. Give an account on : (Total 10 marks)

- a) Importance of PCR in diagnosis of HCV (2 marks)
- b) Laboratory diagnosis of candidiasis (4 marks)
- c) Antigenic changes of influenza virus (4 marks)

7. What is the interpretation of : (Total 5 marks)

- a) A patient with HBs antigen negative, HBs antibody positive and HBc antibody negative.
- b) A patient with anti-Salmonella O antibody titer 1/320, anti-S. typhi H antibody 1/40, anti-S. paratyphi A H antibody 1/320 and anti-S. paratyphi B H antibody 1/20.
- c) A patient having no risk factor for TB with induration of 5 mm in tuberculin test.
- d) A patient with positive venereal disease research laboratory (VDRL) test and negative Treponema pallidum haemagglutination assay (TPHA)
- e) A newborn with positive serological tests for HIV antibodies and negative RT-PCR for HIV RNA.

8. Case (Total 5 marks)

A young menstruating female experienced sudden onset of fever, diarrhoea, vomiting and red rash, plus hypotension with cardiac and renal failure. Onset of the disease was about 5 days from onset of menses. She was using vaginal tampons that were left in place for an extended period.

- a) What is the most probable diagnosis? (1 mark)
- b) What is the organism causing this conditions? (1 mark)
- c) What is the pathogenesis of this disease?
- d) Describe the laboratory diagnosis of this disease. (2 marks)

Microbiology and Immunology

Final Exam

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

The examination is composed of two parts to be answered in 2/1 hours.

**> MCQs (1-60) to be answered IN THE MCO ANSWER SHEET (1hr)
(30 marks)**

> 8 essay questions to be answered IN THE ANSWER BOOK (1/2 hrs) (70 marks)

MCOs

CHOOSE ONE CORRECT ANSWER:

1. A hospitalized patient develops dysuria and suprapubic pain and is treated with a quinolone.

what is the mechanism of action of this antibiotic?

- a) It inhibits dihydrofolate reductase.
- b) It inhibits DNA- dependent RNA polymerase.
- c) It inhibits protein synthesis by binding to the 30s ribosomal subunit.
- d- It inhibits protein synthesis by binding to the 50s ribosomal subunit.
- e- It inhibits DNA gyrase.

2. Which of the following statements concerning antimicrobial chemoprophylaxis is INCORRECT?

- a) Long acting penicillin is given to rheumatic patients.
- b) Vancomycin is given to individuals with abnormal heart valves prior to dental procedures.
- c) Chemoprophylaxis is the administration of an effective antimicrobial agent to prevent infection with a certain microbe.
- d) Rifampicin is given to close contacts of meningococcal meningitis cases.
- e) preoperative chemoprophylaxis is essential in some surgical operations.

3. Regarding hot air oven.

- a) It is used to sterilize powders and petroleum products.
- b) The sterilizing agent is moist hot air.
- c) It has a corroding effect. d) It doesn't necessitate prolonged exposure.
- e) It is characterized by rapid and even penetration of heat into the materials to be sterilized.

4- Which of the following statements is CORRECT?

- a) Sterilization is complete removal, destruction or inactivation of all forms of microbial life.
- b) Disinfection is elimination of all pathogenic organisms including spores.
- c) Low level disinfection is effective against *Mycobacterium tuberculosis*.
- d) Antiseptics are used to disinfect surfaces and floors.
- e) High level disinfection is used for surgical instruments.

5- The main line of defense against extracellular bacteria is:

- a) Complement activation by alternative pathway
- b) Antibody mediated immune response
- d) Helper T cell mediated immune response
- e) Killing by NK cells

6- The following represents natural passive acquired immunity:

- a) Antibodies produced after subclinical infection
- b) Antibodies produced after vaccination
- c) Antibodies passing from mother to child
- d) Antibodies produced after clinically manifest infection
- e) Antitoxic antibodies given as prophylaxis against tetanus

7- The main line of defense against established viral infections is:

- a) complement activation by alternative pathway
- b) Antibody mediated immune response
- c) Cytotoxic T cell mediated immune response
- d) Helper T cell mediated immune response
- e) phagocytosis

8- On exposure to allergen, sensitized mast cells:

- a) Release preformed mediators after 12 hours
- b) Undergo degranulation because of cross-linking of IgE on their surface
- c) Bind IgE to their Fc receptors
- d) Release IL-2 for further IgE production
- e) Release histamine and other mediators

9. Immune - complex - Mediated Reactions include:

- a) post-streptococcal glomerulonephritis
- b) Asthma
- c) Anaphylaxis
- d) Contact dermatitis

10- Type IV hypersensitivity involves:

- a) Activated Th1 cells
- b) Antibody
- c) Histamine
- d) Immune complex deposition
- e) IgE fixation on mast cells

11- Scalded skin syndrome (SSS):

- a) Is usually associated with streptococcal pyrogenic exotoxins
- b) Is an invasive disease with severe tissue destruction
- c) Is prevalent in young menstruating females using tampons
- d) Is caused by erythrogenic toxin of streptococcus pyogenes
- e) Is an infection of the skin with formation of bullae under the dermis

12- Staphylococcal strain typing is required to:

- a) Diagnose Staphylococcus aureus pyogenic diseases
- b) Diagnose Staphylococcus aureus toxin-mediated diseases
- c) Differentiate between coagulase-positive & negative staphylococci
- d) Trace the source of outbreaks of Staphylococcus aureus in epidemiologic studies
- e) Differentiate between staphylococci and streptococci

13- Coagulase:

- a) Distinguishes staphylococci from streptococci
- b) Is used in the therapy of myocardial infarction
- c) Helps to localize infection
- d) Causes haemolysis on blood agar
- e) Can lyse host cell membrane

14- Regarding treatment of meningococcal meningitis:

- a) Third-generation cephalosporins cannot be used due to resistance.
- b) Sulphonamides are the drug of choice.
- c) Penicillin G has remained effective, as no resistance has been reported.
- d) Chloramphenicol is not recommended as an alternative for treatment in penicillin-allergic patients.
- e) Penicillin plus chloramphenicol combination must not be used due to the antagonistic effect.

15- The emetic form of bacillus cereus food poisoning resembles:

- a) Staph aureus food poisoning
- b) Bacillary dysentery
- c) Botulism
- d) Salmonella food poisoning
- e) Cholera

16- Members of the genus Lactobacillus:

- a) Are Gram-negative bacilli
- b) Are associated with intra-abdominal and soft tissue infections below the diaphragm
- c) May have a beneficial protective effect
- d) Form more than 90% of the normal flora of stools
- e) Are facultative anaerobes widely distributed in nature

17- Regarding Enterobacteriaceae, all of the following statements are correct EXCEPT:

- a) They are Gram-negative bacilli.
- b) They are oxidase positive.
- c) They ferment D-glucose.
- d) They are facultative anaerobes.
- e) They reduce nitrate to nitrite.

18- Which of the following statements is CORRECT regarding V. cholerae infection?

- a) The organism is isolated from a blood sample.
- b) The natural reservoir of the organism is domestic animals.
- c) The LPS complex is the main virulence factor.
- d) An enterotoxin is the main virulence factor.
- e) Invasion and Killing of host epithelial cells are involved in the pathogenesis.

19- A 17-year-old man had a grilled chicken dinner with his friends. Three days later he went to the hospital with severe abdominal cramps; stools were bloody and pus cells were present.

Culture under microaerophilic conditions revealed Gram-negative, oxidase positive rods. The most probable causative agent is:

- a) Vibrio cholerae
- b) Salmonella typhimurium
- c) Campylobacter jejuni
- d) Shigella flexneri
- e) Helicobacter pylori

20- Similarities between brucellosis and tuberculosis include all of the following EXCEPT:

- a) Granuloma formation is a feature of the disease
- b) Cell mediated immune response is important in combating the disease
- c) Infection may occur by inhalation of the causative organism
- d) A Type I hypersensitivity skin test can be used in diagnosis
- e) Causative organism may survive intracellularly in phagocytic cells

21- Regarding the Standard Tube Agglutination Test (STAT) for diagnosis of brucellosis:

- a) A titre of 320 is considered significant
- b) Dilution of serum is usually done up to 1:640
- c) It detects Brucella abortus antigen
- d) It detects IgA against Brucella
- e) It detects antibodies against Brucella abortus only

22- What is the metabolically inert, infective form of Chlamydia that can survive extracellularly:

- a) Reticulate body
- b) Virion body
- c) Elementary body
- d) Inclusion body
- e) Negri bodies

23- Members of mycoplasma genus are resistant to penicillin because:

- a) They contain sterol in the cell membrane
- b) They lack cell wall
- c) They lack cell membrane
- d) They lack capsule
- e) They lack fimbriae

24- C. burnetti is mainly transmitted by:

- a) Ingestion of milk
- b) Contact
- c) Mosquito bites
- d) Mite bite
- e) Tick bite

25- The medical importance of Streptomyces is that:

- a) They produce antibiotics.
- b) They are used as indicators of faecal pollution of water.
- c) They are used to test efficiency of the autoclave.
- d) They cause severe incurable meningitis.
- e) They are anaerobic bacilli.

26- The specimen used for diagnosis of infection with Bordetella pertussis is:

- a) Blood
- b) Urine
- c) Stools
- d) Nasopharyngeal secretion
- e) CSF

27- The cause of relapses in relapsing fever is:

- a) Repeated infection by different species of Borrelia
- b) Inadequate treatment by antibiotics
- c) Antigenic variation in the causative Borrelia species
- d) Antigenic variation in the causative Borrelia species
- e) Failure of the patient to mount an adequate cell-mediated immune response to control the disease
- f) Unknown

28- The main reason individuals taking antibiotics often develop infections due to *Candida albicans* is that:

- a) Antibiotics support the growth of *C. albicans*.
- b) The antibiotics damage the host mucous membranes.
- c) *C. albicans* degrades the antibiotics.
- d) Antibiotics stimulate the synthesis of ergosterol of *C. albicans*.
- e) The normal bacterial flora is greatly affected by antibiotics.

29- Each of the following statements concerning fungi is correct EXCEPT:

- a) Yeasts are fungi that reproduce by budding.
 - b) Moulds are fungi that have elongated filaments called hyphae.
 - c) Thermally dimorphic fungi exist as yeasts at 37 C and as hyphae at 22 C.
 - d) Both yeasts and moulds have a cell wall made of peptidoglycan.
- They respond to antifungal treatment but not to antibiotics

30- Each of the statements about the classification of streptococci is correct EXCEPT:

- a) Pneumococci can be serotyped on the basis of their polysaccharide capsules.
- b) Enterococci are group D streptococci.
- c) Pneumococci and viridans streptococci can be differentiated by bile solubility test.
- d) Viridans streptococci are classified according to Lancefield antigens (cell wall carbohydrate antigen) into groups (AA-W).
- e) *Streptococcus agalactiae* is group B beta-haemolytic streptococci.

31- Each of the following agents is a recognized cause of diarrhoea EXCEPT:

- a) *Clostridium perfringens*
- b) *Enterococcus faecalis*
- c) *Shigella dysenteriae*
- d) *Vibrio cholerae*
- e) *Campylobacter jejuni*

32- Each of the following statements concerning *Mycobacterium tuberculosis* is correct EXCEPT:

- a) After being stained with carbolfuchsin, *M. tuberculosis* resists decolourization with acid alcohol.
- b) *M. tuberculosis* has a large amount of mycolic acid in its cell wall.
- c) *M. tuberculosis* appears as a red rod in Gram-stained specimens.
- d) *M. tuberculosis* can be stained with auramine-rhodamine stain.
- e) In Ziehl-Neelsen method, heat is used to help penetration of the dye.

33- Which of the following zoonotic illnesses has No arthropod vector?

- a) Epidemic typhus
- b) Endemic typhus
- c) Lyme disease
- d) Plague
- e) Brucellosis

34- Regarding ability of an organism to be cultured in the laboratory, which one of the following statements is correct?

- a) *Treponema pallidum* can be grown on artificial media supplemented with cholesterol.
- b) *M. leprae* can be grown in the armadillo and the mouse footpad, but not on artificial media.
- c) *M. tuberculosis* can be grown on enriched artificial media and produces visible colonies in 24-48 hours.
- d) Atypical mycobacteria cannot be cultured on any artificial media in the laboratory.
- e) *Rickettsia* can grow on cell - free culture media.

35- The pathogenesis of which one of the following diseases DOES NOT involve an exotoxin:

- a) Scarlet fever
- b) Typhoid fever
- c) Toxic shock syndrome
- d) Botulism
- e) Cholera

36- The following statements concerning *Corynebacterium diphtheriae* are correct EXCEPT:

- a) *C. diphtheriae* is a Gram-positive rod that does not form spores.
- b) Toxin production is dependent on the organism being lysogenized by a bacteriophage.
- c) Diphtheria vaccine should not be given to children under the age of 3 years because the incidence of complications is too high.
- d) Antitoxin should be used to treat patients with diphtheria.
- e) Blood tellurite agar is a selective differential medium for the isolation of *C. diphtheriae*.

37- Each of the following statements concerning certain Gram-negative rods is correct EXCEPT:

- a) *Proteus* species are important agents of infantile diarrhoea.
- b) *Bordetella pertussis* causes an acute respiratory illness transmitted by droplets.
- c) *Pseudomonas aeruginosa* causes wound infections that are characterized by blue- green pus.
- d) Invasive disease caused by *Haemophilus influenzae* is most often due to strains possessing a type b polysaccharide capsule.
- e) *Klebsiella* organisms are capsulated.

38- Which one of the following statements concerning immunization against diseases caused by clostridia is CoRRRECT?

- a) Early treatment by antioxin is essential in cases of *C. perfringens* food poisoning.
- b) Antitoxin against tetanus protects against botulism as well, because the two toxins are antigenically similar.
- c) Vacines containing alpha toxin (Iecihinase) are effective in protecting against gas gangrene.
- d) The toxoid vaccine against *C. difficile* infection should be given to immunocompromised patients.
- e) Immunization with tetanus toxoid induces effective protection against tetanus toxin.

39- Each of the following statements concerning epidemic typhus is correct EXCEPT:

- a) The disease is caused by *Rickettsia prowazeki*.
- b) The causative organism is transmitted from rodents to humans by ticks.
- c) The disease is characterized by fever and skin rash.
- d) The causative organism infects the endothelial cells lining the blood vessels.
- e) Tetracycline is the drug of choice.

40- Regarding normal flora, all of the following statements are true EXCEPT:

- a) Transient flora promptly reestablishes itself when disturbed.
- b) It plays a definite role in maintaining health.
- c) Through 'bacterial interference', it prevents colonization of pathogens.
- d) It may produce disease by superinfection mechanism.
- e) Members of resident flora synthesize vitamin K in the intestine.

41- Predisposing factors for anaerobic infections include all the following EXCEPT:

- a) Diabetes
- b) Deep wounds
- c) Co-infection with other organisms
- d) Presence of foreign bodies
- e) Prolonged hospitalization

42- Which of the following organisms causes disease associated with bacteraemia?

- a) *Vibrio cholera*
- b) *Vibrio parahaemolyticus*
- c) *Bruucella abortus*
- d) *Shigella sonnei*
- e) Hepatitis B virus

43- All of the following viruses can be transmitted by blood transfusion EXCEPT:

- a) Cytomegalovirus
- b) Hepatitis B virus
- c) Hepatitis C virus
- d) HIV types 1&2
- e) Rubella

44- The commonest bacterial cause of urinary tract infection is:

- a) Esherichia coli
- b) Enterococcus faecalis
- c) Staphylococcus saprophyticus
- d) Proteus mirabilis
- e) pseudomonas aeruginosa

45- All statements are true regarding blood culture EXCEPT:

- a) It is recommended to perform 3 sets of blood culture within 24-48 hours before the start of antiibiotics.
- b) It is recommended to perform direct plating of patient'ss blood on suitable culture medium.
- c) Aerobic and anaerobic incubation of the culture is recommended.
- d) Blood culture is recommended to diagnose infectious diseases associated with bacteraemia.
- e) It is recommended to add 5-10 ml broth, then perform subculture every 48 hours.

