

(8 pages)

Reg. No. :

Code No.: 5922

Sub. Code: WMBE 22

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

Second Semester

Microbiology

Elective – CLINICAL AND DIAGNOSTIC
MICROBIOLOGY

(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. Biomedical waste management aims to:
 - (a) Reduce the risk of infections associated with healthcare waste
 - (b) Increase the accumulation of waste in healthcare facilities
 - (c) Maximize the use of single-use disposable items
 - (d) Decrease the segregation of different types of healthcare waste

6. _____ Preservative must not be used in microbiological analysis.
 - (a) Boric acid
 - (b) CPC-NaCl
 - (c) Formaldehyde
 - (d) Heparin
7. What microbiological test is used for rapid identification of *Staphylococcus aureus* from clinical specimens?
 - (a) Gram stain
 - (b) Acid-fast stain
 - (c) Blood culture
 - (d) Coagulase test
8. _____ is a rapid immunochromatographic test used for diagnosing certain infectious disease
 - (a) Western blot
 - (b) Immunofluorescence assay
 - (c) Lateral flow assay
 - (d) Complement fixation test
9. _____ diseases can be diagnosed using the hemagglutination test.
 - (a) HIV/AIDS
 - (b) Influenza
 - (c) Tuberculosis
 - (d) Malaria

2. What precautionary measure should be taken when working with biological hazards?
 - (a) Skipping the use of personal protective equipment (PPE)
 - (b) Eating and drinking in the laboratory
 - (c) Practicing good hand hygiene
 - (d) Leaving experiments unattended
3. Which regulatory body often establishes guidelines for the proper disposal of infectious healthcare waste?
 - (a) World Health Organization (WHO)
 - (b) Environmental Protection Agency (EPA)
 - (c) Centers for Disease Control and Prevention (CDC)
 - (d) Occupational Safety and Health Administration (OSHA)
4. _____ specimen is typically collected for acid-fast bacilli (AFB) smear and culture.
 - (a) Blood
 - (b) Sputum
 - (c) Urine
 - (d) Stool
5. _____ specimen requires immediate transport to the laboratory for optimal recovery of pathogens.
 - (a) Stool for culture
 - (b) Urine for culture
 - (c) Blood for culture
 - (d) Throat swab for culture

10. _____ advantage does the E-test offer over traditional disk diffusion methods.
 - (a) E-test provides quantitative MIC results
 - (b) E-test does not require incubation
 - (c) E-test is cheaper
 - (d) B-test can detect bacterial enzymes
11. _____ technique cannot be used to determine the minimum inhibitory concentration of an antimicrobial drug against a particular microbe.
 - (a) E-test
 - (b) Microbroth dilution test
 - (c) Kirby-Bauer disk diffusion test
 - (d) Macrobroth dilution test
12. _____ standard strain is being used in Disk diffusion and MIC of Enterobacteriaceae.
 - (a) *Escherichia coli* ATCC 25922
 - (b) *Escherichia coli* ATCC 35622
 - (c) *Escherichia coli* ATCC 55912
 - (d) *Escherichia coli* ATCC 35925
13. _____ is not the major pathogen isolated in hospital-acquired Urinary tract infections.
 - (a) *Proteus vulgaris*
 - (b) *Salmonella paratyphi*
 - (c) *Pseudomonas aeruginosa*
 - (d) *E. coli*

14. _____ is the most important measure of standard precautions
- Hand wash
 - Isolation
 - Environmental disinfection
 - Disinfection of equipment
15. _____ is not a predisposing factors of nosocomial infection
- Immunosuppression
 - Extremes of age
 - Limited use of antibiotics
 - Chronic diseases

PART B — (5 × 4 = 20 marks)

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

16. (a) What are the key measures to prevent exposure to biological hazards in the laboratory? Provide practical examples of each measure.
- Or
- (b) Discuss the color-coding system used for segregating biomedical waste.

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17. (a) How will you transport clinical specimen?
- Or
- (b) Give a short on criteria for the rejection of clinical sample.
18. (a) Analyze the steps involved in microbiological methods of disease identification.
- Or
- (b) Mention the advantages of automation in microbial diagnosis.
19. (a) Describe the steps involved in E-test and its application.
- Or
- (b) Add note on quality control (standard) strains used in antimicrobial activity.
20. (a) What are the sources of nosocomial infection.
- Or
- (b) Comment on the role of hospital infection control committee.

PART C — (5 × 8 = 40 marks)

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

21. (a) Explain the role of regulatory bodies in ensuring compliance with waste management standards.

Or

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- (b) Elaborate the steps involved in decontaminating laboratory equipment and surfaces after working with biological hazards.
22. (a) Illustrate the procedure to collect, transport and processing of blood sample.
- Or
- (b) Write a detail note on the collection and processing of urine sample.
23. (a) Give a detail note on immunological techniques in disease diagnosis.
- Or
- (b) Write an elaborate note on types, working mechanism and applications of molecular methods in diagnosis of infectious diseases.
24. (a) Give a detail account on various types and uses of antibiotic sensitivity methods.
- Or
- (b) Explain the quality control methods of antibiotics.

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25. (a) Elaborate a note on mode of transmission hospital acquired infection.
- Or
- (b) Analyze the types, pathogenesis and controlling measures of nosocomial infection.

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