

M.B.B.S. SECOND PROFESSIONAL EXAMINATION, DECEMBER-2024**MICROBIOLOGY****PAPER - FIRST****[Time allotted: Three hours]****SET – A****[Max Marks: 100]****Q. 1. Multiple choice questions (Darken the single best response in OMR sheet. Time allotted 20 minutes) (20 x 01 = 20)**

1. Which of the following organisms does not meet all the criteria of Koch's postulates?
 - a. Streptococcus pneumoniae
 - b. Treponema pallidum
 - c. Leptospira interrogans
 - d. Mycobacterium scrofulaceum
2. The term vaccine was coined by:
 - a. Louis Pasteur
 - b. Joseph Lister
 - c. Robert Koch
 - d. Edward Jenner
3. Which is an enriched medium?
 - a. Selenite F broth
 - b. Peptone water
 - c. MacConkey agar
 - d. Chocolate agar
4. Indian ink staining is used to demonstrate:
 - a. Cell wall
 - b. Bacterial capsule
 - c. Bacterial flagella
 - d. Bacterial spore
5. The most widely used disinfectant for Human immunodeficiency virus (HIV) infected material is:
 - a. Hypochlorite solution
 - b. Lysol
 - c. Formaldehyde
 - d. Mercuric chloride
6. Plastic Tubings, catheters, IV sets are discarded in which bin?
 - a. Yellow bin
 - b. Red bin
 - c. Blue bin
 - d. Black bin
7. Which part of the bacteria is most antigenic?
 - a. Protein
 - b. Carbohydrate
 - c. Lipid
 - d. Nucleic acid
8. Which antibody is elevated in acute infection?
 - a. IgA
 - b. IgG
 - c. IgE
 - d. IgM
9. Classical pathway of the complement is activated by:
 - a. Antigen
 - b. Antibody
 - c. Antigen- Antibody complex
 - d. None of the above
10. All of the following vaccines are given at birth except:
 - a. BCG
 - b. OPV
 - c. DPT
 - d. Hepatitis B
11. Which of the following is the vector for Scrub typhus?
 - a. Lice
 - b. Tick
 - c. Mite
 - d. Mosquito
12. During the window period of patient with HIV infection, best diagnostic test is?
 - a. ELISA
 - b. Western blot
 - c. Rapid test
 - d. RT-PCR
13. Weil's disease is caused by:
 - a. Leptospira interrogans
 - b. Borrelia recurrentis
 - c. Treponema pallidum
 - d. Treponema carateum
14. Germ tube test is diagnostic for:
 - a. Candida tropicalis
 - b. Candida krusei
 - c. Candida albicans
 - d. Candida glabrata
15. Definitive host for echinococcosis is:
 - a. Man
 - b. Dog
 - c. Sheep
 - d. Pig
16. The most common viral cause of gastroenteritis:
 - a. Rotavirus
 - b. Norwalk virus
 - c. Adenovirus
 - d. Hepadnavirus
17. Crescent-shaped or banana shaped gametocytes are seen in infection with:
 - a. Plasmodium vivax
 - b. Plasmodium falciparum
 - c. Plasmodium malariae
 - d. Plasmodium ovale
18. Which of the following eggs are **NOT** bile stained?
 - a. Taenia solium
 - b. Hymenolepis nana
 - c. Ascaris lumbricoides
 - d. Diphyllbothrium latum
19. Arboviral infection **NOT** found in India:
 - a. Crimean Congo Haemorrhagic fever
 - b. Japanese encephalitis
 - c. Yellow fever
 - d. Kyasanur forest disease
20. Common name of Trichuris trichiura is:
 - a. Pinworm
 - b. Roundworm
 - c. Hookworm
 - d. Whipworm

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Note: Attempt all questions in sequence.
Draw suitable diagrams (wherever necessary)

- Q. 2. Give reasons:** (5 x 2 = 10)
- Live vaccine is generally given as single dose whereas killed vaccine is given in multiple doses.
 - Enveloped viruses are more amenable to the effect of disinfectants.
 - 5% H₂SO₄ is used as decolorizer in the staining procedure for *Lepra* bacilli.
 - Widal test is not useful for diagnosis of enteric fever in first week of illness.
 - Vomiting is common symptom in Staphylococcal food poisoning instead of diarrhoea.
- Q. 3. Problem based question:** (4 x 2.5 = 10)
- A 7 year old female child presented to the cardiology OPD with swollen, red, tender joints. Pain migrated from one joint to another. She also complained of painless, small lumps beneath the skin. On auscultation, murmur was heard over the mitral valve area. On inquiry, it was found that the child had an episode of sore throat 3 weeks back.
- What is the probable clinical diagnosis and its etiological agent?
 - Describe the diagnostic criteria used for this condition.
 - Does previous history of sore throat relevant here and has got some role in its pathogenesis?
 - Discuss the treatment and prevention of this condition?
- Q. 4. Write briefly on:** (4 x 6 = 24)
- Laboratory diagnosis of Dengue infection.
 - Methicillin resistant *Staphylococcus aureus*.
 - What are the pre-requisites to be followed before doing HIV testing and how to disclose positive HIV report?
 - Viral markers of Hepatitis B virus infection
- Q. 5. Structured question:**
- (i) Name various methods of horizontal gene transfer. Discuss in detail about mechanism of Conjugation. (4+6=10)
- (ii) Define and classify Hypersensitivity. Write in detail about type 1 hypersensitivity reactions. (2+3+5=10)
- Q. 6. Answer as indicated:** (4 x 4 = 16)
- Draw a well labeled Life cycle of *Taenia solium*
 - Enumerate microbial agents of food poisoning.
 - Management of Needle-stick Injury in Health care workers.
 - Tabulate the differences between Amoebic and Bacillary dysentery.