46- This hepatitis virus is acquired via the faeco- oral route. It causes fatal disease in pregnat women. which of the following is it?

- a) Hepatitis A
- b) Hepatitis B
- c) Hepatitis C
- d) Hepatitis D
- e) Hepatitis E

47- Repeated infections of common cold could be explained by all of the following EXCEPT:

- a) Multipe antigenic types
- b) Nature of infection is superficial.
- c) serum antibodies play on significant role.
- d) Rhinoviruses are slow viruses.
- e) Immunity is mainly superficial by IgA.

48- Antigenic shift in influenza virus occurs due to:

- a) Transformation
- b) Phage genome
- c) Gene reassortment
- d) Mutation
- e) Genee variation

49- Orvhitis, which may cause sterility, is a possible manifestaation of which of the following?

- a) Rabies
- b) Rhinovirus
- c) Cytomegalovirus
- d) Respiratory syncytial virus
- e) Mumps

50- Which one of the following markers is closely associated with HBV infectivity?

- a) HBcAg
- b) HBeAg
- c) HBsAg
- d) Anti- HBe
- e) Anti- HBc

51- Regarding retroviruses, all of the following is true EXEPT:

- a) They include human T- cell lymphotropic viruses.
- b) Thy contain the enzyme reverse transcriptase.
- c) Important member are the human immunode ficiency viruses.
- d) They are non-enveloped positive sense ss RNAA viruses.
- e) They have a unique method of replication.

52- A child presents with fever, sneezng, coughing, eye pains, Koplik,s spots and rash. The vausative organism belongs of viruses?

- a) Adenovirus
- b) Herpesvirus
- c) Picornavirus
- d) Orthomyxovirus
- e) Paramyxovirus

53- The presence of Negri inclusion bodies in host cells is characteristic of:

- a) Mumps
- b) Infectious mononucleosis
- c) Congenital rubella
- d) Aseptic meningitis
- e) Rabies

54- Roboviruses:

- a) Are transmitted by arthropode
- b) Have ordents as the main reservoir
- c) Include Marburg & Ebola viruses
- d) Belong to the Flaviviridae family
- e) Do not include Hantavirus

55- Each of the following statements concerning prions is correct EXCEPT:

- a) They are unconventional transmissible agents.
- b) They are made of protein and are devoid of any nucleic acid.
- c) They cause subacute sclerosing panencephalitis (SSPE).
- d) They have a long incubation period.
- e) Primary hosts include man, sheep and cattle.

56- All the following are DNA tumour viruses EXCEPT:

- a) Adenoviruses
- b) Human papilloma virus
- c) Hepatitis B virus
- d) Hepatitis A virus
- e) Epstein Barr virus

57- Which of the following outcomes is most common following a primary herpes simplex virus infection?

- a) Complete eradication of the virus
- b) persistent asymptomatic viraemia
- c) Establishment of latent infection
- d) Persistent cytopathic effect in infected cells
- e) Haematogenous spread to the liver and development of chronic hepatitis

58- Human papilloma virus vaccine:

- a) Is a quadrivalent vaccine that prevents infection by types 6,11,16 and 18
- b) Is routinely given to newborn females during their first year of life
- c) Is a living attenuated vaccine
- d) Is given mainly to post-menopausal women
- e) Prevents against development of ovarian cancer

59- Which statement regarding HIV is CORRECT?

- a) Highly active antiretroviral therapy (HAART) is very effective in eradicating HIV infection.
- b) Macrophages can act as a reservoir for HIV.
- c) Molecular techniques are not used for diagnosis.
- d) Before entry into a susceptible cell, HIV is called "provirus".
- e) HIV infects CD8 T cells.

60- All of the following statements about HCV are correct EXCEPT:

- a) HCV- infected patients are predisposed to hepatocellular carcinoma.
- b) HCV is an important cause of post-transfusion hepatitis.
- c) An inactivated vaccine prevents the disease in exposed individuals.
- d) Diagnosis is made by detecting anti - HCV antibodies by ELISA.
- e) Alpha interferon+ ribavirin (antiviral chemotherapy) are used in treatment.

Microbiology and Immunology Final Exam

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The examination is composed of two parts to be answered in 2 1/2 hours.

**> MCQ s (1-60) to be answered IN THE MCO ANSWER SHEET (1 hr)
(30 marks)**

**> 8 essay questions to be answered IN THE ANSWER BOOK (1 1/2 hrs)
(70 marks)**

Essay Questions

Answer all questions:

1- Mention the causative organism, mode of transmission and laboratory diagnosis of each of the following diseases: (total 12 marks)

- a) Subacute bacterial endocarditis (3 marks)
- b) Enteric fever during second week of fever (5 marks)
- c) Legionnaire' s disease (2 marks)
- d) Infectious mononucleosis (2 marks)

2- Compare between: (Total 16 marks)

- a) T.B infection and pulmonary T.B disease (4 marks)
- b) Septic and aseptic meningitis (causative agents & CSF findings) (4 marks)
- c) Chancre and Chancroid (causative organism & lesion) (2 marks)
- d) Varicella (chicken pox) and zoster (shingles) (4marks)
- e) Street and fixed rabies virus (2 marks)

3- Give an account on: (Total 8 marks)

- a) post - streptococcal complications (pathogenesis & diagnosis) (4 marks)
- b) Non - treponemal serological tests for syphilis (2 marks)
- c) Diagnosis of a fungal infection that commonly affects AIDS patients (2 marks)

4- Mention the nature of one vaccine against each of the following diseases:

(Total 6 marks) (One mark each)

- a) Yellow fever b) German measles c) Tuberculosis
- d) Diphtheria e) Poliomyelitis
- f) Epidemic cerebrospinal meningitis

5- Give reasons: (Total 10 marks)

(One marks each)

- a) Cephalosporins are not effective in treatment of MRSA.
- b) Serological tests should not be used for the diagnosis of HIV in newborns born to infected mothers.
- c) Hepatitis D virus is a defective virus.
- d) Tuberculin test may give false positive reactions.
- e) Immunity to mumps is life - lasting after a single infection.
- f) Chlamydiae are obligate intracellular organisms.
- g) Skin scales, nail clippings, or hairs are first mounted with 10 - 20% KOH.
- h) Person-to-person transmission can occur in bacillary dysentery.
- i) H. influenzae can grow on blood agar only if S. aureus is grown at the same time on the medium.
- j) H. pylori can survive in an acidic environment.

6- Discuss post-exposure prophylaxis for the following diseases:

(Total 4 marks)

- a) Tetanus (2 marks)
- b) Hepatitis B virus infection (2 marks)

7- Anaerobic bacteria cause many diseases. (Total 6 marks) Mention:

- a) One organism that causes food poisoning: mention its virulence factor (s) and type of food. (2 marks)
- b) One organism that causes disease by contaminating wounds: Mention its virulence factor (s) & treatment. (3 marks)
- c) One organism that causes infection following antibiotic therapy: Name the disease caused by this organism. (1 mark)

8- Case (Total 8 marks)

A 55-year-old man who just arrived from Germany experiences attacks of bloody diarrhoea and abdominal cramps. He states that he had a hamburger sandwich with green salad. Culture of stools on MacConkey's medium reveals a pure culture of rose pink colonies. Examination of Gram-stained film from these colonies shows Gram-negative bacilli.

- a) what is the possible causative organism of this condition? (2 marks)
- b) What is the virulence factor of this organism? (1 marks)
- c) How can a definite diagnosis be reached? (2 marks)
- d) What is the most serious complication of this condition? (1 mark)
- e) Mention other types of the same species that can cause diarrhoea (2 marks)

Microbiology and Immunology Final Exam

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*MCQs (1-60) to be answered IN THE MCQ ANSWER SHEET (1 hr) (30 marks)

* 7 essay questions & 1 case to be answered IN THE ANSWER BOOKLET (1 hrs)
(70 marks)

Essay Questions (70 marks)

Answer all questions:

- 1. For each of the following diseases mention the causative organism describing its morphology, clinical specimen & the appropriate stain used for direct laboratory diagnosis. (Total 8 marks)**
 - a. Leprosy (2 marks)
 - b. Acute male gonorrhoea (2 marks)
 - c. Primary stage of syphilis (2 marks)
 - d. Vincent's angina (2 marks)
- 2. Define the following and give one viral example for each: (Total 10 marks)**
 - a. Carrier (2 marks)
 - b. Zoonotic diseases (2 marks)
 - c. Defective viruses (2 marks)
 - d. Slow infection caused by conventional viruses (2 marks)
 - e. Viral latency (2 marks)
- 3. Name one laboratory test to differentiate between the following organisms. Mention the test result for each: (Total 5 marks)**
 - a. Staphylococci & streptococci (1 mark)
 - b. *V. cholerae* & *aeromonas* (1 mark)
 - c. *Streptococcus pneumoniae* & *Streptococcus viridians* (1 mark)
 - d. *S. aureus* & *S. epidermidis* (1 mark)
 - e. Toxigenic & non-toxigenic strains of *C. diphtheriae* (1 mark)
- 4- Mention the causative organism, the virulence factor(s) and mode of transmission for each of the following diseases: (Total 14 marks)**
 - a. Malignant pustule (3 marks)
 - b. Peptic ulcer (4 marks)
 - c. Epidemic cerebrospinal meningitis (4 marks)
 - d. Tetanus neonatorum (3 marks)
- 5. Give reason: (Total 7 marks) (1 mark each)**

- a. The severest form of bacillary dysentery is caused by *Shigella dysenteriae* type 1.
- b. *Mycoplasma* is resistant to beta-lactam antibiotics.
- c. Heterophil antibodies are present in serum of patients with infectious mononucleosis.
- d. Relapsing fever is characterized by periods of fever alternating with afebrile intervals.
- e. The rash of zoster is localized although it is caused by the same virus that causes generalized rash in chickenpox.
- f. The use of antifungal drugs is still limited.
- g. Satellitism is observed on blood agar when *H. influenzae* is cultured with *Staphylococcus aureus*.

6. What is the interpretation of each of the following laboratory test results? (Total 5 marks)

(1 mark each)

- a. A case of hepatitis showed elevated liver enzymes, HBs antigen negative, HBs antibody negative & HBc IgM positive.
- b. Widal test done for a case of fever showed a titre of $\frac{1}{80}$ for both salmonella O and Typhi H antibodies. The results of a second serum sample taken a week $\frac{1}{320}$ later were 56 for salmonella O & $\frac{1}{640}$ for S. Typhi H antibodies.
- c. The result of the rapid plasma reagin test (RPR) was positive for a suspected case while the fluorescent treponemal antibody absorption test (FTA-Abs) was negative.
- d. The results of CSF examination in a case of meningitis were:
 - * Naked eye appearance : turbid
 - * Leucocytic count : 10,000/ ml
 - * Glucose concentration : low
 - * Protein concentration : high
- e. The results of urine examination revealed many pus cells and a bacterial count of 10^6 bacteria/ml.

7- Compare (Total 12 marks)

- a. *Mycobacterium tuberculosis* & non-tuberculous mycobacteria. (3 marks)
- b. Salk & Sabin poliovaccines. (3 marks)
- c. Staphylococcal & salmonella food poisoning. (3 marks)
- d. Filamentous fungi & yeasts. (3 marks)

8. Case: (Total 9 marks)

A 54-year-old man develops a pyogenic infection along the suture line after knee surgery. swab from the infected wound was sent to the laboratory for bacteriological examination. Direct smear revealed Gram-positive cocci amongst pus cells. Culture on blood agar showed growth of beta-hemolytic colonies that were catalase & coagulase positive.

- a. What is the most likely causative agent? (1 marks)
- b. Enumerate the virulence factor(s) of this organism? (2 marks)
- c. Name two other diseases caused by this organism. (1 mark)
- d. What is (are) the possible source(s) of this infection & how can you trace this source? (2 marks)
- e. Why is antibiotic susceptibility testing important for guiding the treatment of this case? (1.5 marks)
- f. What are the infection control measures that should be done to prevent the spread of this infection to other patients in the hospital? (1.5 marks)

Case 2: (9 marks)

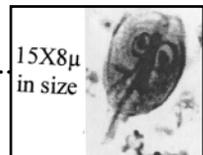
A 2-year-old child presents with diarrhoea. His mother gave a history that her child attends a daycare centre.

Microscopic examination for stool sample revealed a structure as shown in the following figure:

1- What is your provisional diagnosis? (1 mark)

.....
 2- How was the child infected? (2 marks)

3- Name the habitat of the causative parasite?



.....
 4- What are the factors that can lead to development of severe symptoms of disease? Enumerate these severe symptoms. (3 marks)

.....
 5- Enumerate Q protozoal infections causing diarrhoea. (2 marks)

Case 3: (6 marks)

A lady came to dermatology clinic suffering from acne-like lesions & comedones (black heads).

On examination, the doctor noticed that the lesions are located around the mouth & chin as shown in the figure below:

1- What is your probable diagnosis? (1 mark)

.....
 2- How can you confirm your diagnosis? (1 mark)

3- Name the habitat of the causative parasite? How can you confirm the condition? (3 marks)

4- Enumerate 2 protozoal infections causing skin lesions in the face (1 mark)



.....

Question HI

Give reason (total 10 marks)

- 1- Formation of flask-shaped ulcer in balcmtidium coli infection (1 mark)
.....
- 2- Occurrence of malaria paroxysm (clinical attack) (2 marks)
.....
- 3- Avoid wearing contact lenses during swimming (1 mark)
.....
- 4- Stool analysis is not a reliable method for diagnosis of fascioliasis. (3 marks)
.....
- 5- Occurrence of anaemia in Schistosomiasis. (1 mark)
.....
- 6- Toxoplasmosis is considered an opportunistic disease. (2 marks)
.....

