

PATHOLOGY

PAPER I

Instructions:

1. Answer each section in separate answer books
2. Attempt all questions and sub questions in serial order
3. Draw diagrams where necessary
4. Figures to the extreme right indicate marks

Total marks: 40

Time: 2½ hours

SECTION A

1. Long Answer Questions:

A 17 year female presented with malar rash, joint pain and haematuria.
On investigation her Antinuclear antibody (ANA) results are positive.

Ques

- a. Identify the disease condition
- b. What type of hypersensitivity reaction is seen in the disease
- c. Name few other antibodies seen in the disease
- d. Classify renal pathology with morphological features.

[1+1+2+4=8]

[2X4=8]

2. Write Short Notes on following:

- a. Tabulate differences between healing by primary intention and secondary intention.
- b. Write a short note on Down syndrome

[2X2=4]

3. Write Brief Notes on following:

- a. Enumerate fates of a thrombus
- b. Enumerate the types of necrosis with an example of each

SECTION B

4. Long Answer Questions:

Ans

A 65-year male complains of bone pain and on evaluation has multiple punched out lesions in the vertebrae and skull. His erythrocyte sedimentation rate (ESR) is 110 mm/hour.

[2+4+2=8]

- a. What is your provisional diagnosis? Give reasons.
- b. Mention the investigations and their interpretation to confirm the diagnosis?
- c. Describe the pathogenesis of this disease?

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[2X4=8]

5. Write Short Notes on following:

- a. Write short note on type IV hypersensitivity.
- b. Tabulate differences between leukemia and leukemoid reaction.

[2X2=4]

6. Write Brief Notes on following:

- a. Blood components prepared in a blood bank
- b. Enumerate the types of cellular adaptations with an example of each

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PATHOLOGY

PAPER II

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SECTION A

1. Long Answer Questions:

A 15-year male child, presented with fever, migratory large joint pain and precordial discomfort following an episode of upper respiratory tract infection fifteen days back. On examination, he had ESR of 75 mm/1st hour (Westergren), heart rate of 100/minute, irregular ECG abnormalities and friction rub on cardiac auscultation.

- a. What is the most likely diagnosis?
- b. Enumerate the criteria used to diagnose this condition.
- c. What will be the likely gross and microscopic pathology of heart?
- d. What will be the long-term complications if not treated properly?

2. Write Short Notes on following: [2X4=8]

- a. Tabulate the differences between ulcerative colitis and crohn disease.
- b. Enumerate any four causes of cirrhosis of liver. Discuss the morphological findings on liver biopsy in a case of alcoholic liver disease [1+3]

3. Write Brief Notes on following: [2X2=4]

- a. Draw a schematic diagram depicting Gohn complex in primary tuberculosis
- b. What is the significance of CSF examination in a patient presenting with fever, photophobia and neck rigidity, suspected to have meningitis?

SECTION B

4. Long Answer Questions:

A 30-year-old female presented with goitre. Examination revealed diffuse enlargement of thyroid with tachycardia and exophthalmos.

- a. What is your provisional diagnosis?
- b. Describe the pathogenesis of the disease.
- c. Enumerate the microscopic features of this condition.

5. Write Short Notes on following: [2X4=8]

- a. Wilm's Tumour
- b. Adenomyosis and Endometriosis

6. Write Brief Notes on following: [2X2=4]

- a. Draw a histological diagram depicting morphology of papillary carcinoma of thyroid
- b. Enumerate the histological finding of giant cell tumour of long bone

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MICROBIOLOGY
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SECTION A

1. Long Answer Questions:

- Q. a. What are anaerobic bacteria? Enumerate methods which are used for creating [1+2+2+1+2=8] Anaerobic condition in Microbiology Laboratory. Describe about etio-pathogenesis, clinical manifestation & laboratory diagnosis of Gas Gangrene.

