KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(4 Pages) **Reg. No:……**

Question Code: 26E01617 **Course Code : 25PMMB21**

PG Degree - End Semester Examinations, April 2026

Second Semester

M.Sc., MICROBIOLOGY

Medical Bacteriology and Mycology

(For those who joined in June 2025 onwards)

Time : 3Hours **Maximum : 75 Marks**

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

CO:1 K:1 1. The Bacteria with rigid thick walls are classified as

(a) Free living (b) Obligate intracellular

(c) Flexible – walled (d) Spirochetes

CO:1 K:1 2. Which bacteria is Predominant Bacteria on Human skin?

(a) Staphylococci and corynebacteria (b) Streptococci

(c) Bacteroides (d) Lactobacilli

CO:2 K:1 3. Group B streptococcus in newborns commonly causes:

(a) Meningitis (b) Malaria

(c) Syphilis (d) Tinea

CO:2 K:1 4. Select the morphology of *Bacillius anthracis*

(a) Gram -positive Rod (b) Cocci

(c) Spiral (d) Yeast

CO:3 K:1 5. In which agar *Viridans streptococci* show alpha hemolysis?

(a) Blood agar (b) MacConkey

(c) Lowenstein -Jensen (d) Sabouraud

CO:3 K:1 6. Mycoplasma lacks which of the following structures, resulting in intrinsic resistance to β-lactam antibody?

(a) Cell membrane (b) Rigid cell wall

(c) Ribosomes (d) Nucleoid

CO:4 K:1 7. Choose in dark – field microscope, *Leptospira interrogans* is identified by the Presence of

(a) Broad, loosely coiled Spirochetes
(b) Thin, Tightly Coiled Spirochetes with hooked ends.
(c) Comma-shaped curved bacilli
(d) Straight rods with polar flagella

CO:4 K:1 8. Which of the following is most commonly seen in diabetics due to *Candida* infection?

(a) Thrush
(b) Mycetoma
(c) Spherules
(d) Black piedra

CO:5 K:1 9. MALDI_TOF in medical mycology is primarily used for:

(a) Species identification
(b) Antifungal Susceptibility testing
(c) Mycotoxin detection
(d) Morphological analysis

CO:5 K:1 10. In Medical mycology, PCR is primarily employed for

(a) Definitive Identification
(b) Culture only
(c) Stains
(d) Serology

PART – B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 250 words.

CO:1 K:2 11. (a) Explain the role of normal flora in the human body.

(OR)

(b) Classify medically important bacteria.

CO:2 K:2 12. (a) Explain morphology, cultural characteristics and pathogenesis between Staphylococci.

(OR)

(b) Explain the laboratory diagnosis of *Nesseria* species infections, including key media and tests

CO:3 K:3 13. (a) Design prevention for zoonotic Leptospira

(OR)

(b) Apply suitable preventive, diagnostic and control measures for managing an outbreak of *Bordetella pertussis*

CO:4 K:3 14. (a) How do the morphology and taxonomy of *Trichophyton* guide its identification from skin scrapings and help differentiate it from *Epidermophyton?*

(OR)

(b) Analyze mycotoxin production of aflatoxins in aspergillus.

CO:5 K:4 15. (a) Apply the principles of cryptococcal antigen detection to distinguish infection associated with bird-droppings exposure from histoplasmosis.

(OR)

(b) Justify PCR over silver stain for BAL fluid diagnosis.

PART – C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 600 words.

CO:1 K:3 16. (a) Describe the steps involved in specimen collection and transport for a suspected bloodstream infection.

(OR)

(b) Apply appropriate storage conditions to preserve bacterial viability before processing.

CO:2 K:3 17. (a) How would you apply Gram staining and culture characteristics to differentiate streptococcus from Pneumococcus in throat swab

(OR)

(b) Apply the principles of normal flora to explain why antibiotics may lead to secondary infections.

CO:3 K:3 18. (a) Differentiate the urease test principle of Helicobacter pylori from the urease reaction of Proteus species.

(OR)

(b) Differentiate Salmonella from Shigella based on TZI agar reactions and motility.

CO:4 K:4 19. (a) Evaluate why lactophenol cotton blue mount is superior to KOH mount for definitive dermatophyte species identification.

(OR)

(b) Explain why Sabouraud dextrose agar is preferred over blood agar for Trichophyton culture.

CO:5 K:6 20. (a) Design laboratory workflow to recover eumycotic mycetoma agents from sinus tract pus.

(OR)

(b) Create a simple prophylaxis strategy against Aspergillus in neutropenic leukemia patients.