Point of comparison	R0mana's sign	Acanthamoeba
Mode of infection		
Pathogenesis		

Point of comparison	Entamoeba histolytica	Leishmania tropica
Shape of ulcer		

Point of comparison	In kala-azar	In onchocerciasis
Skin lesions		

4- Mechanism of disease transmission by hard and soft ticks (enumeration) (2 mark)

Point of comparison	Hard tick	Soft tick
Mechanism of transmission		

5- Naegleria and Acanthamoeba affecting the brain. (4 marks)

Point of comparison	Naegleria affection	Acanthamoeba affection
Type of brain lesion		
Age of patients commonly affected		
Route of infection		
Course of infection in the body of patient		

Question V

Match (Total 10 marks)

I- Match each clinical presentation with the causative parasite (3 marks)

- | | |
|---------------------------------|----------------------------|
| 1- Dysphagia | a- Taenia salium |
| 2- Appendicitis | b- House dust mites |
| 3- Anaphylactic shock | c- Trypanosoma cruzi |
| 4- Eleveaed reddish skin tracks | d- Hydatid fluid |
| 5- Intestinal obstruction | e- Enterabius vermicularis |
| 6- Bronchial asthma | f- Sarcapzes scabiei |
| | g- Cyclaspara cayetanensis |

II- Match each parasite with the corresponding mean of immune evasion (2 marks)

- | | |
|----------------------------|--|
| 1- Enterobius vermicularis | a- Presence of surrounding cyst wall |
| 2- Trypanosama cruzi | b- Luminal habitat |
| 3- Leishmania siecies | c- Ejection of membrane attack complex |
| 4- T richinella spiralis | d- Antigen mimic |
| | e- Antigen variation |
| | f- Cleavage of antibodies |

II I- Match each parasite with the immunopathological reaction produced by it (2 marks)

- | | |
|--------------------------|------------------------------|
| 1- Ancylostoma | a- Immunosuppression |
| 2- Plasmodium falciparum | b- Allergic reactions |
| 3- Storage mites | c- Immune complex deposition |
| 4- Schisiosoma japonicum | d- Eosinophilic pneumonia |
| | e- Autoimmune reaction |

IV- Match each arthropod vector with the disease transmitted (3 marks)

- | | |
|----------------|----------------------|
| 1-Phlebotomus | a- Sleeping sickness |
| 2óTriatoma | b- Babesiosis |
| 3-Glossma | c- Halzoun |
| 4- Anopheles d | o- Creeping eruption |
| 5- Hard tick | e- Chagasí disease |
| 6- Hypoderma | f- Malaria |
| | g- Oriental sore |

Final Examination

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- 6 short-answer questions & 3 cases to be answered IN THE ANSWER BOOKLET (1½ hrs) (70 marks)

Short-answer questions:

Answer all questions:

- I. Give a short account of: (Total 13 marks)
1. Laboratory diagnosis of candidiasis (3 marks)
 2. Non-treponemal serological tests for diagnosis of syphilis (3 marks)
 3. Significance of MHC (4 marks)
 4. Corona virus (structure, mode of transmission & clinical aspects of disease) (3 marks)
- II. Compare: (Total 8 marks)
1. Actinomycotic & eumycotic mycetoma (3 marks)
 2. Enterohaemorrhagic & enterotoxigenic *E. coli* (3 marks)
 3. Elementary bodies & reticulate bodies (2 marks)
- III. Mention the name & the nature of one vaccine against each of the following diseases: (Total 8 marks)
1. Tuberculosis
 2. Rabies
 3. Poliomyelitis
 4. Yellow fever

IV. Define: (Total 5 marks)

1. Satellitism
2. Probiotics
3. Prions
4. Tolerance
5. Nosocomial infection

V. For each of the following diseases, mention the causative organism and the laboratory diagnosis: (Total 11 marks)

1. Cholera in endemic areas or during spread of an epidemic (2 marks)
2. Acute female gonorrhoea (4 marks)
3. Gas gangrene (2 marks)
4. Infectious mononucleosis (3 marks)

VI. Explain why: (Total 10 marks)

1. *Pseudomonas aeruginosa* is considered non-*Enterobacteriaceae* (1 mark)
2. Person-to-person transmission can occur in bacillary dysentery (1 mark)
3. *E. coli* is used as one of the indicators of faecal pollution of water (1 mark)
4. Testicular trauma may lead to infertility (1 mark)
5. Increased pyogenic infections occur in complement deficiency (1 mark)
6. Eradication of smallpox was successful globally (2 reasons) (2 marks)
7. Repeated infections by rhinoviruses are common (2 reasons) (2 marks)
8. A wide range of serum dilutions is used in serological diagnosis of brucellosis (1 mark)

VII. Cases: (Total 15 marks)

Case A: (4 marks)

A 15 year-old-boy developed acute onset of nausea, vomiting and diarrhea, shortly after returning from an outdoor party. Cakes and ice cream were served. The boy's symptoms started 6 hours after eating. He did not have any fever and no blood was seen in his stools or vomitus. Several other persons attending the party developed similar symptoms.

1. What is the diagnosis of this case? Mention the causative organism. (1 mark)
2. Mention the pathogenesis of this disease. (1 mark)
3. What is the probable source of infection? (1 mark)
4. Mention one method used to trace the source of infection. (1 mark)

Case B:

(5 marks)

Three months ago, a 30-year-old pregnant nurse was injured by a needle-prick contaminated by blood from a patient with hepatitis B. Her laboratory investigations reveal the following results:

HBsAg	absent
Anti-HBs antibody	absent
IgM anti-HBc	present
IgG anti-HBc	absent
HBeAg	absent

- a) What is the interpretation of these laboratory results? (1 mark)
- b) The nurse was concerned about her baby. Explain the risk the baby is exposed to. (1 mark)
- c) Discuss the prophylactic measures to protect the baby. (3 marks)

Case C:

(6 marks)

A mother took her 7-year-old boy to the park. While playing, the child disturbed a bee nest. The boy was stung by the angry bees. Within minutes he went into shock, manifesting respiratory failure and vascular collapse. The mother gave a history of previous exposure of her child to bees before.

- 1) What is the most likely diagnosis of the boy's condition? (1 mark)
- 2) What is the underlying immunological mechanism? (4 marks)
- 3) What are the immediate therapeutic measures to control his condition? (1 mark)

Medical Microbiology & Immunology

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(1½ hrs) (70 marks)

Short-answer questions:

Answer all questions:

- I. Describe the mode of transmission of each of the following diseases & mention the nature of one vaccine against it: (Total 12 marks)
(2 marks each)
1. Tetanus
 2. Poliomyelitis
 3. Mumps
 4. Hepatitis A infection
 5. Meningococcal meningitis
 6. Rabies
- II. What is the interpretation of each of the following test results? (Total 3 marks)
(1 mark each)
1. A patient without any risk factors for tuberculosis gave a 5mm induration in tuberculin skin test.
 2. A syphilitic patient following one year of treatment tested negative in the VDRL & positive in the *Treponema pallidum* haemagglutination (TPHA) tests.
 3. A CSF sample from a patient with meningitis revealed 15 000 neutrophils/ml, with low glucose & high protein levels.

III. Give a short account of: (Total 17 marks)

1. Role of antibodies against extra & intra-cellular bacteria (4 marks)
2. Staphylococcal food poisoning (5 marks)
3. Virulence factors of uropathogenic *E. coli* and their functions (3 marks)
4. Serologic diagnosis of undulant fever (5 marks)

IV. Differentiate between each of the following using one laboratory test: (Total 10 marks)
(2 marks each)

1. Staphylococci & streptococci
2. Toxigenic & non-toxigenic *C. diphtheriae*
3. Susceptibility & immunity to HBV following vaccination
4. *Candida albicans* & other candida species
5. *S. pneumoniae* & *S. viridans*

V. Explain why: (Total 7 marks)
(1 mark each)

1. *Helicobacter pylori* can colonize the gastric mucosa.
2. Influenza virus type A may cause influenza pandemics.
3. Graft versus host reaction occurs especially in case of bone marrow transplantation.
4. Quantiferon test is more specific in diagnosis of latent tuberculosis than tuberculin skin test.
5. Clinical manifestations of x-linked agammaglobulinaemia start in infants after the age of 5-6 months.
6. Actinomycotic mycetoma responds well to antibiotic treatment.
7. HCV patients in Egypt show a poor response to treatment by alpha-interferon and antiviral chemotherapy (ribavirin).

VI. Define: (Total 4 marks)
(1 mark each)

1. Zoonotic diseases
2. Prions
3. Sterile pyuria
4. Isograft

Case 1: (Total 6 marks)

A 25-year-old female patient who has suffered from severe, disabling arthritis for several years presents with the joints in her hands distorted due to the severity of the inflammation. She is diagnosed with rheumatoid arthritis.

- a) What are the laboratory tests that led to such a diagnosis? (2 marks)
- b) Explain the immunological mechanisms involved in the pathogenesis of this disease? (3 marks)
- c) What is the management of this disease and similar conditions? (1 mark)

Case 2:

(Total 5 marks)

A 50-year-old man was spending his vacation with his family in India, where cholera is known to be endemic. One week after his arrival he experienced profuse watery diarrhea and vomited several times. On examination he was found to have low blood pressure and a rapid heart rate. A diagnosis of cholera was suspected.

- a) What is the causative organism of this disease? (1 mark)
- b) What is the virulence factor of the organism? (1 mark)
- c) How can a definite diagnosis be reached? (1 mark)
- d) What is the proper treatment of this patient? (1 mark)
- e) Knowing that this patient's wife has been taking antacids for treatment of gastritis, does this affect her susceptibility to contract infection? Explain your answer. (1 mark)

Case 3:

(Total 6 marks)

A 32-year-old pregnant female presented to the clinic complaining of fatigue, chronic diarrhea and weight loss over the past weeks. She also had a purple abdominal lesion which was diagnosed as Kaposi sarcoma. Laboratory investigations revealed reduced CD4 T cell count. The patient gave a history of blood transfusion 7 years ago during a radical operation.

- a) What is the most likely diagnosis and what is the aetiologic agent? (1 mark)
- b) How did the patient most probably contract this infection and what are the other modes of transmission? (1½ marks)
- c) Name the laboratory tests done to reach a definite diagnosis. (2 marks)
- d) What are the measures that should be taken to prevent materno-foetal transfer? (1½ marks)

**Medical Microbiology & Immunology
Final Examination**

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Short-answer questions: Answer all questions:

1. Clinical manifestations may be specific for certain infectious diseases. For each of the following clinical manifestations mention: (3 marks each; total 12 marks)
 - the corresponding disease,
 - the causative agent responsible for the disease,
 - the vaccine used against these diseases (nature, mode and schedule of administration):
 - a) Koplik's spots
 - b) Lock jaw
 - c) Rice water stools
 - d) Bull neck
2. Explain why: (1 mark each; total 8 marks)
 - a) An infant should receive pneumococcal polysaccharide vaccine conjugated to a protein carrier.
 - b) *H. influenzae* grows on blood agar around colonies of *Staphylococcus aureus*.
 - c) *H. pylori* is believed to be transmitted from person to person.
 - d) *Listeria monocytogenes* can survive inside macrophages.
 - e) Human parvovirus B19 infection is associated with skin rash.
 - f) Pus cells may be present in urine without bacterial growth on ordinary media.
 - g) In epidemic typhus, human infection is an obligatory stage.
 - h) T_H1 lymphocytes are important in defence against intracellular bacteria.
3. Give 2 examples for each of the following: (Total 11 marks)
 - a) Mechanisms by which microbes evade the immune system (3 marks)
 - b) DNA tumour viruses (mention the tumour associated with each) (2 marks)
 - c) Rickettsial diseases (mention the causative organism for each) (2 marks)
 - d) Bacteria that cannot be cultured on artificial culture media (mention the disease caused by each) (2 marks)
 - e) Viruses transmitted transplacentally (1 mark)
 - f) Pathogens excreted in milk (1 mark)

- 4. Compare between:** (Total 18 marks)
- a) HAV and HBV (mode of transmission and active immunization) (6 marks)
 - b) Tuberculin test and QuantiFERON test (principle and specificity) (3 marks)
 - c) Early and late phases of type I hypersensitivity reaction (5 marks)
 - d) Di George syndrome and x-linked hypogammaglobulinaemia (specific deficiency and clinical manifestations) (4 marks)

- 5. For each of the following organisms mention the factor(s) responsible for its attachment to host target cells:** (1 mark each; total 5 marks)
- a) *Staphylococcus epidermidis*
 - b) *Bordetella pertussis*
 - c) Uropathogenic *E. coli*
 - d) HIV
 - e) Gonococci

- 6. Case 1:** (Total 6 marks)
- A 62-year-old male patient suffering from chronic renal failure undergoes a surgery for renal transplantation. The donor is his sister. Despite the immunosuppressive therapy taken by the patient, 4 years later the transplant is rejected.**

- a) Mention the type of this rejection and the underlying mechanism. (2 marks)
- b) What is the type of this graft? (1 mark)
- c) Mention 2 methods for tissue typing. (1 mark)
- d) Mention one of the immunosuppressive drugs that may be given to such patients and its action. (1 mark)
- e) What patients are more liable to experience this type of rejection? (1 mark)

- 7. Case 2:** (Total 5 marks)
- A 20-year-old male presents to the emergency department complaining of profuse bloody diarrhea of two days duration after eating hamburger at a fast food restaurant. Culture of the feces on sorbitol MacConkey's medium revealed the presence of non-sorbitol fermenting colonies.**

- a) What is the causative organism of this disease and the most likely serotype? (2 marks)
- b) What is the virulence factor of this organism? (1 mark)
- c) What are the possible complications of this disease? (1 mark)
- d) What is the source of contamination of this meal? (1 mark)

- 8. Case 3:** (Total 5 marks)
- A young man presents to the clinic complaining of sore throat and marked fatigue. On examination he is found to have swollen tonsils, cervical lymphadenopathy, palpable spleen and skin rash. Blood picture reveals a total leucocytic count of 21,000/cmm with atypical lymphocytes.**

- a) What is the most likely disease and the causative agent? (2 marks)
- b) Mention the other laboratory tests that may be done for diagnosis? (2 marks)
- c) What cells does the causative agent infect and what is the cause for the presence of atypical lymphocytes? (1 mark)

Medical Microbiology & Immunology

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Multiple Choice Questions

Choose one correct answer:

1. A 24-year-old HIV positive worker presented with a whitish membrane covering parts of the tongue. Microscopic examination from the membrane showed numerous large Gram-positive oval budding cells and pseudohyphae. Which of the following is the most likely cause of this infection?
 - a) *Streptococcus pyogenes*
 - b) *Candida albicans*
 - c) *Corynebacterium diphtheriae*
 - d) Fusiform bacilli and spiral bacteria
 - e) Measles virus
2. A physician experienced a needlestick injury from a needle used on an intravenous drug addict. The likelihood of transmission of the blood-borne viruses HBV, HCV and HIV is as follows:
 - a) HIV is more readily transmitted than HCV and HBV.
 - b) HCV is more readily transmitted than HBV and HIV.
 - c) HBV is more readily transmitted than HCV and HIV.
 - d) HCV and HIV are more readily transmitted than HBV.
 - e) The 3 viruses are equally transmitted.

3. **The ability of the immune system to recognize and destroy tumour cells is known as:**
- a) Peripheral tolerance
 - b) Specific immunosuppression
 - c) Immuno-surveillance
 - d) Tumour evasion
 - e) Non-specific immunotherapy
4. **Compared to bacteria, fungi:**
- a) Are smaller in size
 - b) Have no mitochondria
 - c) Possess a prokaryotic nucleus
 - d) Have spores used for reproduction
 - e) Cannot survive in presence of oxygen
5. **Regarding the major histocompatibility complex (MHC):**
- a) It is a glycoprotein present only on antigen presenting cells.
 - b) It is a glycoprotein present on all body cells.
 - c) It is present on human leukocytes only, and is therefore also known as HLA.
 - d) It is a group of genes.
 - e) It has a role in antigen presentation to T and B cells.
6. **Autoimmune haemolytic anaemia and systemic lupus erythematosus share all the following EXCEPT:**
- a) IgG may be part of the pathogenic mechanism.
 - b) Both are considered autoimmune diseases.
 - c) Complement activation may contribute to the tissue damage.
 - d) Both may be treated by immunosuppressive drugs.
 - e) In both cases, immune complexes may be detected in tissue biopsy.
7. **Which statement regarding healthcare-associated infections is WRONG?**
- a) Intensive care units carry high infection risks to patients.
 - b) MRSA is considered an epidemiologically significant pathogen.
 - c) Patients on mechanical ventilation are more prone to develop pneumonia.
 - d) Healthcare-associated infections usually develop during the first 24 hours after patient admission.
 - e) Standard precautions should be applied on all patients irrespective of their infectious status.
8. **A man who has a penile chancre appears in a hospital emergency room. The VDRL test is negative. Which of the following is the most appropriate action?**
- a) Perform dark-field microscopy for treponema.
 - b) Perform a Gram stain on the chancre exudate.
 - c) Perform RPR test.
 - d) Culture chancre exudate on an enriched medium.
 - e) Send the patient home untreated.

