

SS/MBBS-II/MIC-I/03-24**2024****(March)****MICROBIOLOGY****Paper-I****Full Marks: 100****Time: 3 hours****The figures in the margin indicate****full marks for the questions****Answer all questions**

1. A group of devotees were brought to the emergency department with complaints of vomiting, diarrhoea and abdominal cramps. The symptoms started 4 hours after taking meal in a community feeding programme at a temple. 1+2+4+5+3=15

- a. What is your provisional clinical diagnosis?
- b. What could be the aetiological agents responsible for this clinical condition?
- c. Describe the pathogenesis of this condition.
- d. How will you establish the laboratory diagnosis?
- e. What are the various available treatment modalities as per the aetiological agent?

2. Enumerate different components of complement. Describe the alternate complement pathway with diagram. List various functions of complement.

2+5+3=10

3. Write short notes/Give reasoning:

5×5=25

- a. Needlestick injury
- b. Different methods of disposal of biomedical waste
- c. Bacterial spore and its application
- d. Difference between primary immune response and secondary immune response
- e. Surveillance of Healthcare Associated Infection (HAI)

4. A 35-year-old long distance truck driver was admitted in the medicine ward with history of unexplained fever, chronic diarrhoea of two months duration, weight loss and white patch in the oral cavity. 1+3+4+5+2=15

- (a) What is the probable clinical diagnosis?
- (b) What are the possible modes of transmission?
- (c) Describe the pathogenesis.
- (d) Describe the laboratory diagnosis of this condition.
- (e) Enumerate the tests for monitoring the progress of the disease and response to therapy.

5. Enumerate the coccidian parasites. Describe the life cycle and laboratory diagnosis of cryptosporidiosis. 3+4+3=10

6. Name the hemoflagellates. Describe the life cycle and laboratory diagnosis of any one of them. 2+4+4=10

7. Write a short note on the role of informed consent of the patient before any investigation. 5

8. Choose the correct answer: **1 × 10 = 10**

(i) A 25-year-old patient presented with haemorrhagic colitis. Culture of the stool sample revealed *Escherichia coli*. Which of the following serotypes of *E. Coli* is likely to be the causative agent?

- (a) 0157 : H7
- (b) 0159 : H9
- (c) 0107 : H7
- (d) 055 : H7

(ii) A middle-aged man presented with intermittent pain abdomen which was burning type of epigastric pain aggravated by intake of food. Endoscopy showed erosions in the duodenal mucosa. The probable causative organism is

- (a) *Campylobacter jejuni*
- (b) *Helicobacter pylori*
- (c) *Vibrio cholerae*
- (d) non-typical salmonellae

(iii) Which of the following is the common agent of visceral larva migrans?

- (a) *Toxocara canis*
- (b) *Ancylostoma duodenale*
- (c) *Ascaris lumbricoides*
- (d) *Strongyloides stercoralis*

(iv) A nursing staff gets needle stick injury while drawing blood from a known hepatitis B virus infected patient. The earliest serological investigation to be done to rule out acquisition of infection is

- (a) HBC Ag.
- (b) HBe Ag.
- (c) Anti-HBC IgM

(d) HBs Ag.

(v) Which of the following cestodes does not have a rostellum and hooks?

(a) *E. granulosus*

(b) *Taenia solium*

(c) *Taenia saginata*

(d) *Hymenolepis nana*

(vi) Plage mediated transfer of DNA from one bacterium to another bacterium is known as

(a) transduction

(b) transformation

(c) conjugation

(d) transposition

(vii) Which of the following is an example of selective media?

(a) Blood agar

(b) MacConkey agar

(c) Nutrient broth

(d) Cary Blair media

(viii) Which fungal agent does not infect nail?

(a) *Trichophyton*

(b) *Epidermophyton*

(c) *Microsporum*

(d) *Candida albicans*

(ix) The sporulation of bacteria occurs in ____ phase of bacterial growth curve.

- (a) lag
- (b) log
- (c) stationary
- (d) decline

(x) Infective form of *Toxoplasma gondii* is

- (a) oocyst
- (b) tachyzoite
- (c) bradyzoite
- (d) All of the above

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