

2022

**BOTANY**

**[P.G.]**

**(CBCS)**

**(M.Sc. Third Semester End Examinations-2022)**

**PAPER-302**

***Full Marks: 40***

***Time: 02 Hrs***

*The figures in the right hand margin indicate marks  
Candidates are required to give their answers in their own words as  
far as practicable*

*Illustrate the answers wherever necessary*

**[USE SEPARATE ANSWER SCRIPT FOR EACH UNIT]**

**Unit -I**

**F.M. - 20**

**[Plant Physiology]**

**Group - A**

1. Answer any four questions of the following: **1x4= 4**
  - a. Name the hormone that can induce flowering in SDP grown under long light duration.
  - b. What are SAG genes?
  - c. What is the primary acceptor of CO<sub>2</sub> in photosynthesis?
  - d. Give an example of electron coupler.

(2)

- e. Define positive and negative growth regulators and cite examples.
- f. Define photoblastic seeds with examples.

**Group - B**

2. Answer any two questions: 2x4= 8
- a. Mention the extra enzymes and pathways that make gluconeogenesis truly reversal of glycolysis? 4
  - b. What are CAM plants? Explain in brief the CAM pathways. 1+3
  - c. Describe the regulation of TCA cycle. 1+3
  - d. Write the full form of EMP. What are the inhibitors of Glycolysis? Mention a few physiological changes occurring during leaf senescence. 1+1+2

**Group - C**

3. Answer any one question 1x8= 8
- a. Discuss the physiological role of Gibberellins. Write the Tryptophan dependent pathway of Auxin biosynthesis. What is seed viability? 4+3+1
  - b. How does guttation differ from transpiration? Write the effects of drought stress on plant life. Diagrammatically discuss the opening and closing of stomata. 2+3+3

(3)

**Unit -II**

**F.M. - 20**

**[Biochemistry & Molecular Biology]**

**Group - A**

1. Answer any four questions of the following: 1x4= 4
- a. What are isozymes?
  - b. Give one example each of flavonoid and alkaloid.
  - c. Name the five genera of nodule-inducing bacteria that are collectively known as Rhizobia.
  - d. What are semantides?
  - e. What is activation energy?
  - f. What is Ramachandran plot?

**Group - B**

2. Answer any two questions: 2x4= 8
- a. Name the three prosthetic groups present in each subunit of nitrate reductase enzyme. Mention the function of glutamate synthetase (GS) enzyme in ammonium assimilation. (2+2=4)
  - b. Give an overview of primary, secondary, tertiary and quaternary structure of protein. (4)
  - c. Give a comparative account of competitive, uncompetitive and non-competitive inhibition. What is allosteric enzyme? (3+1=4)

(4)

d. Define Gibb's free energy. Write your concept on redox potential and thermodynamics.

(1+3=4)

**Group - C**

**3. Answer any one question**

**1x8= 8**

a. Give an outline classification of terpenes. Write down the biosynthetic pathway of terpenes with a flowchart.

(3+5=8)

b. Give a detailed account of enzymes involved in lipid metabolism.

Write down the general classification of lipids.

(4+4=8)