9. Aspergillosis may present as any of the following EXCEPT:

- a) Bronchial asthma
- b) Pneumonia
- c) Mucocutaneous infection
- d) Meningitis
- e) Mycotoxicosis

10. The primary effect of lactobacilli in the adult vagina is to:

- a) Maintain an alkaline environment
- b) Maintain an acidic environment
- c) Produce a protective mucous layer
- d) Synthesize vitamin K
- e) Facilitate infection by anaerobes

11. Which of the following regarding Sabin polio vaccine is TRUE?

- a) It provides little gastrointestinal immunity.
- b) It is prepared with inactive virus.
- c) It is administered by injection.
- d) It is not given to immunosuppressed individuals
- e) It is an example of passive immunity.

12. Which of the following is transmitted to humans via an arthropod vector?

- a) *Pseudomonas aeruginosa*
- b) *Legionella pneumophila*
- c) *Yersinia pestis*
- d) *Brucella abortus*
- e) *Chlamydomphila psittaci*

13. Each of the following statements concerning herpes simplex viruses (HSV) is correct EXCEPT:

- a) Primary infection usually involves the mucous membrane of the mouth, but may also include the genital tract.
- b) HSV-1 and HSV-2 are antigenically identical.
- c) They are transmitted by direct contact.
- d) HSV may establish a latent infection.
- e) Replication occurs at the site of entry of the virus.

14. All of the following are involved in the pathogenesis of type III hypersensitivity reaction EXCEPT:

- a) IgG
- b) Complement activation
- c) Platelet aggregation
- d) Cell-bound antigen
- e) Small soluble immune complexes

15. Which one of the following is characteristic of chlamydiae?

- a) Reticulate bodies are an infectious, extracellular form of the organism.
- b) Most genital tract infections are asymptomatic and undiagnosed and untreated.
- c) They are sensitive to β -lactam antibiotics.
- d) They stain Gram-positive.
- e) Inclusion bodies are formed from replication of elementary bodies.

16. Heavy and light chains of an Ig molecule share all of the following EXCEPT:

- a) Both are polypeptide chains.
- b) Both are present in IgM.
- c) Both are formed of variable and constant domains.
- d) Both share in the formation of the paratope.
- e) Both determine the functional properties of a particular isotype.

17. Choose the correct order for resistance (high \rightarrow low) to killing by sterilization:

- a) Mycobacteria - bacterial spores - staphylococci - prions
- b) Prions - bacterial spores - mycobacteria - staphylococci
- c) Bacterial spores - prions - staphylococci - mycobacteria
- d) Bacterial spores - prions - mycobacteria - staphylococci
- e) Prions - mycobacteria - bacterial spores - staphylococci

18. All of the following statements regarding *Streptococcus agalactiae* are true EXCEPT:

- a) Pregnant women may be vaginal carriers.
- b) They are beta-hemolytic streptococci.
- c) They are capsulated organisms.
- d) They cause serious infections in diabetics.
- e) They cause neonatal conjunctivitis.

19. One of the steps of phagocytosis is chemotaxis. Chemotaxis means:

- a) Direct attachment of bacteria to phagocytes
- b) Attraction of phagocytes to site of infection
- c) Killing of bacteria by release of chemicals
- d) Mediating attachment of bacteria to phagocytes through molecules such as CRP
- e) Release of chemicals inside phagosome

20. A 25-year-old female presented with a genital ulcer accompanied by inguinal lymphadenopathy. On examination, the lesion was soft and painful. Direct Gram-stained smears showed small Gram-negative bacilli. Which of the following is the most likely causative organism?

- a) Human papilloma virus
- b) Herpes simplex virus
- c) *Haemophilus ducreyi*
- d) *Treponema pallidum*
- e) *Neisseria gonorrhoeae*

21. Common features of anaerobic infections include all of the following EXCEPT:

- a) Superficial lesions
- b) Foul smelling pus
- c) Sterile pus
- d) Gas formation
- e) Special features, such as sulfur granules

22. All of the following are used in direct detection of viruses EXCEPT:

- a) Nucleic acid hybridization
- b) Tissue culture
- c) Electron microscopy
- d) Immunoassays
- e) Skin test

23. Granuloma formation:

- a) Involves the accumulation of large numbers of activated B lymphocytes
- b) Occurs especially in AIDS patients with mycobacterial infection
- c) Occurs with extracellular bacteria which resist engulfment by phagocytes
- d) Is accompanied by formation of epithelioid cells, which are activated Th cells
- e) Prevents dissemination of infection

24. Human papilloma virus vaccine:

- a) Is a quadrivalent vaccine that prevents infection by types 6, 11, 16 and 18
- b) Is routinely given to newborn females during their first year of life
- c) Is a living attenuated vaccine
- d) Is given mainly to post-menopausal women
- e) Protects against development of ovarian cancer

25. A 35-year-old female develops surgical site infection after Caesarian section. Culture yields *Staphylococcus aureus* and the isolate was tested and found to be positive for the *mecA* gene. What does that mean?

- a) The isolate is resistant to vancomycin.
- b) The isolate is susceptible to methicillin.
- c) The isolate is susceptible to penicillin G.
- d) The isolate is resistant to methicillin.
- e) The isolate is susceptible to vancomycin.

26. All of the following statements regarding genital mycoplasmas are true EXCEPT:

- a) They cause non-gonococcal urethritis.
- b) They are sexually transmitted.
- c) They include *Ureaplasma urealyticum*
- d) They can be grown on simple media.
- e) Mycoplasma infections are diagnosed mainly serologically.

27. A patient develops sore throat, fever and lymphadenopathy 3 weeks after having received a blood transfusion following a car accident. The best investigation to rule out possibility of transmission of HIV is:

- a) Antibody detection by ELISA
- b) Antibody detection by Western blot
- c) Estimation of CD4 count
- d) Detection of p24
- e) Detection of gp120

28. Which statement about bacteriophages is TRUE?

- a) They may be used to introduce foreign DNA into a host cell.
- b) All bacteria are equally susceptible to different phages.
- c) The nucleic acid core is usually RNA.
- d) The lytic cycle starts by adsorption of the phage head to the bacterial cell.
- e) Phage typing may be used to determine susceptibility of bacteria to different antibiotics.

29. Regarding tube agglutination test for diagnosis of brucellosis all of the following statements are true EXCEPT:

- a) It needs to be done using a wide range of serum dilutions.
- b) It detects antibodies to *Brucella abortus* only.
- c) It is the commonest test used for diagnosis of brucellosis.
- d) Blocking antibodies may give false negative results.
- e) A titer of 160 or more is diagnostic for brucellosis.

30. False negative Widal test may result :

- a) If antibiotic therapy was already administered.
- b) If the patient is living in an endemic area.
- c) If the patient has systemic lupus erythematosus.
- d) If the patient was previously vaccinated.
- e) If the test was performed after the first week.

31. Infant botulism occurs in infants between 2 weeks and 6 months of age because:

- a) Passively transferred maternal antibodies are no longer present
- b) Preformed toxin may be present in raw honey present in food supplements consumed at this age
- c) The causative organism may be transmitted to the infant through breast feeding
- d) The normal intestinal flora has not yet developed
- e) During the first 6 months of life the infant is physiologically immunosuppressed

32. Guillain-Barré syndrome is attributed to antibodies against:

- a) *Campylobacter jejuni*
- b) *Helicobacter pylori*
- c) *Salmonella Typhi*
- d) *Vibrio parahaemolyticus*
- e) *Shigella dysenteriae*

33. Clonal deletion refers to which of the following?

- a) Elimination of immature self-reactive lymphocytes during their maturation in the primary lymphoid organs
- b) Elimination of mature self-reactive lymphocytes after encountering their antigen in the secondary lymphoid organs
- c) Elimination of immature self-reactive lymphocytes during their maturation in the peripheral lymphoid tissues
- d) Elimination of mature self-reactive lymphocytes that fail to receive a costimulatory signal
- e) Elimination of immature self-reactive lymphocytes that fail to receive a costimulatory signal

34. A young man was bitten by a rabid dog in the neck. Fortunately, the dog was captured. Knowing that this young man was not previously vaccinated, how would you manage this case?

- a) Clean the wound immediately and wait for appearance of signs of rabies in the dog to decide accordingly.
- b) Clean the wound immediately and start 5-dose vaccination by human diploid cell vaccine.
- c) Clean the wound immediately, administer rabies immunoglobulin and start 2-dose vaccination by human diploid cell vaccine.
- d) Clean the wound immediately, administer rabies immunoglobulin and start 5-dose vaccination by human diploid cell vaccine.
- e) Clean the wound immediately and sacrifice the dog to test for rabies and decide accordingly.

35. Regarding influenza viruses, which statement is TRUE?

- a) Antigenic shift occurs in types A and B.
- b) Antigenic drift occurs in type A only.
- c) Type C is antigenically unstable.
- d) Type B can be treated by amantadine.
- e) Type A is the cause of the severe influenza pandemics.

36. Regarding viral replication, which statement is TRUE?

- a) During the eclipse phase large numbers of mature virions can be detected in the infected cell.
- b) Viruses attach non-specifically to host cell surface molecules.
- c) Enveloped viruses are released from the infected cell by budding.
- d) DNA and RNA viruses have a common replication cycle.
- e) Uncoating may occur outside the host cell before viral penetration.

37. Which of the following is NOT a zoonotic disease?

- a) Yellow fever
- b) Leptospirosis
- c) Anthrax
- d) Legionnaire's disease
- e) Brucellosis

38. A certain lymphocyte went through the following pathway: bone marrow → thymus → blood → lymph node, where it recognized a peptide shown to it by an antigen presenting cell. This lymphocyte is definitely:

- a) A memory T cell
- b) A memory B cell
- c) A cytotoxic T cell
- d) A plasma cell
- e) A T cell

39. In the previous example, what happened to that lymphocyte in the lymph node?

- a) It decided whether to become a cytotoxic T cell or a helper T cell.
- b) It underwent activation, proliferation and differentiation.
- c) It became a memory B cell.
- d) It became a plasma cell.
- e) It became mature.

40. Aseptic meningitis may be caused by any of the following microbial agents EXCEPT:

- a) *Haemophilus influenzae* type b
- b) *Leptospira interrogans*
- c) *Mycobacterium tuberculosis*
- d) *Cryptococcus neoformans*
- e) Polioviruses

41. Minimal inhibitory concentration (MIC):

- a) Is the highest concentration of the drug preventing bacterial growth
- b) Is the concentration of the drug achieved in serum with optimal dose
- c) Is the lowest concentration of the drug preventing bacterial growth
- d) Is the lowest concentration of the drug allowing growth of the organism
- e) Can be determined by using monoclonal antibodies

42. Which one of the following pairs does NOT match?

- a) Rotavirus.....infantile gastroenteritis
- b) *Coxiella burnetii*.....enteric fever
- c) Prions.....bovine spongiform encephalopathy
- d) Mumps virus.....parotitis
- e) Actinomycetes.....Madura foot

43. Regarding colony morphology of different organisms, which one of the following pairs does NOT match?

- a) Mercury-droplet appearance..... *Helicobacter pylori*
- b) Fried-egg appearance..... *Mycoplasma pneumoniae*
- c) Molar tooth appearance..... *Actinomyces israelii*
- d) Mucoid appearance..... *Klebsiella pneumoniae*
- e) Double zone of haemolysis..... *Clostridium perfringens*

Questions 44 - 55:

For each of the following numbered phrases, select the lettered choice (a-e) that is most associated with it. Each choice may be selected once, more than once or not at all.

a) Capsule b) Spore c) Pili d) Cytoplasmic membrane e) Flagella

44. Involved in quellung reaction

45. May be involved in spreading antibiotic resistance among bacteria

46. Polymyxin and amphotericin B interfere with its function

47. Is killed only by autoclaving

a) IL-2 b) Type I IFN c) Type II IFN d) IL-5 e) IL-4

48. Most important in defense against viruses

49. Is considered the hallmark of Th1 cells

50. Is considered the hallmark of Th2 cells

51. Most important in defense against helminths

a) C5a b) C1 c) MAC d) C5b e) C3b

52. Acts as an opsonin

53. Acts as an anaphylatoxin

54. Has no role in the lectin pathway

55. Has a cytolytic effect

56. An 18-month-old child was brought to the physician with what appeared to be "a sunburn". On examination, large bullae were present beneath the epidermis, some of which have ruptured exposing underlying moist and red dermis. Which of the following virulence factors is responsible for this disease ?

a) Toxic shock syndrome toxin

b) Leukocidin

c) Protein A

d) Capsule

e) Exfoliatin

57. A 19-year-old man was brought to the emergency department with a petechial rash, headache, nuchal rigidity, and vomiting. Which of the following describes the most likely causal agent?

a) Gram-negative coccus, capsulated, ferments glucose and maltose

b) Gram-negative coccus, ferments glucose only

c) Gram-positive anaerobic bacillus

d) Gram-positive coccus, alpha haemolytic, optochin resistant

e) Gram-negative curved bacilli with darting motility

58. A chemical disinfectant that can be safely applied to skin but is not suitable for systemic administration is termed:

- a) An antibiotic
- b) A high level disinfectant
- c) A low level disinfectant
- d) An antiseptic
- e) A cleansing agent

59. Which of the following does NOT match ?

- a) Saprophytic bacteria.....live freely in nature
- b) Commensal bacteria.....part of the normal flora
- c) Pathogenic bacteria..... capable of causing disease
- d) Opportunistic pathogens.....highly pathogenic organisms
- e) Parasitic bacteria.....require a living host

60. In combined therapy, the expression $1+1 = >2$ means:

- a) Antagonistic effect
- b) Indifference
- c) Synergistic effect
- d) Addition
- e) Ineffectiveness

Parasitology

The examination includes the following : (Total : 12 pages, total : (75 marks)

QI : MCQ (30 MCQs) (15 marks)

QII : Cases (2 cases) (15 marks)

QIII : Short answer questions (13 marks)

QIV : Short Answer questions (12 marks)

QV : Diagrams (5 marks)

QVI : True and false (10 marks)

QVII : Match (5 marks)

All the questions should be answered in this sheet

Question I (MCQs) (15 marks)

(Choose only 1 answer)

1. The following statement about schistosomiasis is true :

- a- Schistosomulae penetrate the skin or mucous membrane
- b- Praziquantel is effective against all Schistosoma species.
- c- The stage of egg deposition occurs in the pulmonary capillaries.
- d- eggs trapped in the tissues stimulate auto-immune reaction

2. The following parasite is tissue dwelling, causing cystic cavities in the lung with brownish purulent sputum and eosinophilia :

- a- Echinococcus granulosus
- b- Paragonimus westermani
- c- Entamoeba histolytica
- d- Ascaris lumbricoides

3. House dust mites cause allergic manifestations because :

- a- They are blood sucking causing itching and dermatitis
- b- They live in hair follicles causing erythema and scaling
- c- Their bodies and excreta are potent allergens
- d- They burrow tunnels in the horny layer of the skin

4. The following parasite is transmitted cyclodevelopmentally by its vector :

- a- Leishmania donovani
- b- Wuchereria bancrofti

- c- Plasmodium vivax
- d- Trypanosoma cruzi

5. Serology is the usual method of diagnosis of :

- a- Taeniasis
- b- Giardiasis
- c- Trichomoniasis
- d- Visceral larva migrans

6. The following parasite infects the biliary tract

- a- Taenia solium
- b- Entamoeba coli
- c- Trichuris trichiura
- d- Microsporidia

7. Malabsorption and atrophy of the villi may be caused by the following intracellular intestinal parasite :

- a- Giardia lamblia
- b- Capillaria philippinensis
- c- Cyclospora cayetanensis
- d- Strongyloides stercoralis

8. Pathogenesis of vivax malaria is mainly due to :

- a- Persistence of hypnozoites in the liver
- b- Rupture of hepatocytes and release of schizonts content
- c- Rupture of RBCs and liberation of pigment and parasite products
- d- Formation of gametocytes in the blood stream

