



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

FIRST SEMESTER – APRIL 2018

17PBT1MC04- IMMUNOLOGY

Date: 30-04-2018
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- _____ are the most abundant leukocytes in a normal WBC count.
a) Neutrophils b) Eosinophils c) Basophil d) Macrophage
- Immunoglobulin genes are located on
a) 1, 2 b) 14, 2, 22 c) 3, 22 d) 7, 14, 21
- _____ is a systemic autoimmune disorder.
a) Rheumatoid arthritis b) Myasthenia Gravis c) Diabetes d) Hydrocephalus
- Which of the following vaccine is effective against certain types of cervical cancer?
a) Vaccinia b) Gardasil c) Hep B d) Rotarix
- Immunofluorescence is a technique that employs
a) Fluorophore b) fluorescence microscopy c) labeled antibodies d) all of the above

II. State whether the following are True or False.

(5x1=5 Marks)

- Kupffer cells are phagocytic cells present in the liver.
- Tonegawa was awarded the Nobel Prize for his discovery of the genetic principle for generation of antibody diversity.
- Serum sickness is an example of Type 1 hypersensitivity.
- Vaccines are typically administered intravenously.
- Immunosensors are solid-state biosensors where the immunochemical reaction is coupled to a transducer.

III. Complete the following

(5 x 1 = 5 Marks)

- Active MAC has a subunit composition of _____.
- The diversity region is present only in the _____ chain of an immunoglobulin.
- _____ typing is a technique to match a patient and donor for transplantation compatibility.
- The first vaccine was developed by _____.
- _____ is a technique that determines antibody levels using antigens tagged with a radioisotope.

IV. Answer the following within 50 words

(5 x 1 = 5 Marks)

- Define hapten.
- What are oncogenes?
- Name the type of transplant between genetically non-identical twins.
- Give an example of a live attenuated vaccine.

20. Name a immunodiagnostic technique that is based on the principle of Immunoprecipitation.

PART B

Answer the following each within 500 words.

(5 x 8 = 40 marks)

Draw diagrams wherever necessary

21. (a) Describe the structure of an immunoglobulin.

OR

(b) Write a note on the types and functions of antibodies.

22. (a) Describe the structure of MHC class I molecule and add a note on its function.

OR

(b) Explain HLA typing and its importance in transplantation.

23. (a) Briefly explain the mechanisms by which tumors evade immune responses.

OR

(b) Give an account on the types of grafts.

24. (a) Write a note DNA vaccines used in cancer treatment/prevention.

OR

(b) Explain hybridoma technology for the production of monoclonal antibodies.

25. (a) Describe the technique of western blotting.

OR

(b) Explain Ouchterlony Double diffusion.

PART – C

Answer any TWO of the following, each within 1500 words.

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Describe the cells of the immune system and their functions.

27. Explain the exogenous pathway of antigen processing and presentation.

28. Outline the types of Hypersensitivity reactions with examples.

29. Write an essay on the types of ELISA and its applications.

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