[This question paper contains 4 printed pages.]

Your Roll No.....

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Sr. No. of Question Paper : 4852

Unique Paper Code : 42167902

Name of the Paper : Cell and Molecular Biology

Name of the Course : B.Sc. Life Sciences – DSE

Semester : V

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. All Questions carry equal marks.
3. Question No. 1 is compulsory.
4. Attempt five questions in all including Question No. 1.

1. (a) Define **(any five)** :

   (i) Repressor

   (ii) Signal transduction

P.T.O.

(iii) Nucleosome

(iv) Integral Proteins

(v) Transcript

(vi) Apoptosis (1×5=5)

(b) Expand the following:

(i) ADP

(ii) TMV

(iii) NADH

(iv) TEM

(v) ETC (1×5=5)

(c) What is the function of each of the following components of the protein synthesizing apparatus:

(i) tRNA

(ii) rRNA

(iii) Peptidyl Transferase

(iv) Initiation factors

(v) Elongation factor G (1×5=5)

2. Differentiate between **(any five)** :

(i) Eukaryotes and Prokaryotes

(ii) Light microscope and Electron microscope

(iii) Active transport and Passive transport

(iv) Gram Positive and Gram Negative Bacteria

(v) Z-DNA and B-DNA (3×5=15)

3. Write short notes on **(any three)** :

(i) Function of Membrane Proteins

(ii) Composition of Cell Wall

(iii) Replication of 5' end of linear DNA

(iv) Confocal Microscope (5×3=15)

4. Draw well labelled diagrams for the following **(any three)** :

(i) Ultrastructure of Mitochondria

(ii) Fluid Mosaic Model of cell membrane

(iii) Replication Fork (5×3=15)

P.T.O.

5. (a) Describe with suitable diagrams experimental evidences that proved DNA to be the genetic material. Discribe with suitable diagrams experimentel. (7)

(b) Explain structure and function of Chloroplast. (8)

6. (a) Name the enzymes involved in DNA replication in Prokaryotes along with their functions. (7)

(b) Describe the role of Golgi in despatching packaged proteins and vesicular transport of proteins. (8)

7. (a) Discuss and illustrate the Lac operon. What is the advantage of having the Lac-operon in prokaryotes? (7)

(b) Describe the Fluid Mosaic Model for structure of cell membrane. Describe briefly the functions of the cell membrane. (8)