

Total number of printed pages—4

63 (FY)SEM-3/MAJ/BOTMAJ2014

2024

BOTANY

Paper : BOTMAJ2014

(Biomolecules and Cell Biology)

Full Marks : 50

Pass Marks : 20

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : $1 \times 5 = 5$

(a) Which vitamin is not fat-soluble ?

(i) Vitamin A

(ii) Vitamin B

(iii) Vitamin C

(iv) Vitamin D

Contd.

(b) The change in heat energy is called

- (i) Entropy
- (ii) Enthalpy
- (iii) Endergonic
- (iv) Exergonic

(c) Purine bases of DNA are

- (i) A and G
- (ii) A and C
- (iii) C and T
- (iv) A and U

(d) An activated enzyme made of Polypeptide chain and a Co-factor is

- (i) Coenzyme
- (ii) Substrate
- (iii) Apoenzyme
- (iv) Holoenzyme

(e) The membrane around the vacuole is known as

- (i) Tonoplast
- (ii) Elaioplast
- (iii) Cytoplast
- (iv) Amyloplast

2. Answer the following questions : **(any five)**
2×5=10

(a) Draw the chair and boat model of D-Glucose.

(b) Do DNA and RNA have the same constituting units? If not, name the different units.

(c) Draw the three dimensional structure of t-RNA showing L-shaped configuration.

(d) Discuss four factors which affect enzyme activity.

(e) What is the difference between ADP and ADP-BeFx?

(f) What are the different phases of a cell cycle?

(g) Mention four important significances of mitosis.

3. Answer the following questions : **(any five)**
5×5=25

(a) Describe the steps involved in 'Krebs Cycle'.

(b) With a neat labeled diagram describe the primary and secondary structure of protein.

(c) Write a explanatory notes on Biosynthesis of Cholesterol.

(d) Write a notes on naming and classification of enzymes.

(e) Give a detailed account on 'Salvage Pathway'.

(f) Discuss the importance of cell division in plant reproduction.

(g) Describe the molecular mechanisms of chromosome condensation during mitosis in plants.

4. Answer the following question : (any one) 10x1=10

(a) Describe the structure and functions of mitochondria, highlighting their role in cellular respiration.

(b) Explain the structure of DNA, including its double helix model, and write the process of DNA replication, 5+5=10