বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2021
(Under CBCS Pattern)
Semester - VI
Subject: BOTANY
Paper : C 13-T & P
Plant Metabolism

Full Marks : 60 (Theory-40 + Practical-20)
Time : 3 Hours

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

[Theory]

1. Answer ***any two*** of the following: 2×15=30

a) Schematically represent the pathway of cyclic and non-cyclic photophosphorylation. Describe the organic acid metabolic pathway in CAM plants. 10 +5 = 15

b) What is leg-haemoglobin? Write the process of nodule formation in leguminous plants. Describe the biological N_2 fixation in a non-symbiotic organism. 2 + 5 + 8 = 15

c) Briefly describe the different mechanisms of ATP Synthesis. What are the role of uncouplers in ATP synthesis? Briefly describe the role of Ca2+as second messenger in signal transduction pathway of plants. 6+4+5 = 15

d) What is oxidative phosphorylation? Describe the electron transport system of cellular respiration. Discuss Pentose Phosphate Pathway with suitable diagram.
1 + 6 + 8 = 15

2. Answer ***any one*** of the following: 1×10=10

a) Give a general account on MAP kinase cascade. Give examples of MAPK signalling modules identified in plants. 5 + 5 = 10

b) Write notes on-

i) Antenna pigments

ii) Nitrogenase complex. 5 + 5 = 10

[Practical]

3. Answer ***any one*** of the following: 1×20=20

1. Write down the materials required and procedure to compare the rate of respiration in germinating gram seeds and flower petals of *Hibiscus s*p. 10+10

2. Describe the principle and experimental procedure to demonstrate the effect of carbon dioxide on the rate of photosynthesis. 5 + 15

3. Write down the materials required and procedure to study the activity of lipase in germinating groundnut seeds. 5 + 15

4. Mention the requirements and give an outline of experimental method to determine the activity of nitrate reductase in germinating leaves. 5 + 15