9. In chronic Chages' disease, the main lesions are in :

- a- Digestive and respiratory tracts
- b- Heart and liver
- c- Heart and digestive tract
- d- Liver and spleen

10. Man can be infected with eggs of the following cestode:

- a- Taenia saginata
- b- Hymenoleps diminuta
- c- Taenia solium
- d- Dipylidium caninum

11. Norwegian (crusted) scabies

- a- Is a mild form of scabies

- b- Occurs in immunodeficient patients
- c- Crusts are formed due to treatment
- d- Affects the interdigital spaces only

12. Leishmania donovani evades the immune system through :

- a- Cleavage of antibodies
- b- Acceleration of decay of complement
- c- Antigen mimicry
- d- Inhibition of macrophages

13. Chigger's mites are characterized by :

- a- Adults cause severe itching to man
- b- Larvae feed through stylosome formation
- c- Eggs are laid inside tunnels in the skin
- d- Larvae are free living

14. In intestinal amoebiasis :

- a- Invasion of the mucosa usually occurs in the caecum
- b- The stool is alkaline with scanty faecal matter
- c- Malabsorption is a common complication
- d- Scraping from the lesions shows the quadrinucleate cyst stage

15. Espundia is seen in patients from :

- a- North Africa
- b- South Africa
- c- North Africa
- d- South Africa

16. Isospora multiplies in :

- a- The lumen of duodenum
- b- The lumen of ileum
- c- The lumen of the large intestine
- d- The epithelial lining of the small intestine

17. The infective stage for female Anopheles in malaria is the :

- a- Sporozoite
- b- Ookinete
- c- Gametocyte
- d- Merozoite

18. Elevated total IgM level in serum and CSF may help diagnosis of :

- a- Granulomatous amoebic encephalitis

- b- African trypanosomiasis
- c- American trypanosomiasis
- d- Primary amoebic encephalitis

19. Oocysts cause auto-infection with the following parasite:

- a- Cryptosporidium parvum
- b- Toxoplasma gondii
- c- Cylospora cayetanensis
- d- Entamoeba histolytica

20. Charcot-Leyden crystals could be present in stool in :

- a- Giardiasis
- b- Balantidiasis
- c- Amoebiasis
- d- Cryptosporidiosis

21. Scabies is characterized by :

- a- Painful nodular swelling at the site of bite
- b- Mites live in tunnels in the subcutaneous tissue
- c- Potassium hydroxide is the most effective acaricide
- d- Transmission occurs by contact

22. Knott's blood concentration technique is used to detect :

- a- Malaria parasites
- b- Wuchereria microfilariae
- c- African Trypanosomes
- d- Migrating Strongyloides larvae

23. High eosinophilia is one of the laboratory findings in :

- a- Capillariasis
- b- Hymenolepiasis nana
- c- Balantidiasis
- d- Fascioliasis

24. Megacolon associated with Chagas' disease :

- a- Is manifested by diarrhea
- b- Occurs early in the disease
- c- Is due to oedema of the mucosa
- d- Is associated with constipation

25. Tungiasis :

- a- Is caused by invasion of the skin by flea's larva

- b- Is caused by fertilized female flea
 - c- Is caused by male or female flea
 - d- Mostly affects the groin
26. In acanthamoebiasis :

26. In acanthamoebiasis:

- a- The invasive stage is the amoebflagellate
- b- Trophozoite only can be found in the brain
- c- The trophozoite reaches the brain through the cribriform plate
- d- Chronic inflammation of the brain is seen

27. The following disease is transmitted by lice :

- a- Endemic relapsing fever
- b- Q fever
- c- Epidemic relapsing fever
- d- Plague

28. Bilharzial cor pulmonale is due to :

- a- Deposition of immune complex in small pulmonary blood vessels
- b- Egg emboli in pulmonary blood vessels
- c- Reaction around schistosomules in lung
- d- Reaction around mature adult worms in lung

29. The following intestinal protozoal parasite is transmitted only through heteroinfection :

- a- *Cylospora cayetanensis*
- b- *Entamoeba histolytica*
- c- *Giardia lamblia*
- d- *Cryptosporidium parvum*

30. The following statement best describes concomitant immunity in schistosomiasis :

- a- Immunity following healed infection
- b- Immunity associated with persistent infection
- c- Solid immunity to reinfection
- d- Immunity that suppresses the disease manifestations

Question II (Cases : 15 marks)

Read the following scenarios then answer the questions

A- Case I : (7 marks)

A football player returning from Sudan was admitted to the intensive care unit of Kasr El Eini with fever and coma. Blood picture revealed severe

anaemia. The white cells and platelets counts were normal. The serum bilirubin level was elevated. The CSF revealed no parasite while the blood film revealed the causative organism.

1. What is your diagnosis ? (1 mark)

.....

2. What did the blood film reveal? Explain (2 marks)

.....

3. What is the pathogenesis of coma in this condition? (2 marks)

.....

4. Mention 1 drug that could be used for treatment of the case (1 mark)

.....

5. Mention 1 drug that could be given for prophylaxis (1 mark)

.....

B- Case II : (8 marks)

A male patient 36 years old from Sinai presented to the dermatology clinic with an ulcer on his face. The ulcer had sharp edges, raised indurated margin and scanty exudate. The patient gave a history of a nodule at the site of the lesion several months ago.

1. If the lesion is due to a parasitic infection, what is the most likely diagnosis? (1 mark)

.....

2. Mention 2 methods by which the diagnosis could be confirmed. Explain the findings (3 marks)

.....

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3. What is the extent of acquired immunity in this condition and what is the prognosis of this infection if untreated? (1 mark)

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e- The pathogenesis of amoebic liver abscess (2 marks)

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Question IV

Short answer questions (total : 12 marks)

Explain the pathogenesis induced by one parasite for each of the following condition

a- Protozoa infection with dark urine (2 marks)

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b- Hydronephrosis and renal failure (2 marks)

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c- Toxic manifestations (2 marks)

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d- Dysentery due to a protozoal infection (2 marks)

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e- Lymphadenopathy due to a protozoal infection

(2 marks)

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f- Enlargement of male genitalia

(2 marks)

.....

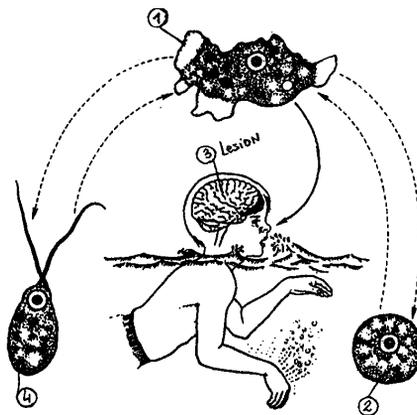
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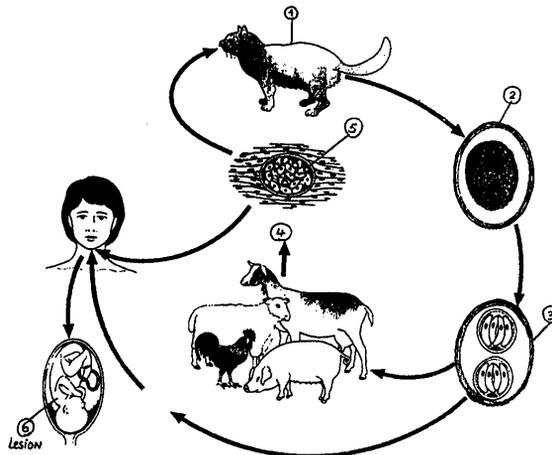
Question V : Label the following diagrams

(Total 5 marks)

a.



b.



Question VI (True and false) (10 marks)

Indicate which is true and which is false of the following statements. Explain the true and correct the false

1. Recrudescence of Plasmodium falciparum infection is due to activation of hypnozoites dormant in the liver due to immunosuppression. (.....)

.....
.....

2. Thin walled oocysts are responsible for internal auto-infection with Isospora. (.....)

.....
.....

3. Katayama syndrome is a type IV granulomatous reaction to chronic schistosomiasis (.....)

.....
.....

4. Detection of anti-Toxoplasma IgM in maternal blood is diagnostic of congenital infection of her baby. (.....)

.....
.....

5. Keratitis can result from reaction to migrating adult Loa Loa worms. (.....)

.....
.....

6. Conjugation between Balantidium coli trophozoites results in doubling of their number. (.....)

.....
.....

7. Many vaccine preparations against have been approved for human use. (.....)

.....
.....

8. Cryptosporidiosis is rare in urban areas where water is chemically treated. (.....)

.....
.....

9. Serious and sometimes fatal effects of ascariasis can occur due to eggs trapped in the tissues. (.....)

.....

10. Perianal swab is the usual method for diagnosis of enterobiasis (.....)

.....

Question VII

Match (Total : 5 marks)

Match the following (2.5 marks)

- | | |
|-----------------------------|--------------------------------|
| 1. Malignant transformation | a- Trichuriasis |
| 2. Intracellular parasite | b- Leishmania mexicana |
| 3. Microcytic anaemia | c- Amoebiasis |
| 4. Chiclero ulcer | d- Giardia lamblia |
| 5. Undermined ulcer | e- Cryptosporidium parvum |
| | f- Falciparum malaria |
| | g- Schistosomiasis haematobium |

(1,), (2,), (3,), (4,), (5,)

Match the following (2.5 marks)

- | | |
|-------------------------|-------------------------|
| 1. Nephrotic syndrome | a- Trichuris trichiura |
| 2. Rectal prolapse | b- Trichinella spiralis |
| 3. Haematogenous spread | c- Onchocerca volvulus |
| 4. Myositis | d- Plasmodium malaria |
| 5. Sowda | e- Acanthamoeba |
| | f- Trypanosoma cruzi |
| | g- Black fever |

(1,), (2,), (3,), (4,), (5,)

Parasitology

This sheet includes the followings: (Total:10 fages, 60 marks)

QII: Cases (25 marks)

QIII: short answer questions (10 marks)

QVI: short answer questions (16 marks)

QV: Match (9 marks)

All the questions should be answered in this answer sheet

Question II (3 Cases, total 25 marks)

Case I: (10 marks)

A baby was born suffering from a congenital anomaly as shown in the figure below, the main complain was convulsion and fever



1- what is the most probable diagnosis? and what is the name of this anomaly? (2 marks)

2- How was the baby get infected? (1 mark)

3- What are the factors affecting the severity of foetal damage? (1 mark)

4- Mention other congenital anomalies which may be presented due to such infection. (3 marks)

5- Explain the significance of serological diagnosis of such a case during pre-natal and posrnatal period. (3 marks)

Case II (5 marks)

An Egyptian man arriving from Sinai where he was working as a laborer and living in campus. He has a chronic ulcer in his arm as shown in the figure. The ulcer resists treatment by known antibiotics



1- What is your provisional diagnosis? (1 marks)

2- How was the patient get infected? (1 marks)

3- How can you confirm your diagnosis? (2 marks)

4- what is the prognosis of this clinical case if left untreated? (1 marks)

Case III (10 marks)

A patient complained of pallor and abdominal distension. On examination the doctor found that the cause of such distension was increase in size of liver and spleen as shown in the figure below.



1- Mention 4 parasitic infection that may cause such clinical presentation (2 marks)

2- If the laboratory investigations done to the patient revealed anaemia. Mention the type and the pathogenesis of anaemia in each case of them (6 marks)

3- Mention the methods of diagnosis of ONE of these parasites causing such clinical presentation. (2marks)

Question III

Short Answer Questions (10marks)

Give reason:

1- River (Sudan) blindness occurs in onchocerciasis. (marks)

2- Nephrotic syndrome occurs in quartan malaria. (1 mark)

3- Elephantiasis frequently happened in bancroftian filariasis. (2marks)

4- Marked elevation of l&m level in hyper reactive splenomegaly. (1mark)

5- Anopheles gambiae is an efficient malaria vector. (1 mark)

6- Allergic manifestations may appear among people living in bad ventilated house. (2marks)

7- Haemolytic anaemia is more pronounced in plasmodium falciparum than in plasmodium malariae infection. (1mark)

Question IV

Short Answer Questions (16marks)

Compare between:

1- Pathogenesis of follicle mite and itch mite. (3 marks)

2- Medical importance of Aedes and Anopheles mosquitoes. (Enumeration)

3- Naegleria and Acanthamoeba encephalitis (mode of infection and pathogenesis) (4 marks)

4- skin changes in kala azar and onchocerciasis. (Enumeration) (3 marks)

5- Specific myiasis and semispecific myiasis. (Definition and example) (2 marks)

6- Sparganosis and cysticercosis. (Causative organism, mode of infection) (2marks)

Question V
(Match, Total 9 marks)

A- Match each parasite with the corresponding mean of evasion (4marks)

- 1- polymorphic Trypanosoma
- 2- Trypanosoma cruzi
- 3- Schistosoma mansoni
- 4- Trichinella spiralis
- 5- Ancylostoma duodenale
- 6- Toxoplasma gondii
- 7- enterobius cernicularis
- 8- leishmania
- a- Surrounding cyst wall
- b- Intracellular habitat
- c- Antigenic variation
- d- Antigenic disguise

- e- Antibody cleavage
- g- Inhibition of macrophages
- h- Movement

(1,.....) (2,.....) (3,.....) (4,.....) (5,.....) (6,.....) (7,.....) (8,.....)

B- Match each disease (column A) with its arthropod vector (column B) and mean of transmission (column C): (5marks)

A	B	C
1- plague	a- lice	i- crushing of vector
2- Epidemic relapsing fever	b- fleas	ii- stool and salica of vector
3- Chagas' disease	c- Musca	iii- saliva of vector
4- Q fever	d- Triatoma	iv- legs and wing of vector
5- Typhoid	e- Hard Ticks	v- stool of vector
	f- Anopheles	vi- piercing proboscis
	&- Simulium	vii- invasion of tissue

(1,.....) (2,.....) (3,.....) (4,.....) (5,.....)

parasitology

The examination includes the following: (Total: 15 pages, 75 marks)

QI: MCQs (30 MCQs) (Total 5 pages, 15 marks)

QII: Cases (25 marks)

QIII: short answer question (10 marks)

QVI: short answer questions (16 marks)

QV: match (9 marks)

All the questions should be answered in your answer sheet

Question I: M.C.Q.)total:15 marks) (only ONE choice)

1- Trophozoites of Naegleria fowleri are NOT detected in:

- a- Wet mount of CSF of the patient.
- b- Giemsa - stained blood film of the patient
- d- Cultured CSF fluid of the patient.

2- The following diseases are caused by fleas EXCEPT:

- a- plague.
- b- Epidemic relapsing fever.
- c- Chigger's disease
- d- Endemic typhus.

3- charcot Leyden crystals appear in stool in infection with:

- a- Entamoeba histolytica.
- b- Enterobius vermicularis.
- c- Giardia lamblia.
- d- Diphyllbothrium latum.

4- The trophozoite is the infective stage in:

- a- Giardia lamblia.
- b- entamoeba histolytica
- c- Trichomonas vaginalis.
- d- Balantidium coli.

5- Isospora belli multiplies in:

- a- The epithelial cells lining the large intestine.
- b- The lumen of small intestine.
- c- The lumen of the large intestine.
- d- The epithelial cells lining the small intestine.

6- Autoinfection does not occur in the following parasitic infection:

- a- Giardiasis

- b- Cryptosporidiosis
- c- Cyclosporiasis
- d- Isosporiasis.

7- In granulomatous amoebic encephalitis:

- a- Infection is strongly associated with swimming.
- b- primary infection occurs in upper respiratory.
- c- Diffuse meningo- encephalitis is common.
- d- Invasion of CNS is secondary to primary infection.

8- Severe giardiasis occurs with:

- a- Increased secretory IgA.
- b- Hypergammaglobulinaemia.
- c- Achloroh ydria.
- d- Competent immunity.

