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Reg. No. : .....

Code No. : 30721 E Sub. Code : EMMI 41

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2025

Fourth Semester

Microbiology – Core

IMMUNOLOGY AND IMMUNOTECHNOLOGY

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. T cells play a crucial role in \_\_\_\_\_ and also in activating other immune cells.
  - (a) Identifying infected cells
  - (b) Producing mucus
  - (c) Producing antibodies
  - (d) Regulating body temperature

2. Which substance promotes phagocytosis by binding to the antigens?
  - (a) Macrophages
  - (b) Opsonins
  - (c) Interleukins
  - (d) Cytokines
3. These are immunogenic upon binding covalently to a carrier protein.
  - (a) Antigen
  - (b) Hapten
  - (c) Epitope
  - (d) Adjuvant
4. The least prevalent immunoglobulin is \_\_\_\_\_
  - (a) IgA
  - (b) IgD
  - (c) IgE
  - (d) IgG
5. This is one of the common enzymes used in ELISA.
  - (a) DNA Polymerase
  - (b) Horse Radish Peroxidase
  - (c) Ligase
  - (d) RNA Polymerase

6. Ammonium sulfate precipitation is commonly used to purify antibodies as it
- (a) Selectively binds to the Fc region of IgG
  - (b) Precipitates antibodies based on their solubility
  - (c) Separates antibodies based on molecular weight
  - (d) Removes all non-protein contaminants
7. \_\_\_\_\_ is a form of rejection that leads to graft destruction over the course of months, but most often years after tissue transplantation.
- (a) Acute rejection
  - (b) Chronic rejection
  - (c) Major rejection
  - (d) None of these
8. Which of the following MHC complex activates Killer cells?
- (a) MHC I                      (b) MHC II
  - (c) Both (a) and (b)      (d) None of these
9. Which of the following is known as delayed type hypersensitivity?
- (a) Hypersensitivity type I
  - (b) Hypersensitivity type II
  - (c) Hypersensitivity type III
  - (d) Hypersensitivity type IV

10. Which of the following is an example of a type II hypersensitivity reaction?
- (a) Anaphylaxis
  - (b) Hemolytic disease of the newborn
  - (c) Serum sickness
  - (d) Contact dermatitis

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Summarize the role of spleen in immune system.
- Or
- (b) What is immunohematology? Explain.
12. (a) List out the properties of haptens.
- Or
- (b) How are vaccines classified based on their composition?
13. (a) Report how immune fluorescence technology work in detecting antigens.
- Or
- (b) Discuss the methods used for the standardization of antigen.

14. (a) What are tumour specific antigen? How are they classified?

Or

- (b) Explain the mechanism of graft rejection.

15. (a) Outline the reactions caused by type II hypersensitivity.

Or

- (b) Write about the immunological mechanism related to rheumatoid arthritis disease.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Elaborate on the functions of immune cells.

Or

- (b) Explain how a person acquires immunity through humoral immunity response.

17. (a) Justify the importance of passive immunization.

Or

- (b) Illustrate antigen — antibody reactions with examples.

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18. (a) Outline the key steps involved in the preparation of antigen.

Or

- (b) How does RIA work in detecting antigens? Discuss its applications.

19. (a) Develop a detailed note on transplantation immunology.

Or

- (b) How does our immune system respond to tumour? Explain.

20. (a) How is hypersensitivity classified? Explain about type I hypersensitivity.

Or

- (b) Discuss in detail about organ specific auto immune disease.
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