S–5045

Sub. Code
22BMC5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Microbiology and Clinical Lab Technology

SYSTEMATIC BACTERIOLOGY AND VIROLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Hemolytic uremic syndrome.
2. Whooping cough.
3. STD.
4. Rifampicin.
5. Tetanus.
6. Widal test.
7. TMV.
8. Antigenic shift and drift.
9. CPE
10. Corning flask.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write briefly about the laboratory diagnosis of diphtheria.

Or

(b) Explain the pathogenesis of shigellosis.

12. (a) Describe the life cycle of T4 phage.

Or

(b) Explain the application of egg inoculation in diagnostic virology.

13. (a) Describe the pathogenesis of polio virus infection.

Or

(b) Write in detail about the laboratory diagnosis of Influenza A virus infection.

14. (a) Discuss the virulence factors of *Streptococcus pyogenes*.

Or

(b) Write briefly about the Tuberculosis treatment.

15. (a) Explain the transmission and epidemiology of Scrub typhus.

Or

(b) Write briefly about the plaque assay?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the pathogenic mechanisms of *Neisseria gonorrhoae,* its clinical manifestation and the strategies used for diagnosis and its treatment.

17. Discuss the pathogenesis and prophylaxis of *Clostridium tetani.*

18. Write briefly about the pathogenesis and clinical manifestations of Lyme diseases.

19. Describe the replication and laboratory diagnosis of HIV.

20. Write in detail about the application of tissue culture techniques in diagnosis of viral infection.

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S–5046

Sub. Code
22BMC5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Microbiology and Clinical Lab Technology

CLINICAL IMMUNOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. GALT
2. Dendritic cells
3. Haptens
4. Artificial active immunity
5. Epitope
6. Polyclonal antibodies
7. Allergic rhinitis
8. DTH cells
9. Examples of fluorescent dyes
10. RIA.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Summarize the contribution of Louis Pasteur to the field of immunology.

Or

(b) Describe the structure and function of spleen.

12. (a) What are adjuvants? Give examples.

Or

(b) Brief on the mechanism of innate immunity.

13. (a) Write short notes on the biological significance of IgG.

Or

(b) Define agglutination? Give examples for slide and tube agglutination tests.

14. (a) What is ADCC? Explain with an example.

Or

(b) What are the types of graft rejection?

15. (a) Define radial immunodiffusion. What is the principle and its application?

Or

(b) What are the advantages of RIA?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on the microflora of human body and their importance.

17. Differentiate between Humoral and cell mediated immunity.

18. Explain about recombinant vaccines citing an example.

19. Give a detailed account on the mechanism of allograft rejection.

20. Describe the principle of ELISA. Write a note on its application.

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S–5047	Sub. Code
	22BMC5C3

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Microbiology and Clinical Lab Technology

RECOMBINANT DNA TECHNOLOGY AND MOLECULAR DIAGNOSTICS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. S1 nucleare.
2. Adaptors.
3. Shuttle vectors.
4. ColE1 plasmid.
5. T-DNA.
6. Recombinant IFN's
7. Annealing.
8. Chromosomal jumping.
9. RADP.
10. Immunoblotting

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write short notes on DNA modifying enzymes.

Or

(b) Write short notes on DNA ligases.

12. (a) Explain the construction of phagemid with an example.

Or

(b) What are the characteristics of a cloning vector?

13. (a) Why Ti plasmids are preferred in plant biotechnology?

Or

(b) Write short notes on GMOS.

14. (a) How screening of recombinants is done by colony hybridization.

Or

(b) What are the advantages of automated sequencing?

15. (a) List the applications of DNA finger printing.

Or

(b) What is the principle of DNA foot printing?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on Restriction endonucleases and their applications.

17. Define cosmid. How cloning is done in cosmids?

18. Explain direct gene transfer by shot gun method.

19. How CDMA libraries an constructed?

20. Explain the principle, steps and applications of Real-time PCR.

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S–5048

Sub. Code
22BMC5C4

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Microbiology and Clinical Lab Technology

CLINICAL BIOINSTRUMENTATION AND DIAGNOSTICS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What is Bio-potential?
2. Mention different sources of biomedical signals?
3. What are the types of ECG leads?
4. How blood pressure is measured with sphygmomanometer?
5. What is spirometer?
6. What is ear and pulse oximeter?
7. Write the name of the light sources used in UV-Vis spectroscopy.
8. What is an audiometer?
9. Write the principle of paper chromatography
10. Define retention time in chromatography?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Draw the block diagram of biomedical instrumentation and explain the different components.

Or

(b) Explain the classification of biomedical instrumentation based on application.

12. (a) Discuss the working principle and instrumentation of EEG.

Or

(b) Write the advantages and disadvantages of using EMG in clinical or experimental tool.

13. (a) Briefly explain the principle of oxymetry.

Or

(b) Write note on conventional and digital hearing aids.

14. (a) Explain application of UV-Vis spectroscopy in the estimation of the purity of nucleic acid.

Or

(b) Explain the principle and types of centrifugation.

15. (a) Explain the working principle and application of ion exchange chromatography.

Or

(b) Discuss the application of adsorption chromatography in clinical diagnostics.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the different sources of biomedical signals with suitable example

17. Explain the application of ECG on the diagnosis of heart diseases.

18. Discuss the principle and Instrumentation of UV-Vis spectrometer

19. Explain the different methods of ultra centrifugation techniques

20. Explain the principle and application of HPLC in biochemical analysis.

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