

Question Paper

Exam Date & Time: 14-Aug-2023 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M. Sc. (MEDICAL BIOTECHNOLOGY/TISSUE ENGINEERING/GENOME ENGINEERING) DEGREE
EXAMINATION - AUGUST 2023
SUBJECT: MBT/MTE/MGE 502 - IMMUNOLOGY AND IMMUNOGENETICS
(OBE - 2021 REGULATION - REPEATERS)

Marks: 70

Duration: 180 mins.

Answer all the questions.

Illustrate where necessary.

Answer the following questions in an essay format.

- 1) Describe T cell mediated antigen recognition along with generation and diversity of T cell receptors. (14)
- 2) Describe classification and functions of pattern recognition receptors in identifying pathogens. Write a note of TLR signalling. (14)

Answer the following questions in the form of a brief essay.

- 3A) Describe evolution of immune system with examples. (7)
- 3B) Explain pleiotropic nature of cytokines with an example. (7)
- 4A) Explain mechanisms regulating T cell dependent B cell activation. (7)
- 4B) What autoimmunity? Explore how autoimmunity and illnesses are caused. (7)

5. Answer the following with a brief note.

- 5A) Anaphylaxis (3.5)
- 5B) Mast cells (3.5)
- 5C) HLA polymorphism. (3.5)
- 5D) Biological function of anti-idiotypic antibodies. (3.5)

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