V

(20516) Roll No. 1593502692

B.Sc.(Bio-Tech.)-I Year

NS-3457

B. Sc. (Bio-Tech.) Examination, May 2016

Cell Biology

(B-103)

(New)

Time : Three Hours] *[Maximum Marks : 50*

Note : Attempt any *Five* questions. All questions carry equal marks.

1. "Cell is a structural and functional unit of life". Justify the statement giving suitable diagrams. 10

2. Describe the structure of ribosome as observed under electron microscope giving details of ribosomal protein and ribosomal RNA. 10

3. Write short notes on the following : 2½×4
   (a) PPLO
   (b) Labelled sketch of prokaryotic cell
   (c) Interphase
   (d) Role of Ca^{++} ions in cell signalling.

4. Describe the structure and function of chromosome. 10

5. Write detailed note on the following : 5 each
   (a) Differences in prokaryotic and eukaryotic cell giving suitable diagram.
   (b) Differentiate between metaphase-I and metaphase-II giving suitable diagram.

6. Giving suitable diagrams, describe the different sub-stages of prophase-I of meiotic cell division. 10

7. Give an account of the detailed ultra-structure of plasma membrane and also discuss its functions. 10

8. Write the short note on the following : 4+3+3
   (a) Functions of endosplasmic reticulum
   (b) Inositol phosphate
   (c) Difference between normal and cancer cell.

9. Describe in detail the process of protein synthesis in prokaryotes. 10

10. Write detailed note on the following : 5 each
    (a) Differences in mitotic and meiotic cell division
    (b) Functions of chromosomes.

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(20517) Roll No. .....

B.Sc. Bio-Tech - I Yr.

NS-3457

B.Sc. Bio-Technology Examination,

May 2017

Cell Biology

[B-103 (New)]

Time : Three Hours] *[Maximum Marks : 50*

Note : Attempt any **five** questions from the following.

1. What are the various mechanisms of membrane transport? Give a brief account of each of them. 10

2. Discuss the microtubular organisation of cilia and flagella. How the microtubular elements help the movements of these organs. 10

P.T.O.

3. Describe the events during cell cycle with the help of diagram. Mention cell cycle regulation in brief. 10

4. What is cell-cell communication? Describe the cell adhesion molecules in detail with examples. 10

5. Give an account of the ultra-structure and function of mitochondria. 10

6. Give an account of the ultrastructure, biochemistry and function of the nucleus. 10

7. Explain the process of mitotic cell division (with diagrams) and compare it with meiotic division. 10

8. What is the cytoskeletal system? Describe all the components of cytoskeleton in detail. 10

9. Describe the structure of animal cell along with important functions of components. How is it different from a plant cell? 10

10. Describe the process of biosynthesis of mitochondria and chloroplasts. Highlight the differences. (Preferably with diagrams). 10

(20518) Roll No. R14093932018

B. Sc. (Biotech.)-I Year

NS-3457

B. Sc. (Biotechnology) Examination, May 2018

Cell Biology

(B-103)

(New)

Time : Three Hours] *[Maximum Marks : 50*

Note : Answer any *Five* questions. All questions carry equal marks.

1. Describe the ultrastructure of a plant cell with well labelled diagram. 10

2. Draw a diagram depicting "Fluid mosaic model" of cell membrane structure. Also explain the various components of cell membrane. 10

3. Write detailed notes on the following : 5 each
   (i) Structural differences between prokaryotic and eukaryotic cells
   (ii) Differences between normal and cancer cells.

4. What is central dogma ? Describe the role of DNA and RNA in protein synthesis. 10

5. Write short notes on the following : 2½ each
   (i) Reverse transcription
   (ii) PPLOs
   (iii) Organization of nucelosome
   (iv) Cell cycle.

6. Giving suitable diagrams, discuss the various stages of prophase I of meiotic cell division. 10

7. Write detailed notes on the following : 5 each
   (i) Synaptonemal complex and its role in chromosome pairing
   (ii) Ultrastructure and function of chloroplast.

8. Describe structure, function and origin of peroxisomes. 10

9. Write notes on the following : 4+3+3
   (i) Differences between meiotic and mitotic cell division.
   (ii) Differences between transcription and translation
   (iii) Ultrastructure and function of Golgi complex.

10. Write short notes on the following : 2½ each
   (i) Signal transduction pathways
   (ii) Role of Ca^{++} ions
   (iii) Muscle and nerve cells
   (iv) Degradation of cellular components.