9- Oocyst of Toxoplasma gondii is found in:

- a- Stool of infected cats
- b- Skeletal muscle of sheep
- c- Stool of infected sheep

10- In plasmodium falciparum infection, sporogony occurs in:

- a- Human RBCs
- b- Human liver cells
- c- Female Anopheles
- d- Blood capillaries of internal organs

11- In African trypanosomiasis, the infective stage is found in:

- a- Salive of Glossina
- b- Stool of Glossina
- c- Saliva of Triatoma
- d- Stool of Triatoma

12- Cyclops is ont the intermediate host in the follwing infection:

- a- Diphylobothrium latum infection
- b- Diphylobothrium mansoni infection
- c- Dracunculus medinensis infection
- d- Diplidium caninum infection

13- Visceral larva migrans occurs due to ingestion of:

- a- Embryonated Trichuris egg in contaminated food.
- b-Embryonated Toxocara eggs in contaminated food.
- d- Embryonated Enterobius eggs in contaminated food.

14- Metronidazole (flagyl) is the drug of choice in the following parasitic infections EXCEPT:

- a- Toxoplasmosis.
- b- Trichomoniasis.
- c- Tissue amobiasis.
- d- Balantidiasis.

15- Recrudescence in malaria is due to:

- a- Infection transmitted by blood transfusion.
- b- persistence low grade parasitaemia.
- c- persistent gametocyte in RBCs.
- d- Activation of hypnozoites

16- phlebotomus transmits one of these protozoal infections:

- a- Chagas' disease
- b- Babesiosis
- c- Visceral leishmaniasis
- d- Rhodesian trypanosomiasis

17- pediculus humanus corporis transmits:

- a- Epidemic typhus
- b- Endemic typhus
- c- Dengue fever
- d- Iroya fever

18- Myiasis occurs due to invasion of human tissues by:

- a- Larva of pulex.
- b- Larva of Aedes.
- c- larva of Sarcophaga.
- d- Larva of Trombicula.

19- Cardiac lesion occurring in Chagas' disease is due to:

- a- Granuloma formation
- b- Immune complex deposition
- c- Allergic reactions.
- d- Autoimmune disease.

20- The following parasitic infection is a zoonotic disease:

- a- Giardiasis
- b- Amoebiasis
- c- Cyclosporiasis
- d- Cryptosporidiosis

21- Contaminated green salad may cause infection with:

- a- Ancylostoma duodenale.
- b- Trichinella spiralis.
- c- Giardia lamblia.
- d- Leishmania donovani.

22- Tropical pulmonary eosinophilia is a manifestation of:

- a- Fascioliasis.
- b- Ancylostomiasis.
- c- Onchocerciasis.
- d- Bancroftian filariasis.

23- Duurinal periodicity is a characteristic feature of:

- a- Brugia malayi.

- b- Loa loa.
- c- Wuchereria bancrofti.
- d- Onchocerca volvulus.

24- Anaemia of Diphylobothrium latum is due to:

- a- Iron deficiency.
- b- Haemolysis of RBCs.
- C- Blood loss.
- d- Vitamin B12 deficiency

25- The following parasite passes sporulated oocysts only in faeces:

- a- Toxoplasma gondii.
- b- Isospora belli.
- c- Cryptosporidium parvum.
- d- Cyclospora cayetanensis.

26- Eggs of the following parasite are directly infective to man:

- a- Ascaris lumbricoides.
- b- Enterobius vermicularis.
- c- Trichuris trichiura.
- d- Ancylostoma duodenale.

27- Rickettsia prowazekii:

- a- Is transmitted in the saliva of pediculus humanus corporis
- b- Can cause the latent Brill Zinsser disease
- c- Multiplies in the body cavity of pediculus humanis corporis
- d- Is transmitted in epidemic by tick bite.

28- Babesiosis is characterized by:

- a- presence of pigmente in the infected RBCs.
- b- periodicity of fever.
- c- Maltese cross forms in the infected RBCs.
- d- Transmission by soft tick.

29- The following protozoon produces watery diarrhea:

- a- Balantidium coli.
- b- Entamoeba histolytica.
- c- plasmodium falciparum.
- d- Cyclospora cayetanensis.

30- Adherence of parasitized red cells in p.falciparum infection is the cause of:

- a- Black water fever
- b- Cerebral malaria
- c- Malaial recrudescence
- d- Malarial relapse

parasitology

The examination includes the following; (Total 75 marks)

- QI; MCQs (30 MCQS) (15 marks)
QH: Cases (25 marks)
QIH: Give reason (10 marks)
QVI; Compare (15 marks)
QV: Match (10 marks)

Question I: M.C.Qs (Total 15 marks)

(Only ONE choice is required)

1- Relapse occurring in *P. vivax* & *P. falciparum* is due to:

- a- low grade parasitaemia with lowered immunity.
- b- reactivation of hypnozoites in the liver.
- c- Rupture of hepatocytes & release of schizont content.
- d- Formation of gametocytes in blood stream.

2- Q-fever is transmitted through:

- a- Saliva of ticks
- b- Stool of ticks
- c- Saliva & stool of ticks
- d- Crushing of tick

3- Tissue cysts of *Toxoplasma gondii* develop in:

- a- Skin of the patient
- b- Heart of the patient
- c- Small intestine of the patient
- d- Large intestine of the patient

4- Pelvic peritonitis may occur as a complication of:

- a- Capillizria infection
- b- *Trichinella* infection
- c- *Giardia lamblia* infection
- d- *Enterobius* infection

5- Anaemia of *Dipyllobothrium latum* is due to:

- a- Iron deficiency
- b- Haemolysis of RBCs
- c- Blood loss
- d- Vitamin B12 deficiency

6- The following parasitic infection does not cause anaemia:

- a- Sleeping sickness
- b- Visceral leishmaniasis
- c- Malignant malaria
- d- Toxoplasmosis

7- Bloody stool is a clinical presentation in infection with:

- a- *Enterobius vermicularis*
- b- *Trichuris trichiura*
- c- *Heterophyes heterophyes*
- d- *Hymenolepis nana*

- 8- The patient passes stool containing mucus tinged with blood in:**
 a- Entamoeba histolytica infection b- Trichomonas vaginalis infection
 c- Giardia lamblia infection d- Toxoplasma gondii infection
- 9- High eosinophilia is a laboratory finding in the following parasitic infection:**
 a- Visceral leishmaniasis c- Leishmaniasis
 b- Cutaneous leishmaniasis d- Trypanosomiasis
- 10- The following protozoan causes conjunctivitis :**
 a- Toxoplasma gondii b- Trypanosoma cruzi
 c- Trypanosoma rhodesiense d- Plasmodium vivax
- 11- Chronic blood loss occurs in infection with:**
 a- Enterobiasis b- Giardiasis
 c- Ancylostomiasis d- Cryptosporidiasis
- 12- Water-borne protozoal infection includes:**
 a- Chagas' disease b- Cryptosporidiosis
 c- Trichomoniasis d- Leishmaniasis
- 13- Enlargement of lymph nodes does not occur in:**
 a- African trypanosomiasis b- Toxoplasmosis
 c- Balantidiasis d- Kala azar
- 14- Enterobius eggs are rarely found in stool of infected patients due to:**
 a- The eggs are trapped in patient's tissues
 b- The worm discharges larvae in stool
 c- The worm lays eggs on peri-anal skin
 d- Most eggs hatch in intestinal lumen
- 15- In schistosomiasis, egg emboli may cause:**
 a- Katayama syndrome b- Vermineous pneumonitis
 c- Intestinal polyposis d- Cor-pulmonale
- 16- Sabin Feldman dye test is used to diagnose:**
 a- Cryptosporidium infection b- African trypanosomiasis
 c- Toxoplasma infection d- Plasmodium infection
- 17- The following parasitic infection is a zoonotic disease:**
 a- Amoebiasis c- Ascariasis
 b- Cryptosporidiosis d- Enterobiasis -
- 18- Epidemic relapsing fever is transmitted by:**
 a- Saliva of body louse b- Stool of body louse
 c- Crushing of head louse d- Crushing of body louse
- 19- Winterbottom's sign is seen in:**
 a- Toxoplasmosis b- Leishmaniasis
 c- African trypanosomiasis d- Acute Chagas' disease

20- Specific myiasis occurs due to invasion of human tissues by:

- a- Piophilta larva l
- b- Stomoxys larva
- c- Dermatobia larva
- d- Wohbfahrtia larva

21- The following protozoan is not transmitted by autoinfection:

- a- Balantidium coli
- b- Entamoeba histolytica
- c- Cryptosporidium parvum
- d- Cyclospora cayetanensis

22- Perennial rhinitis may be caused by:

- a- Storage mites
- b- House dust mites
- c- Itch mites
- d- Trombiculid mites

23- Leishmania forms of Trypanosoma cruzi are found in:

- a- Culture media
- b- Heart muscles of the patient
- c- RBCs of the patient
- d- RBCs of the laboratory animal

24- Bronchial asthma may occur with the following parasitic infection:

- a- Entamoeba histolytica infection
- b- Toxoplasma gondii infection
- c- Toxocara canis infection S
- d- T aenia saginata infection

25- Hyper-reactive malarial splenomegaly is due to:

- a- Suppression of natural killer cells
- b- Suppression of T suppressor cells
- c- Suppression of B lymphocytes
- d- Suppression of mast cells

26- Modified Ziehl-Neelsen stain is recommended to demonstrate:

- a- Giardia lamblia trophozoites in patient's stool
- b- Balantidium coli cysts in patients stool
- c- Cryptosporidium parvum oocysts in patient's stool
- d- T oxoplasma gondii oocysts in patient's stool

27- The following protozoan can be detected in patient's urine:

- a- Cyclospora cayeyanensis ooc
- b- Isospora belli oocyst
- c- Trichomonas vaginalis cyst
- d- Trichomonas vaginalis trophozoite

28- Malaria parasites that have special affinity to old RBCs include:

- a- Plasmodium malariae
- b- Plasmodium ovale
- c- Plasmodium vivax
- d- Plasmodium falciparum

29- The following is not considered an opportunistic protozoa:

- a- Isospora belli
- b- Toxoplasma gondii
- c- Cryptosporidium parvum
- d- Naegleriafowleri

30- Manifestations of malignant malaria do not include the following:

- a- Coma and convulsions
- b- Hypoglycaemia
- c- Generalized lymphadenopathy
- d- Circulatory collapse s

Question II: 3 Cases (Total 25 marks)

Case 1: (10 marks)

An Egyptian farmer arriving from a rural area in Ismaiha Governorate complained of a skin lesion in his right leg. On examination, the doctor observed an ulcer as shown in the figure below.

The patient gave a history of an arthropod bite.



1-What is the probable diagnosis of such condition? (1 mark)

.....

2- What are the laboratory methods that can confirm your diagnosis? (3 marks)

.....

3- How did the patient get infected & what is the infective stage? (2 marks)

.....

4- How can you manage such condition? (3 marks)

.....

5- If the patient is left untreated, what is the prognosis of this case? (1 mark)

.....

Final Parasitology Exam for 3rd Year Students

The examination includes the following: (Total 13 pages, 75 marks)

QI: MCQs (30 MCQs)	(15 marks)
QII: 3 Cases	(25 marks)
QIII: Give reason	(10 marks)
QVI: Compare	(15 marks)
QV: Match	(10 marks)

All the questions should be answered in your answer booklet

Question I: M.C.Qs (Total: 15 marks)

(Only ONE choice is required)

1- *Entamoeba histolytica* infection is complicated by:

- a- Obstructive jaundice
- b- Acute appendicitis
- c- Rectal prolapse
- d- Steatorrhea & flatulence

2- Contaminated green salad causes infection with:

- a- *Ancylostoma duodenale*
- b- *Trichinella spiralis*
- c- *Leishmania donovani*
- d- *Giardia lamblia*

3- Winterbottom's sign is a clinical presentation in:

- a- Toxoplasmosis
- b- Leishmaniasis
- c- African trypanosomiasis
- d- Acute Chagas' disease

4- Acute appendicitis complicates infection with:

- a- *Ancylostoma duodenale*
- b- *Taenia saginata*
- c- *Taenia solium*
- d- *Trichinella spiralis*

5- Drinking contaminated water causes :

- a- Chagas' disease
- b- Cryptosporidiosis
- c- Trichomoniasis
- d- Leishmaniasis

6- Peritonitis occurs as a complication in infection with:

- a- *Hymenolepis nana*
- b- *Ascaris lumbricoides*
- c- *Heterophyes heterophyes*
- d- *Schistosoma mansoni*

7- Accidental myiasis is caused by the larvae of:

- a- *Phlebotomus papatasi*
- b- *Culex pipiens*
- c- *Musca domestica*
- d- *Glossina palpalis*

8- In *Trichomonas vaginalis* infection, the patient complains of:

- a- purulent thick vaginal discharge
- b- thin watery vaginal discharge
- c- profuse odorous vaginal discharge
- d- bloody mucoid vaginal discharge

9- Leopard skin is a clinical presentation in the following parasitic infection:

- a- Bancroftian filariasis
- b- Onchocerciasis
- c- Sparganosis
- d- Hydatidosis

10- Dyspepsia is a clinical presentation in infection with:

- a- *Schistosoma mansoni*
- b- *Dracunculus medinensis*
- c- *Ascaris lumbricoides*
- d- *Trichuris trichiura*

11- Watery diarrhoea is a clinical presentation in infection with:

- a- *Balantidium coli*
- b- *Entamoeba histolytica*
- c- *Cryptosporidium parvum*
- d- *Toxoplasma gondii*

12- Sabin Feldman dye test is used to diagnose:

- a- *Cryptosporidium* infection
- b- African trypanosomiasis
- c- *Toxoplasma* infection
- d- *Plasmodium* infection

13- Cardiac lesion occurring in Chagas' disease is due to:

- a- Granuloma formation
- b- Immune complex deposition
- c- Allergic reactions
- d- Autoimmune disease

14- Melaena is a clinical presentation in humans infected with:

- a- *Ascaris lumbricoides*
- b- *Ancylostoma duodenale*
- c- *Ancylostoma caninum*
- d- *Trichinella spiralis*

15- A baby is born with hydrocephalus in the following infection:

- a- Congenital malaria
- b- Congenital toxoplasmosis
- c- Sleeping sickness
- d- *Naegleria* infection

16- Human flea transmits plague to man by inoculating *Yersinia pestis*:

- a- by posterior station
- b- by anterior station
- c- by crushing of flea
- d- through its coxal fluid

17- Bronchial asthma is a clinical presentation in:

19- The following arthropod transmits pathogens by transovarian route:

- a- Human flea
- b- Metallic fly
- c- Hard tick
- d- Mosquito

20-Tick bite causes ascending flaccid paralysis due to:

- a- Viral infection transmitted by ticks.
- b- Bacterial infection transmitted by ticks.
- c- Toxins released in ticks saliva.
- d- Toxins released in ticks stool.

