SET FOR DEPARTMENT.
6'1, 6'2, 6'3, 6'4 (M)
Paper —— 2018.

2018

BOTANY

(Major)

Paper : 6.1

(Molecular Biology and Plant Biochemistry)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks with appropriate words : 1×7=7

(a) In 1960, _____ discovered flip-flop and lateral diffusion of phospholipids in cell membrane.

(b) In translation process, the enzyme _____ helps the peptide bond formation between two amino acids.

(c) An operon contains multiple genes under the control of one _____.

(d) The unit of DNA in which individual acts of replication occur is called the _____.

(e) The enzyme binds with the reactants and brings them very close and in proper orientation so that the reacting groups may easily react. This effect is known as _____.

(f) Fructose 1, 6-biphosphate is cleared into two three carbon molecules in the presence of _____ enzyme.

(g) Pyrimidine dimers are formed as a result of ____ radiations.

2. Define the following in brief : 2×4=8

(a) Nitrogenase enzyme

(b) Exons

(c) Base analogues

(d) DNA priming

3. Write short notes on any *three* of the following : 5×3=15

(a) Degeneracy of the genetic code

(b) Exo and endo forms of monosaccharides

(c) Fine structure of a gene

(d) Frameshift mutation

4. Answer any *three* of the following : 10×3=30

(a) Describe RNA polymerase and the initiation of RNA synthesis in prokaryotes. What are factor dependent method and intrinsic termination method?

(b) Explain free energy change and reaction equilibrium of enzyme action. Define action site of the enzyme.

(c) Define inducible system. Discuss the 'lac operon' gene expression and regulation in prokaryotes. 2+8=10

(d) What is biological nitrogen fixation? Describe the process of root nodule formation. What is conformational and respiratory protection of nitrogenase enzyme?

(e) Distinguish between disaccharides and polysaccharides. Discuss in detail about the structure and formation of polysaccharides. 2+8=10

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