



**INSTRUCTIONS**

- Answer **all** questions in the booklet provided.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.
- Marks will be deducted for illegible hand writing.

1.

- 1.1. Describe the mechanism of cell cycle. (20 marks)
- 1.2. Briefly describe the mechanism of cell death. (30 marks)
- 1.3. Illustrate the organization of the mammalian cell. (20 marks)
- 1.4. Briefly indicate the functions of the cell membrane. (30 marks)

2.

- 2.1.
  - 2.1.1. Define the term "hypersensitivity". (10 marks)
  - 2.1.2. Indicate the types of hypersensitivity. (40 marks)
- 2.2. Give **two** examples of autoimmune disorders. (10 marks)
- 2.3. Indicate the clinical diagnostic tests based on antigen-antibody reactions. (15 marks)
- 2.4. Describe the laboratory and clinical application of ELISA. (25 marks)

3.

- 3.1. List the components of a gene. (20 marks)
- 3.2. Briefly describe transcriptional and post transcriptional regulation. (30 marks)
- 3.3. Mention the steps in transcription. (20 marks)
- 3.4. State the splicing in transcription. (20 marks)
- 3.5. Name **three** types of RNA. (10 marks)

4.

- 4.1. State the different types of stem cells. (20 marks)
- 4.2. Briefly describe clinical applications of stem cells. (15 marks)
- 4.3. Describe the role of immunological responses in the process of development of cancer. (15 marks)
- 4.4. Describe the immune system involvement against pathogens. (25 marks)
- 4.5. Discuss the different types of antibodies. (25 marks)

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