21- Wearing contact lenses during swimming may lead to infection with:

- a- *Trypanosoma brucei*
- b- *Balantidium coli*
- c- *Acanthamoeba* species.
- d- *Naegleria fowleri*

22- Vagabond's disease occurs in a patient due to:

- a- Heavy infection with bed bugs
- b- Heavy infection with lice
- c- Heavy infection with fleas
- d- Heavy infection with storage mites

23- Serological tests are the best diagnostic methods for diagnosis of:

- a- Ascariasis
- b- Visceral larva migrans
- c- Enterobiasis
- d- Parasitic pharyngitis

24- Enlargement of lymph nodes does not occur in:

- a- African trypanosomiasis
- b- Toxoplasmosis
- c- Balantidiasis
- d- Visceral leishmaniasis

25- Autoinfection occurs in infection with:

- a- *Fasciola hepatica*
- b- *Trichinella spiralis*
- c- *Enterobius vermicularis*
- d- *Taenia saginata*

26- Anaemia is not a clinical presentation in the protozoal infection:

- a- Sleeping sickness
- b- Visceral leishmaniasis
- c- Malignant malaria
- d- Toxoplasmosis

27- Vitamin B12 deficiency occurs in infection with:

- a- *Ancylostoma duodenale*
- b- *Schistosoma mansoni*
- c- *Trichuris trichiura*
- d- *Diphyllobothrium latum*

28- The patient passes rhabditiform larvae in his stool in:

- a- *Ascaris lumbricoides* infection
- b- *Hymenolepis nana* infection
- c- *Enterobius vermicularis* infection
- d- *Strongyloides stercoralis* infection

29- *Demodex folliculorum* mite attacks:

- a- Interdigital spaces, back & axilla.
- b- Hair follicles & sebaceous glands.
- c- Pubic hairs & eye lashes.
- d- Inguinal region & genitalia.

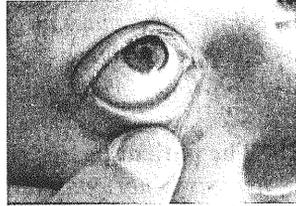
30- Babesiosis is a protozoal disease caused by:

- a- Bite of female *Anopheles*
- b- Bite of adult soft tick
- c- Bite of adult hard tick
- d- Bite of female *Culex*

Question II: 3 Cases (Total 25 marks)

Case 1: (10 marks)

An Egyptian journalist was in a mission in South Sudan. When he returned home he suffered from fever, chills & sweating that occurred at irregular intervals. He noticed that his skin became pale as shown in the figure below:



1- What is your provisional diagnosis? (1 mark)

.....

2- What are the laboratory methods that confirm your diagnosis?
Enumerate the positive findings detected. (4 marks)

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.....

3- How did the patient get infected & what is the infective stage? (1 mark)

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.....
.....

4- What is the cause of pallor of patient's skin? (1 mark)

.....
.....

5- If this patient is untreated, what are the possible complications that may occur to him? (enumerate only) (3 marks)

.....
.....
.....
.....

Case 2 (5 marks)

A tourist guide arriving from Sinai where he was working for the last few months. He has a chronic ulcer in his hand as shown in the figure below. The ulcer resists treatment by known antibiotics.



1- What is your provisional diagnosis? (1 mark)

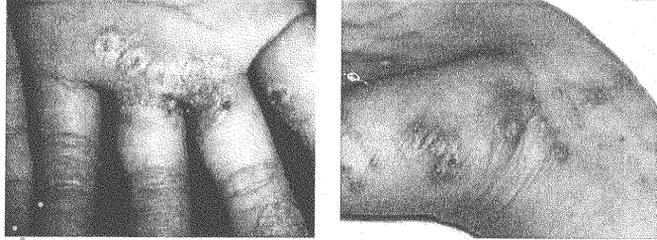
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2- How can you confirm your diagnosis? (2 marks)

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.....
.....

Case 3: (10 marks)

An Egyptian worker visited the Dermatology clinic complaining of itching. The patient said that he lives in a crowded area and the itching increased at night. On examination, the doctor observed lesions in his skin as shown in the figures bellow.



1- What is the most probable diagnosis? (1 mark)

.....

2- How can you confirm your diagnosis? (3 marks)

.....
.....
.....
.....
.....

3- What are the common sites affected by the causative agent? (2 marks)

.....
.....
.....

4- How can you treat such condition? (2 marks)

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.....

5- Enumerate 4 parasites that may cause itching. (2 marks)

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Question III

Give reason (Total 10 marks)

1- Occurrence of anaemia in Trichuriasis (cause & type of anaemia) (3 marks)

.....

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2- *Schistosoma* evades the immune system (enumeration) (2¹/₂ marks)

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4- Allergic manifestations are common among children living in bad ventilated houses. (pathogenesis & enumerate these allergic manifestations)

(2½ marks)

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Question IV

Compare between (Total 15 marks)

1- Laboratory diagnosis of trichomoniasis & giardiasis. (Enumeration)

(4 marks)

Point of comparison	Trichomoniasis	Giardiasis
Laboratory diagnostic methods		

Question V

Match (Total 10 marks)

I- Match each clinical presentation with the causative parasite (3 marks)

- | | |
|-------------------------|-----------------------------------|
| 1- Obstructive jaundice | a- <i>Entamoeba histolytica</i> |
| 2- Watery diarrhoea | b- <i>Enterobius vermicularis</i> |
| 3- Dysentery | c- <i>Fasciola gigantica</i> |
| 4- Dysphagia | d- <i>Trichinella spiralis</i> |
| 5- Hepatosplenomegaly | e- <i>Isospora belli</i> |
| 6- Pruritus ani | f- <i>Trypanosoma gambiense</i> |
| | g- <i>Paragonimus westermani</i> |

(1,) (2,) (3,) (4,) (5,) (6,)

II- Match each parasite with the corresponding mean of immune evasion

(2 marks)

- | | |
|---------------------------------|--|
| 1- <i>Trypanosoma cruzi</i> | a- Sequestration of parasite |
| 2- <i>Trypanosoma gambiense</i> | b- Luminal habitat |
| 3- <i>Schistosoma mansoni</i> | c- Ejection of membrane attack complex |
| 4- <i>Toxoplasma gondii</i> | d- Antigen disguise |
| | e- Antigen variation |
| | f- Cleavage of antibodies |

(1,) (2,) (3,) (4,)

Final Parasitology Exam for 3rd Year Students

The examination includes the following: (Total 13 pages)

QI: MCQs (30 MCQs)	(15 marks)
QII: 3 Cases	(25 marks)
QIII: Give reason	(10 marks)
QIV: Compare	(15 marks)
QV: Match	(10 marks)

All the questions should be answered in your answer booklet

Question I: M.C.Qs (Total: 15 marks)

(Only ONE choice is required)

1- Lymph node enlargement is a clinical feature in infection with:

- | | |
|---------------------------------|-------------------------------|
| a- <i>Entamoeba histolytica</i> | c- <i>Leishmania donovani</i> |
| b- <i>Giardia lamblia</i> | d- <i>Balantidium coli</i> |

2- Acute appendicitis occurs as a complication of infection with:

- | | |
|----------------------------|--------------------------------|
| a- <i>Hymenolepis nana</i> | c- <i>Dipylidium caninum</i> |
| b- <i>Taenia saginata</i> | d- <i>Trichinella spiralis</i> |

3- Epigastric pain, diarrhoea & steatorrhoea occur in infection with:

- | | |
|---------------------------------|-----------------------------|
| a- <i>Giardia lamblia</i> | c- <i>Toxoplasma gondii</i> |
| b- <i>Entamoeba histolytica</i> | d- <i>Balantidium coli</i> |

4- The following clinical presentation occurs as a complication of *W.bancrofti* infection:

- | | |
|-------------------------------|------------------------------|
| a- Stone formation in bladder | c- Release of chyle in urine |
| b- Nocturnal enuresis | d- Terminal haematuria |

5- Ingestion of undercooked infected frog's flesh causes infection with:

- | | |
|----------------------------------|-------------------------------------|
| a- <i>Dracunculus medinensis</i> | c- <i>Diphyllobothrium mansonii</i> |
| b- <i>Diphyllobothrium latum</i> | d- <i>Dipylidium caninum</i> |

6- Inhibition of macrophage activity occurs in infection with:

- a- *Babesia microti*
- b- *Entamoeba histolytica*
- c- *Trypanosoma cruzi*
- d- *Plasmodium vivax*

7- Acute renal failure occurs as a complication of infection with:

- a- *Plasmodium vivax*
- b- *Plasmodium falciparum*
- c- *Plasmodium malariae*
- d- *Plasmodium ovale*

8- Eggs find their way to the circulation as emboli in infection with:

- a- *Trichuris trichiura*
- b- *Heterophyes heterophyes*
- c- *Ascaris lumbricoides*
- d- *Diphyllobothrium latum*

9- Hypersplenism occurs in infection with:

- a- *Schistosoma haematobium*
- b- *Wuchereria bancrofti*
- c- *Enterobius vermicularis*
- d- *Heterophyes heterophyes*

10- Hepatosplenomegaly is a clinical presentation in infection with:

- a- *Schistosoma mansoni*
- b- *Ascaris lumbricoides*
- c- *Fasciola gigantica*
- d- *Trichuris trichiura*

11- Serological tests are recommended for diagnosis of:

- a- Taeniasis solium
- b- Heterophyiasis
- c- Ascariasis
- d- Trichinosis

12- Examination of skin biopsy is used to detect microfilariae of:

- a- *Loa loa*
- b- *Onchocerca volvulus*
- c- *Mansonella peristans*
- d- *Brugia malayi*

13- Chest pain with productive cough are characteristic clinical presentation in infection with:

- a- Heterophyiasis
- b- Diphyllobothriasis
- c- Paragonimiasis
- d- Alveolar hydatid cyst

14- Working in wolf & fox skinning causes infection with:

- a- *Echinococcus granulosus*
- b- *Multiceps multiceps*
- c- *Echinococcus multilocularis*
- d- *Ancylostoma brasiliense*

15- Drinking contaminated water causes infection with:

- a- *Ancylostoma duodenale* c- *Dracunculus medinensis*
b- *Wuchereria bancrofti* d- *Mansonella peristans*

16- Leopard skin is a clinical presentation in the following parasitic infection:

- a- Bancroftian filariasis c- Sparganosis
b- Onchocerciasis d- Cysticercosis

17- Romana's sign is an early clinical presentation in:

- a- sleeping sickness c- Cysticercosis
b- Hydatid disease d- Chagas' disease

18- High eosinophilia is a laboratory finding in infection with :

- a- Trichinosis c- Cryptosporidiosis
b- Enterobiasis d- Chagas' disease

19- Both external & internal autoinfection occur in infection with:

- a- *Giardia lamblia* c- *Balantidium coli*
b- *Entamoeba histolytica* d- *Cryptosporidium parvum*

20- Watery diarrhoea is a clinical presentation in infection with:

- a- *Balantidium coli* c- *Cryptosporidium parvum*
b- *Entamoeba histolytica* d- *Toxoplasma gondii*

21- The following parasite causes pruritus ani in infected children:

- a- *Dipylidium caninum* c- *Enterobius vermicularis*
b- *Diphyllobothrium latum* d- *Hymenolepis nana*

22- A baby is born with hydrocephalus when the pregnant mother gets infected with:

- a- *Plasmodium falciparum* c- *Trypanosoma gambiense*
b- *Toxoplasma gondii* d- *Trypanosoma cruzi*

23- Winterbottom's sign is considered an early sign of:

- a- Chagas' disease c- Sleeping sickness
b- Hydatid disease d- Vagabond's disease

24- Shaether's sugar floatation technique is used for diagnosis of:

- a- *Leishmania donovani*
- b- *Entamoeba histolytica*
- c- *Balantidium coli*
- d- *Cryptosporidium parvum*

25- Chronic blood loss occurs in infection with:

- a- Enterobiasis
- b- Giardiasis
- c- Ancylostomiasis
- d- Cryptosporidiosis

26- Autoinfection DOES NOT occur in infection with:

- a- *Cyclospora cayetanensis*
- b- *Entamoeba histolytica*
- c- *Balantidium coli*
- d- *Cryptosporidium parvum*

27- Examination of a smear taken from the edge of oriental sore reveals:

- a- Promastigote stage
- b- Epimastigote stage
- c- Amastigote stage
- d- Trypomastigote stage

28- Rectal prolapse complicates in infection with:

- a- *Enterobius vermicularis*
- b- *Trichuris trichiura*
- c- *Heterophyes heterophyes*
- d- *Hymenolepis nana*

29- Tropical pulmonary eosinophilia is a manifestation of:

- a- Fascioliasis
- b- Onchocerciasis
- c- Ancylostomiasis
- d- Bancroftian filariasis

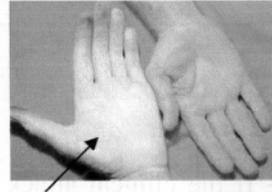
30- Dysphagia is a medical problem in infection with:

- a- *Trypanosoma brucei*
- b- *Trypanosoma cruzi*
- c- *Entamoeba histolytica*
- d- *Giardia lamblia*

Question II: 3 Cases (Total 25 marks)

Case 1: (10 marks)

A female patient from Aswan complained of sudden attack of chills, headache & fever. This was followed by profuse sweating. The symptoms were repeated after 48 hours. Clinical examination revealed enlarged liver & spleen. The doctor noticed that the patient's skin is pale as shown in the figure below:



1- What is your provisional diagnosis? (1 mark)

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2- Enumerate the laboratory methods used to confirm your diagnosis.

(3marks)

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3- Mention the cause of liver & spleen enlargement.

(1 mark)

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4- Explain the pathogenesis of clinical attacks of this patients . (3 marks)

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5- If the clinical attack recurred after several months , name this condition & explain its cause. (2 marks)

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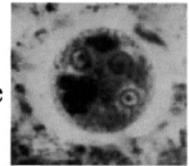
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Case 2: (10 marks)

A patient visited his physician complaining of recurrent attacks of dysentery alternating with constipation. The doctor ordered a stool examination. Microscopic examination of stool revealed the structure shown in the figure below.

15 μ
in size



1- What is your diagnosis of this case? (1 mark)

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2- How was the patient infected? Name the infective stage. (2 marks)

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3- Locate the habitat of the causative parasite. (1 mark)

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4- Enumerate factors affecting the pathogenic activity of the causative parasite. (1½ marks)

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5- Report the complications of this parasitic infection. (2½ marks)

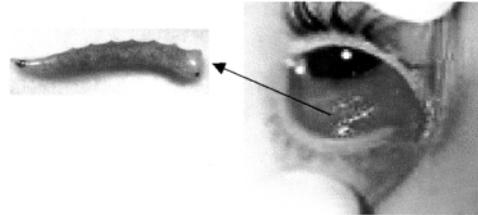
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6- Select 2 helminths & 2 other protozoa which cause dysentery. (2 marks)

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Case 3: (5 marks)

A young girl aged 5 years old from a village near El-Fayoum complained of severe pain in her eye with lacrimation. On examination, the doctor found a small worm-like structure in her lower eyelid as shown in the figure below:



1- What is your suggestive diagnosis? (1 mark)

.....

