



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

FIRST SEMESTER – NOVEMBER 2016

16PBT1MC04 - IMMUNOLOGY

Date: 09-11-2016
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

1. The immunoglobulin that can cross the placenta to help protect the growing fetus is
a) IgG b) IgM c) IgD d) IgA
2. The Immunoglobulin genes which are located on chromosomes are:
a) 14, 2 and 22 b) 1 and 2 c) 3 and 23 d) 7 and 8
3. Erythroblastosis fetalis is an example of _____ hypersensitivity.
a) Type I b) Type II c) Type III d) Type IV
4. Measles vaccine is an example of _____ vaccine.
a) DNA b) live attenuated c) peptide d) conjugate
5. FACS is a specialised type of
a) electrophoresis b) immune cell c) flow cytometry d) chamber

II. State whether the following are true or false

(5 x 1= 5 Marks)

6. An allograft is a tissue graft from a donor of the same species as the recipient but not genetically identical.
7. Susumu Tonegawa was awarded the Nobel Prize for his discovery of the genetic principle for generation of antibody diversity.
8. Myasthenia gravis is an autoimmune skeletal disease.
9. A subunit vaccine contains only a fragment of the pathogen and elicits an appropriate immune response.
10. Immunosensors are biosensor solid-state devices in which the immunochemical reaction is coupled to a transducer.

III. Complete the following

(5 x 1= 5 Marks)

11. Less organized secondary lymphoid organs found in various body sites is collectively called _____.
12. Human MHC class I and II are also called _____.
13. The antigens that are present only on tumor cells and not on any other cell is _____.
14. The pioneer of smallpox vaccine, the world's first vaccine is _____.
15. The region of a precipitation curve where the concentration of the antibody is equal to the concentration of antigen is called the _____.

IV. Answer the following, each within 50 words

(5 x 1 = 5 Marks)

16. State one difference between innate and adaptive immunity.
17. Define hapten.
18. What is bubble baby disease?
19. Define abzymes.
20. Give an example of an immunodiffusion technique.

PART – B

(5 × 8 = 40 Marks)

Answer the following, each within 500 words. Draw diagrams wherever necessary.

21. (a) Explain the different types of immunoglobulins and their biological significance.

OR

(b) Discuss the immunological importance of cytokines.

22. (a) Write a note on antigen processing and presentation.

OR

(b) *A patient's HLA type and match is determined prior to transplantation.* – Justify.

23. (a) Explain the three main clinical types of graft rejection.

OR

(b) Describe the types of Hypersensitivity reactions with examples.

24. (a) Discuss secondary immunodeficiency with an example.

OR

(b) What is autoimmunity? Describe any two autoimmune disorders.

25. (a) Explain the principle and procedure of an immunodiagnostic technique for typhoid.

OR

(b) Describe the principle, methodology and applications of Rocket Electrophoresis.

PART – C

(2 × 20 = 40 Marks)

Answer any TWO of the following, each within 1500 words. Draw diagrams wherever necessary.

26. Explain in detail the process of hematopoiesis and the immunological functions of the cells of the immune system.

27. Describe the MHC complex – genes, structure of molecules and functions.

28. Discuss tumour immunology and add a note on recent advances in cancer immunotherapy.

29. *Hybridoma technology has revolutionised diagnosis and treatment of disease.* Elucidate.