2. Write Short notes on following: [2X4=8]

- Q. a. Catheter associated urinary tract infections (CAUTI). ✓
Q. b. Laboratory diagnosis of tuberculosis as per National tuberculosis elimination program. ✗

3. Write brief notes on following: [2*2=4]

- Q. a. High Level of Disinfectants
Q. b. Causes of bacterial meningitis & enumerate at least three important tests used for laboratory diagnosis of *Streptococcus pneumoniae*. ✗

SECTION B

4. Long Answer Questions:

- Q. a. What is Hypersensitivity? How do you classify various types of Hypersensitivity Reactions? Describe Type IV HSR. Enumerate tests that are based on the principal of type IV HSR. [1+2+4+1=8]

5. Write Short notes on following: [2X4=8]

- Q. a. Diarrheagenic Escherichia coli strains
Q. b. Standard Tests of Syphilis (STS) ✗

6. Write brief notes on following: [2*2=4]

- Q. a. Autoimmunity & its mechanism ✗
Q. b. Various causes of Infective Endocarditis & Etiopathogenesis of Acute Rheumatic Fever. ✗

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24.5 + 5 = 30

Science University
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SECTION A

1. Long Answer Questions:

Q. A 25-year-old male with history of multiple sex partners is admitted with complaints of unexplained fever, progressive weight loss and generalised lymphadenopathy for the past 6 months. Persistent diarrhoea and oral thrush for more than 1 month. [1+2+1+4=8]

- i. What is the probable clinical diagnosis?
- ii. Modes of transmission of this agent.
- iii. Explain the concept of window period.
- iv. Describe the laboratory diagnosis of above clinical condition.

2. Write Short notes on following:

[2X4=8]

Q. a. A 20-year-old female presented with bloody diarrhoea with mucus, colicky pain, fever and prostration. The wet mount examination of the stool sample was performed which showed actively motile trophozoites of 5-20 µm, size with finger like pseudopodia: [1+1+2]

- i. What is your clinical diagnosis?
- ii. Mention the etiological agents causing this condition.
- iii. Draw well-labelled diagram of two morphological forms of the causative agent.

b. Neurocysticercosis

3. Write brief notes on following:

[2*2=4]

- Q. a. Enumerate four risk factors for Candida infections
b. Replication of viruses

SECTION B

4. Long Answer Questions:

Q. A 21-year-old male had developed characteristic well-demarcated annular or ring shaped pruritic scaly skin lesions with central clearing and raised edges. Culture of the skin scraping done on Sabouraud's dextrose agar reveals velvety colonies with red pigment on the reverse. Microscopy of culture isolate reveals plenty of tear drop-shaped microconidia and few, long, pencil-shaped macroconidia: [1+1+2+4=8]

- i. What is the clinical diagnosis of this condition?
- ii. What is the most likely etiological agent?
- iii. Classify dermatophytes, with one example in each
- iv. Add a note on laboratory diagnosis of above mentioned case.

(14)

5. Write Short notes on following:

[2X4=8]

- Q. a. Explain the life cycle and laboratory diagnosis of ascariasis.

- b. A 30-year old male presented with history of loss of appetite, malaise and jaundice of two months duration. On examination there was icterus, hepatomegaly and tenderness in right hypochondriac region. He gave history of blood transfusion in the past. On investigation he was found to be positive for HBsAg.
- i. Enumerate viruses causing hepatitis.
 - ii. Write laboratory diagnosis of hepatitis B infection with respect to serological markers

[1+3]

6. Write brief notes on following:

[2*2=4]

- a. Define antigenic shift and antigenic drift in influenza
- b. Enumerate four causes of viral congenital infections

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PHARMACOLOGY

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SECTION A

1. Long Answer Questions (Attempt Any One):

- a. i. What is drug antagonism?
ii. Classify and explain various types of drug antagonisms with suitable examples.
iii. Differentiate between competitive and non-competitive drug antagonisms.
- b. i. Classify β blockers based on receptor selectivity.
ii. Which drugs should not be co-administered with β blockers? Justify your answer.
iii. Why these drugs should be tapered before discontinuation? Explain.

[1+4+3=8]

2. Write Short notes on following (Attempt Any Two):

- a. Enumerate the clinical uses of anticholinergic drugs and explain the rationale for any two of those uses.
- b. A group of children passing their time in countryside in a playful mood suddenly complained of dry mouth, difficulty in talking and fever. They were rushed to a nearby hospital and upon enquiry it was revealed that all of them had consumed the berries of some plant. On examination, mydriasis and blurring of near vision was found.
What is the diagnosis and how will you manage this case. Give the rationale for drugs used?

[2X4=8]

- c. Classify diuretics. How diuretics reduce blood pressure in Hypertensive patient?

