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M.Sc.-CBCS/IIIS/BOT/PG/303/21 (Th)

Raja N. L. Khan Women's College (Autonomous)

End Semester Examinations-2021

BOTANY [PG-CBCS]

[M. Sc] (Theory)

PAPER-BOT 303

Plant Physiology, Biochemistry & Molecular Biology

Full Marks: 40

Time: 02 Hrs

Answer all questions

The figures in the right hand margin indicate marks

Answer should be given within 8 pages of A4 size.

Unit-I

F.M=20

Group-A

[Answer any FOUR Questions]

1x4=04

1. Mention one point of difference between green plant chlorophylls and bacteriochlorophyll.
2. Where is phytochrome found in plants? What activates phytochrome?
3. What are the light harvesting complexes?
4. What is the role played by aquaporins?
5. How many ATP are produced in glyoxylate cycle? Which is the last product of glyoxylate pathway?
6. How do plants protect themselves from Photoinhibition?

(2)

7. What are the main products of the TCA cycle?

Group-B

[Answer any TWO Questions] **4x2=08**

8. What are the activities of RuBISCO?
9. What is gluconeogenesis? Briefly discuss the cyanide resistance pathway.
10. Discuss the process involved in biosynthesis of cytokinins.
11. What is critical day length [CDL] with respect to flowering?
How are higher plants classified on the basis of their photoperiodic responses? 1+3

Group-C

[Answer any ONE Question] **8x1=08**

12. Discuss the signal transduction in guard cells with suitable diagrams. [6+2]
13. How does senescence differ from abscission? Discuss the physiological and biochemical changes in abscission zone. [2+3+3]

Unit-II

F.M=20

Group-A

[Answer any FOUR Questions] **1x4=04**

1. What is activation energy?
2. What are isozymes?

(3)

3. Name the simplest amino acid and write down its chemical structure.
4. Name two secondary metabolites.
5. What are sphingolipids?
6. Name two substrate specific enzymes.
7. Define K_m . Write the Michaelis - Menten equation.

Group-B

[Answer any TWO Questions] **4x2=08**

8. Write short notes on a) Glutathione Synthesis b) Tanins
9. Write down the principle of thermodynamics. How are lipids metabolized? [1+3]
10. What are the primary and secondary structure of proteins?
11. Differentiate between Competitive and Non-competitive Inhibition. What are allosteric enzymes? [3+1]

Group-C

[Answer any ONE Question] **8x1=08**

12. Discuss the nodulation processes occurring in leguminous plants with suitable diagrams. What is leghemoglobin? What is meant by symbiotic nitrogen fixation? [5+1+2]
13. Classify carbohydrates giving examples of each group. Schematically describe the breakdown of glucose. Where is pectin synthesized in a cell? [5+2+1]