

Extra  
BIO-chem

**Note:**

1. All the questions are compulsory. Choice is internal.
2. Figures to the right indicate full marks.
3. All questions carry equal marks.
4. Draw flowcharts/diagrams wherever necessary.

**Q.1 a) Define the following:**

1. Big Bang theory
2. Panspermia
3. Cisternae
4. Prokaryotes
5. Staining

(10)

**Q.1 b) State true or false with reasons:**

1. RNA can both get converted to DNA and proteins.
2. Bottleneck events are a part of genetic drift.
3. Chlorophyll is present in the stroma of chloroplast.
4. Gram negative bacteria have a thick peptidoglycan layer.
5. Robert Hooke is known as Father of medical Microbiology.

(05)

**Q.2 Answer the following: (Any four)**

1. With the help of an example explain abiogenesis.
2. Elaborate on the protein world.
3. Explain modern synthetic theory in detail.
4. With the help of a diagram explain Miller's experiment in detail.
5. Explain any four biological evidence of evolution in detail.

(20)

**Q.3 Answer the following: (Any four)**

1. Write a detailed note on structure and functions of chloroplast.
2. Write a detailed note on structure and functions of mitochondria.
3. Explain in detail about mitosis cell division.
4. Write a note on the cell wall.
5. Elaborate on cell cycle.

(20)

**Q.4 Answer the following: (Any four)**

1. Explain the principle of gram staining. Also, give the role of each stain.
2. Elaborate on the contributions of Leeuwenhoek and Pasteur to the field of microbiology
3. Explain the principle of negative staining with a suitable example.
4. Classify bacteria on the basis of salt concentration.
5. Write a note on extremophiles.

(20)

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