[2X2=4]

3. Write brief notes on following (Attempt Any Two):

- a. Which types of drugs are bio-transformed, polar or non-polar? Justify your answer
- b. Adrenaline is the drug of choice in the treatment of anaphylactic shock. Explain, why?
- c. Dimercaprol is contraindicated in poisonings with which substances. Why?

SECTION B

4. Long Answer Questions (Attempt Any One):

- a. i. Classify the drugs used for treatment of constipation.
ii. Write in brief about therapeutic uses and contraindications for this class of drug.
iii. What is Purgative abuse?

- ✓ 6. A woman of reproductive age complaining of weakness upon investigation was found to have hypochromic and microcytic RBCs suggestive of iron deficiency anemia, with plasma hemoglobin level of 8 gm%:
i. How will you manage this case?
ii. What are the factors facilitating and impeding oral iron absorption.
iii. What are the indications and disadvantages of parenteral iron therapy?

5. Write Short notes on following (Attempt Any Two):

- ✓ a. Discuss the drug treatment of acute exertional angina. Explain the rationale.
✓ b. Differentiate between heparin and LMW heparin with explanation.
c. Outline the treatment for patient of chronic heart failure with justification for the drug used.

6. Write brief notes on following (Attempt Any Two):

- ✓ a. Draw a well labelled diagram showing site of action of antiemetic drugs.
b. Why bilateral renal artery stenosis is an absolute contraindication to the uses of ARBs?
✓ c. Enumerate the Pleomorphic effects of Statins .

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SECTION A

1. Long Answer Questions (Attempt Any One):

- a.
- i. Classify beta lactam antibiotics.
 - ii. Describe mechanism of action and adverse effects of penicillins.
 - iii. Describe uses and adverse effects third generation cephalosporins

[02+03+03=08]

- b. A 55-years old woman has been diagnosed as a case of Parkinson's disease.
I. What are the therapeutic options for the management of this case
II. Why is Levodopa combined with carbidopa for the treatment of Parkinson's disease?

[03+05=08]

2. Write Short notes on following (Attempt Any Two):

[2X4=8]

- A 45 yr old male is brought to the medical emergency with c/o pain epigastrium, blurred vision, photophobia, altered sensorium and dyspnoea. According to the patient's relative, he is a chronic alcoholic. In a short span of time, 24 more such cases were brought to the hospital with similar complaints. Describe in brief the management of this case.

- b. A patient complains that she suffers from 2-3 attacks of pulsating headache lasting for 12-48 hrs, often accompanied with vertigo and vomiting. Describe the management of this case.

- ✓ Compare and contrast benzodiazepines and barbiturates.

[2X2=4]

3. Write brief notes on following (Attempt Any Two):

- a. Why does succinylcholine causes apnoea in some individuals?

- ✓ Low dose of aspirin is given for prophylaxis in Post Myocardial Infarction patients.
Why?

- ✓ Give rationale for combination of sulphonamide with Trimethoprim.

P.T.O....

SECTION B

4. Long Answer Questions (Attempt Any One): [02+03+03=08]

- a. A 35 years old young girl lost her father few weeks ago and now is suffering from depression.
- What are the therapeutic options available for treatment of this patient?
 - Enumerate the uses of SSRIs (Selective Serotonin Receptor Inhibitors).
 - Why does TCAs (Tricyclic antidepressant) take 2-3 weeks to produce its effect?

b. i. Enumerate corticosteroids. [02+04+02=08]
ii. Describe the uses of glucocorticoids
iii. Describe the adverse effects of corticosteroids.

5. Write Short notes on following (Attempt Any Two): [2X4=8]

a. Describe the management of Isoniazid mono/poly drug and Rifampicin resistant TB. MDR-TB.

b. A patient of type 2 Diabetes Mellitus comes to medical emergency with clinical feature of metabolic acidosis, dehydration with loss of sodium and potassium in urine causing electrolyte imbalance, nausea, vomiting, abdominal pain, confusion and impaired consciousness. On blood and urine examination ketone bodies are found to be increased.
Describe in brief the management of this case.

c. Describe Selective Estrogen Receptor Modulators (SERMs)

6. Write brief notes on following (Attempt Any Two):

- a. Why oxytocin is preferred over ergometrine for the induction of labour? [2X2=4]
b. Why salicylic acid is combined with benzoic acid for treating ring worm infection?
c. Why MESNA is given with ifosamide therapy?