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Reg. No. :

Code No. : 5919

Sub. Code : WMBM 21

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Second Semester

Microbiology – Core

MEDICAL BACTERIOLOGY AND MYCOLOGY

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. _____ is an example of a motile bacterium.

- (a) *Streptococcus pneumoniae*
- (b) *Salmonella enterica*
- (c) *Staphylococcus aureus*
- (d) *Mycobacterium tuberculosis*

2. Disruption of the normal flora can lead to

- (a) Increased immunity
- (b) Opportunistic infections
- (c) Faster wound healing
- (d) Reduced inflammation

3. _____ is the primary method for euthanizing laboratory mice and rats.

- (a) Decapitation
- (b) Inhalation of anesthetic gases
- (c) Intravenous injection of euthanasia solution
- (d) Cervical dislocation

4. *Neisseriae* are characterized by their typical arrangement as

- (a) Cocci arranged in clusters
- (b) Cocci arranged in pairs
- (c) Cocci arranged in chains
- (d) Rod-shaped morphology

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5. Mycobacteria have a cell wall rich in

- (a) Peptidoglycan
- (b) Mycolate
- (c) Lipopolysaccharide
- (d) Teichoic acid

6. *Clostridium tetani* causes tetanus by

- (a) Producing neurotoxins
- (b) Invasion of the bloodstream
- (c) Formation of biofilms
- (d) Intracellular replication

7. Causative agent of syphilis is

- (a) *Treponema pertenuae*
- (b) *Treponema carateum*
- (c) *Treponema pallidum*
- (d) *Treponema endemicum*

8. _____ pathogens commonly cause opportunistic infections in immunocompromised individuals.

- (a) *Streptococcus pneumoniae*
- (b) *Escherichia coli*
- (c) *Candida albicans*
- (d) *Mycobacterium tuberculosis*

9. The main virulence factor of *Yersinia* species is:

- (a) Capsule
- (b) Endotoxin
- (c) Exotoxin
- (d) Flagella-H Antigen

10. _____ dermatophyte commonly cause tinea capitis. (scalp ringworm)

- (a) *Epidermophyton*
- (b) *Microsporum*
- (c) *Trichophyton*
- (d) *Candida*

11. Azole antifungal agents exert their fungistatic effects by

- (a) Inhibiting ergosterol synthesis
- (b) Blocking DNA replication
- (c) Inhibiting RNA synthesis
- (d) Disrupting cell wall synthesis

12. *Cryptococcus neoformans* is primarily known for causing _____ type of infection in immunocompromised individuals.

- (a) Pneumonia
- (b) Invasive aspergillosis
- (c) Meningitis
- (d) Candidiasis

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[P.T.O.]

13. _____ regions is known as the 'Valley Fever Belt' due to its high prevalence of coccidioidomycosis.

- (a) Midwest United States
- (b) Southeast Asia
- (c) Sub-Saharan Africa
- (d) South America

14. Systemic mycoses are fungal infections that primarily affect

- (a) Skin and mucous membranes
- (b) Respiratory system and lungs
- (c) Gastrointestinal tract
- (d) Central nervous system

15. The characteristic feature of eumycotic mycetoma is the formation of:

- (a) Abscesses
- (b) Pustules
- (c) Granules
- (d) Vesicles

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PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

16. (a) How do you classify medically important microorganisms?

Or

(b) Write down the steps involved in collection and processing of pus sample.

17. (a) Write a short note on clinical manifestation of *Clostridium* sps.

Or

(b) Add a note on pathogenesis of streptococcal infection.

18. (a) Comment on the causative agent and symptoms of cholera.

Or

(b) Describe the causes of nosocomial infection.

19. (a) Write down the clinical features of *Candida*.

Or

(b) Mention the toxicity of mycotoxin.

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20. (a) Analyze the pathogenesis of mycetoma.

Or

(b) Describe about opportunistic pathogens.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 600 words.

21. (a) Explain in detail about various methods and applications of antimicrobial sensitivity tests.

Or

(b) Elaborate a note on handling and maintenance of laboratory animal used for research purpose.

22. (a) Describe in detail about causative agent, diagnosis and controlling measures of tuberculosis.

Or

(b) Write a detail account on pathogenesis, diagnosis and controlling measures of *Staphylococcus* sp.

23. (a) Illustrate the causes, transmission, diseases and controlling of Nosocomial infections.

Or

(b) Give a detail account on clinical manifestation, laboratory identification and controlling measures of *Yersinia* sps.

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24. (a) Summarize the causes, pathogenesis and treatment of superficial mycoses

Or

(b) Write an elaborate note on types, mode of action and applications of antifungal agents.

25. (a) Elaborate a note on available advanced diagnostic methods to analyze mycotic infection in human.

Or

(b) Explain about the causes, pathogenicity and treatment of systemic mycosis.

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