Madhya Pradesh Medical Science University, Jabalpur

MBBS Second Professional Examination January-2025

Subject- Microbiology

Paper- I (new scheme)

Time: 3:00 Hours **Maximum Marks :100**

Instructions:

a) *All questions are compulsory*
b) *Draw diagrams wherever necessary*
c) *Answers of Questions and Sub-questions must be written strictly according to serial order of question paper.*
d) *MCQ has to be answered in theory answer book*
e) *Please write MCQ answer neatly and in serial order with black or blue pen in brackets; for example: - 1. (a) 2. (c)*
f) *MCQ has to be answered only once, any kind of repetition or cutting or erasing or whitener will be considered as malpractice, such answers will not be counted in marks and action will be taken according to UFM rules of university.*
g) *Subjective answer should be answered in up to 30 words per marks. For example, if a question having 2 marks should answered in up to 60 marks.*

Q1. Total MCQs: 10 10 x 1 = 10

1. Culture medium with low redox potential is required for the growth of:			
(a) Clostridium tetani	(b) Escherichia coli	(c) Pseudomonas aeruginosa	(d) None of the above

2. The most important specimen for isolation of Salmonella Typhi in first week of enteric fever is			
(a) Blood	(b) Faeces	(c) Urine	(d) Pus

3. Patch test is done for which type of reaction?			
(a) Schwartzman reaction	(b) Atopy	(c) Arthus reaction	(d) Contact dermatitis

4. Which of the following are responsible for hyperacute rejection?			
(a) Preformed antibodies	(b) In-situ antibody formation	(c) Lymphokines	(d) All of the these

5. Fasciola hepatica infects			
(a) Liver	(b) Bile duct	(c) Both liver and bile duct	(d) Small intestine

6. Eschar is a pathognomonic feature of -			
(a) Typhus fever	(b) Scrub typhus	(c) Q fever	(d) Spotted fever

7. The route of administration of measles vaccine is			
(a) Intramuscular	(b) Intradermal	(c) subcutaneous	(d) Oral

8. Toll-like receptors (TLRs) are -			
(a) Present on surface of phagocytes to bind to mannose rich glycans	(b) Transmembrane receptors present on surface of macrophages and dendritic cells	(c) Molecules that bind to the surface of microbes	(d) Nucleotide-binding oligomerization domain like receptors to recognize intracellular bacterial cell products

9. Passive immunization of hepatitis B infection is good for -			
(a) Controlling adverse reactions	(b) Prevention of carrier state	(c) Controlling the spread of disease	(d) Prevention of infection

10. The following substances can be added to produce an anaerobic environment except -			
(a) Glutathione	(b) Ascorbic acid	(c) Cysteine	(d) Glycerol

Q2. Long Answer Questions 2 x 20 = 40

a. A 6-year-old boy came to the pediatric OPD for school health check-up. On examination he had pallor. Peripheral blood examination revealed microcytic, hypochromic anaemia. Stool microscopy showed round to oval non-bile-stained egg with segmented ovum (four blastomeres).

I. Identify the etiological agent responsible for this condition?
II. Enlist the microorganisms causing iron deficiency anaemia.
III. Describe the life cycle.
IV. Describe the pathogenesis.
V. Mention the diagnostic modalities available for this clinical condition.

b. A 12 years old male child was admitted in the pediatric ward with a history of remittent fever which increased gradually over 10 days. He was admitted with complaints of loss of appetite, pain in abdomen and general weakness. On examination he was found to have a temperature of 102°F with pallor and coated tongue, relative bradycardia, mild splenomegaly and abdominal tenderness. His hemogram showed low TLC count, leukopenia with relative lymphocytosis. His blood culture was positive and non-lactose fermenting colonies were isolated from MacConkey agar. On further identification, it was found to be oxidase negative, catalase positive, negative for indole, citrate and urease and H_2S gas was produced with K/A reaction on TSI agar.

I. What is your probable diagnosis and etiological agent responsible for this condition?
II. Describe the pathogenesis.
III. Mention the diagnostic modalities available for this condition including the sample collection methods.
IV. Add a note on the treatment and vaccine available for this clinical condition.
V. Add a note on drug resistance for this clinical condition.

Q3. Brief Answer Questions 6 x 05 = 30

a. Steam sterilization
b. What is full disclosure? Mention the exceptional conditions where full disclosure is not made.
c. Classical complement pathway
d. Mention the methods to demonstrate and functions of bacterial capsule.
e. Describe transferable drug resistance.
f. Chikungunya

Q4. Short Answer Questions 10 x 2 = 20

a. Enumerate Diarrheagenic E.coli
b. Draw well labelled diagram of IgA
c. Enlist two parasitic causes of — splenomegaly and cholangitis.
d. NACO Strategic algorithm IIa and IIb for HIV.
e. Laboratory diagnosis of fungal infections.
f. Enumerate two advantages of live vaccine.
g. Mention four differences between MHC class I and MHC class II.
h. Mention four difference between endotoxin and exotoxin.
i. Staging of vaccine vial monitor.
j. Name the four rules of autonomy