2- How can you confirm your diagnosis? (1½ mark)

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3- State the definition of such condition. (1½ mark)

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4- List 2 other parasites that cause eye affection. (1 mark)

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Question III
Give reason (Total 10 marks)

1- Serological tests are recommended for diagnosis of fascioliasis. (3 marks)

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2- Certain humans are naturally resistant to malaria infection. (Enumerate only)
(3 marks)

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3- Allergic manifestations appear among people living in bad ventilated houses.
(2 marks)

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4- Microfilariae of *Onchocerca volvulus* are considered more dangerous than their adult worms. (2 marks)

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Question IV

Compare between (Total 15 marks)

1- Laboratory diagnosis of acquired toxoplasmosis & visceral leishmaniasis (enumeration) (6 marks)

Acquired toxoplasmosis	Visceral leishmaniasis

2- Skin lesion caused by *Sarcoptes* and that caused by *Demodex* infection
(3 marks)

Points of comparison	<i>Sarcoptes scabiei</i>	<i>Demodex folliculorum</i>
Form of skin lesion		
Common sites affected		

3- *Giardia lamblia* & *Trichomonas vaginalis* as regards: habitat, infective stage & mode of infection
(3 marks)

Point of comparison	<i>Giardia lamblia</i>	<i>Trichomonas vaginalis</i>
Habitat		
Infective stage		
Mode of infection		

4-Visceral larva migrans and cutaneous larva migrans (3 marks)

Point of comparison	Visceral larva migrans	Cutaneous larva migrans
Name of causative parasite		
Its pathogenesis		

Question V

Match (Total 10 marks)

I- Associate each disease with its diagnostic procedure (4 marks)

- | | |
|-------------------------------|----------------------------|
| 1- Cutaneous leishmaniasis | a- Sabin-Feldman test |
| 2- Hydatid disease | b- String test |
| 3- Chagas' disease | c- DEC provocative test |
| 4- Intestinal schistosomiasis | d- Montenegro test |
| 5- Bancroftian filariasis | e- Casoni test |
| 6- Onchocerciasis | f- Kato thick faecal smear |
| 7- Toxoplasmosis | g- Mazzotti test |
| 8- Giardiasis | h- Xenodiagnosis |
| | i- Bachman test |

(1,) (2,) (3,) (4,) (5,) (6,) (7,) (8,)

II- Relate each parasite with the immunopathological reaction induced by it in the patient's body (2 marks)

- | | |
|---------------------------------|------------------------------|
| 1- <i>Fasciola gigantica</i> | a- Immunosuppression |
| 2- <i>Plasmodium falciparum</i> | b- Autoimmune reactions |
| 3- <i>Schistosoma japonicum</i> | c- Immune complex deposition |
| 4- <i>Leishmania donovani</i> | d- Bronchial asthma |
| | e- Eosinophilic pneumonia |

(1,) (2,) (3,) (4,)

III- Specify each arthropod vector with the disease transmitted by it (4 marks)

- | | |
|--------------------------------------|-----------------------|
| 1- <i>Stomoxys calcitrans</i> | a- Dengue fever |
| 2- <i>Phlebotomus papatasi</i> | b- Chagas' disease |
| 3- <i>Glossina morsitans</i> | c- Q- fever |
| 4- <i>Triatoma megista</i> | d- Trench fever |
| 5- <i>Aedes aegypti</i> | e- Carrion's disease |
| 6- <i>Tunga penetrans</i> | f- Accidental myiasis |
| 7- Soft ticks | g- Chigger's disease |
| 8- <i>Pediculus humanus corporis</i> | h- Human malaria |
| | i- Sleeping sickness |

(1,) (2,) (3,) (4,) (5,) (6,) (7,) (8,)

Final Parasitology Exam for 3rd Year Students

The examination includes the following: (Total 13 pages)

- | | |
|-------------------------------|------------|
| QI: MCQs (30 MCQs) | (15 marks) |
| QII: 3 Cases | (25 marks) |
| QIII: Short Answer Questions: | (10 marks) |
| A- Give reason (6 marks) | |
| B- True & false (4 marks) | |
| QIV: Compare | (20 marks) |
| QV: Match | (5 marks) |

All the questions should be answered in your answer booklet

Question I: M.C.Qs (Total: 15 marks)

(Only ONE choice is required)

1- Cart-wheel appearance is a characteristic finding in ultrasonography of liver in:

- | | |
|---------------------------|--------------------------|
| a- Fascioliasis | c- Hydatid disease |
| b- Visceral larva migrans | d- Amoebic liver abscess |

2- Serological tests are recommended for diagnosis of infection with:

- | | |
|-------------------------------------|-------------------------------|
| a- <i>Ancylostoma duodenale</i> | c- <i>Toxocara canis</i> |
| b- <i>Capillaria philippinensis</i> | d- <i>Trichuris trichiura</i> |

3- The following arthropod transmits visceral leishmaniasis:

- | | |
|---------------------------|--------------------------------|
| a- <i>Tunga penetrans</i> | c- <i>Phlebotomus papatasi</i> |
| b- <i>Pulex irritans</i> | d- <i>Cimex lectularius</i> |

4- Calabar swelling is a clinical presentation in infection with :

- | | |
|-------------------------------|--------------------------------|
| a- <i>Onchocerca volvulus</i> | c- <i>Wuchereria bancrofti</i> |
| b- <i>Loa loa</i> | d- <i>Brugia malayi</i> |

5- Shaether's sugar floatation technique is used for diagnosis of:

- | | |
|---------------------------------|----------------------------------|
| a- <i>Leishmania donovani</i> | c- <i>Balantidium coli</i> |
| b- <i>Entamoeba histolytica</i> | d- <i>Cryptosporidium parvum</i> |

6- Contaminated green salad causes infection with:

- a- *Ancylostoma duodenale*
- b- *Trichinella spiralis*
- c- *Leishmania donovani*
- d- *Giardia lamblia*

7- Winterbottom's sign is considered an early sign of:

- a- Chagas' disease
- b- Hydatid disease
- c- American trypanosomiasis
- d- African trypanosomiasis

8- Tick bite causes ascending flaccid paralysis due to:

- a- Viral infection transmitted by ticks.
- b- Bacterial infection transmitted by ticks.
- c- Toxins released in tick saliva
- d- Toxins released in tick stool

9- Dyspepsia is a clinical presentation in infection with:

- a- *Paragonimus westermani*
- b- *Trichuris trichiura*
- c- *Ascaris lumbricoides*
- d- *Dracunculus medinensis*

10- Humans having the following medical problem are naturally resistant to malaria infection:

- a- Suppressed T cell production
- b- Suppressed B cell production
- c- Absence of Duffy antigen
- d- Inactivation of macrophages

11- Vagabond's disease occurs in a patient due to heavy infection with:

- a- Bed bugs
- b- Body lice
- c- Human fleas
- d- Storage mites

12- Hanging groin is a clinical presentation in the following parasitic infection:

- a- Dracontiasis
- b- Onchocerciasis
- c- Sparganosis
- d- Cysticercosis

13- Accidental myiasis is caused by the larvae of:

- a- *Phlebotomus papatasi*
- b- *Musca domestica*
- c- *Glossina palpalis*
- d- *Culex pipiens*

14- The following parasitic stages are immediately infective to man once passed in patient's stool:

- a- *Cryptosporidium parvum* oocysts
- b- *Cyclospora cayentanensis* oocysts
- c- *Ancylostoma duodenale* eggs
- d- *Taenia saginata* eggs

15- Eggs of the following parasite are found in patient's sputum:

- a- *Heterophyes heterophyes*
- b- *Fasciola gigantica*
- c- *Paragonimus westermani*
- d- *Schistosoma haematobium*

16- *Balantidium coli* infection is complicated by:

- a- Obstructive jaundice
- b- Rectal prolapse
- c- Steatorrhoea
- d- Acute appendicitis

17- Sabin Feldman dye test is used to diagnose infection with:

- a- *Trypanosoma cruzi*
- b- *Toxoplasma gondii*
- c- *Cryptosporidium parvum*
- d- *Leishmania donovani*

18- Anaemia occurring in *Diphyllobothrium latum* infection is due to:

- a- Iron deficiency
- b- Haemolysis of RBCs
- c- Excessive blood loss
- d- Vitamin B12 deficiency

19- Melaena is a clinical presentation in infection with:

- a- *Ascaris lumbricoides*
- b- *Ancylostoma duodenale*
- c- *Ancylostoma caninum*
- d- *Trichinella spiralis*

20- The remnant of haemoglobin that was digested by *Plasmodium* parasite is called:

- a- Schuffner's dots
- b- Maurer's clefts
- c- Romana's sign
- d- Haemozoin

21- *Demodex folliculorum* mite attacks:

- a- Interdigital spaces.
- b- Sebaceous glands of face.
- c- Sole of the foot.
- d- Inguinal region.

22- Eggs find their way to the circulation as emboli in infection with:

- a- *Trichuris trichiura*
- b- *Heterophyes heterophyes*
- c- *Ascaris lumbricoides*
- d- *Diphyllobothrium latum*

23- The infective stage of *Heterophyes heterophyes* infection is found in:

- a- Beef meat
- b- Pork meat
- c- Crayfish muscles
- d- Bolty fish muscles

24- Volvulus occurs as a complication of infection with:

- a- *Strongyloides stercoralis*
- b- *Taenia solium*
- c- *Ascaris lumbricoides*
- d- *Ancylostoma duodenale*

25- High eosinophilia is a laboratory finding in the following parasitic infection:

- a- Visceral larva migrans
- b- African trypanosomiasis
- c- American trypanosomiasis
- d- Malignant malaria

26- Hyper reactive malarial splenomegaly is due to:

- a- Suppression of natural killer cells
- b- Reduction of T suppressor cells
- c- Reduction of T helper cells
- d- Inactivation of macrophages

27- Rectal prolapse occurs as a complication of the following parasitic infection:

- a- Strongyloidiasis
- b- Trichuriasis
- c- Enterobiasis
- d- Dracontiasis

28- Drinking contaminated water causes :

- a- Chagas' disease
- b- Dipylidiasis
- c- Dracontiasis
- d- Trichinosis

29- Autoinfection DOES NOT occur in the following parasitic infections:

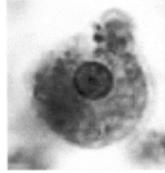
- a- Giardiasis
- b- Cyclosporiasis
- c- Isosporiasis
- d- Cryptosporiasis

30- Jaundice accompanies severe infection with:

- a- *Giardia lamblia*
- b- *Leishmania tropica*
- c- *Naegleria fowleri*
- d- *Balantidium coli*

Photos for Cases

Figure 1 for Case number 1 →



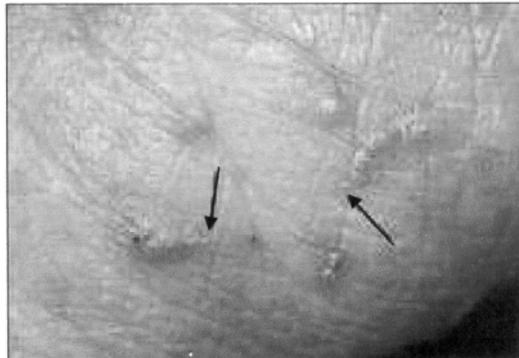
25 μ in size

Figure 2 for Case number 2 →



spherical in shape
& 40 μ in size

Figure 3 for Case number 3 →



Question II: 3 Cases (Total 25 marks)

Case 1 (Total 10 marks)

A patient visited his doctor complaining of **fever and painful frequent defecation. He noticed that the stool contains mucus tinged with blood.** The doctor ordered a stool examination which revealed the structure shown in figure 1.

1- What is your diagnosis of this case? (1 mark)

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2- How was the patient infected? Name the infective stage. (1½ marks)

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3- What is the habitat of the causative parasite? (½ mark)

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4- What are the factors affecting the pathogenic activity of the causative parasite? (3 marks)

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.....

5- Enumerate 4 complications of this parasitic infection? (2 marks)

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.....

6- Enumerate 4 other parasites which cause dysentery. (2 marks)

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Case 2 (Total 8 marks)

A lady visited the Pediatrician complaining that her child suffered from **intestinal disturbances & loss of weight**. She also noticed whitish structures on the child's underwear. The doctor asked for stool analysis which revealed the structure shown in figure 2.

The lab doctor reported that this structure got stained with **Ziehl-Neelsen stain**.

1- What is your diagnosis in this case? (1 mark)

.....

2- Mention the mode of infection & the infective stage. (2 marks)

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3- Name the whitish structures found on the child's underwear. (1 mark)

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.....

4- Mention 2 other clinical presentations of this parasitic infection. (2 marks)

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5- Mention 2 other **parasitic infections** that are accompanied by passage of **adult worms seen by the naked eye** in infected patient's stool. (2 marks)

.....
.....

Case 3 (Total 7 marks)

An Egyptian worker visited the Dermatology clinic complaining of itching. The patient said that he lives in a crowded area and the itching increased at night. On examination, the doctor observed **elevated reddish tracks with minute vesicles** in his skin shown in figure 3.

1- What is the most probable diagnosis? (1 mark)

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2- How can you confirm your diagnosis? (2 marks)

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3- What are the common sites affected by the causative agent? (2 marks)

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4- How can you treat such condition? (2 marks)

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Question III

Short Answer Questions (Total 10 marks)

A- Give reason (6 marks)

1- Occurrence of "clinical attack" in malaria. (1½ marks)

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2- Right-sided heart failure complicates infection with schistosomiasis. (2 marks)

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3- Pelvic peritonitis complicates *Enterobius vermicularis* infection. (1 mark)

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4- Covering wounds from flies is essential. (define the medical problem & name one fly that causes this medical problem) (1½ marks)

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.....

B- State True or False & Correct the False Statement (4 marks)

1- Man is infected with fascioliasis by eating infected raw liver. (.....)

.....

2- Filariform larvae of *Trichostrongylus colubriformis* penetrate the bare-footed skin of man. (.....)

.....

.....

3- Forced extraction of female *Dracunculus medinensis* causes rapid cure of infection. (.....)

.....

.....

4- Infection with *Capillaria philippinensis* causes a picture of food poisoning.

(.....)

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Question IV

Compare between (Total 20 marks)

1- Blood picture of falciparum malaria and *Babesia* infected patient. (2 marks)

Point of comparison	Blood picture of falciparum malaria	Blood picture of <i>Babesia</i>
Findings seen during blood film examination		

2- *Naegleria* and *Acanthamoeba* affecting the human brain (5 marks)
 (kind of brain lesion, type of patient commonly affected, route of entrance of the parasite & its pathway in the patient's body).

Point of comparison	<i>Naegleria</i>	<i>Acanthamoeba</i>
kind of brain lesion (2 mark)		
Type of patient who is commonly affected (1 mark)		
Route of entrance of the parasite & its pathway in the patient's body (2 marks)		

3- Mechanism of transmission of scrub typhus & endemic relapsing fever
 (enumeration only) (3 marks)

Point of Comparison	scrub typhus	endemic relapsing fever
Mechanism of transmission		

4- Human infection with *Wuchereria bancrofti* & *Brugia malayi* (5 marks)
 (Microfilarial periodicity, vector name & clinical picture)

Points of Comparison	<i>Wuchereria bancrofti</i>	<i>Brugia malayi</i>
Microfilarial periodicity		
Vector name		
clinical picture		

5- Clinical picture of acute & chronic forms of Chagas' disease (5 marks)
 (Enumeration)

Points of comparison	Acute Chagas' disease	Chronic Chagas' disease
Clinical picture		

Question V

Match (Total 5 marks)

A- Match each immunopathological reaction with the causative parasite:
(3 marks)

- | | |
|---------------------------|--------------------------------|
| 1- Nephrotic syndrome | a- <i>Trypanosoma cruzi</i> |
| 2- Granuloma formation | b- <i>Trichuris Trichiura</i> |
| 3- Eosinophilic pneumonia | c- Hydatid cyst |
| 4- Autoimmune reaction | d- <i>Plasmodium malariae</i> |
| 5- Anaphylactic shock | e- <i>Leishmania donovani</i> |
| 6- Immunosuppression | f- <i>Ascaris lumbricoides</i> |
| | g- <i>Taenia solium</i> |
| | h- <i>Schistosoma mansoni</i> |

(1,) (2,) (3,) (4,) (5,) (6,)

B- Match each parasite with the corresponding method of immune evasion:
(2 marks)

- | | |
|---------------------------------|--|
| 1- <i>Trypanosoma cruzi</i> | a- Sequestration of parasite |
| 2- <i>Trypanosoma gambiense</i> | b- Luminal habitat |
| 3- <i>Schistosoma mansoni</i> | c- Ejection of membrane attack complex |
| 4- <i>Toxoplasma gondii</i> | d- Cleavage of antibody |
| | e- Antigen disguise |
| | f- Antigen variation |

(1,) (2,) (3,) (4,)

مع خالص أمنياتنا بدوام التوفيق

عميد كلية طب القصدير العيني

مطابع دار «الجمهورية» للصحافة