

U.G. 5th Semester Examination - 2024**BOTANY****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : BOT-H-DSE-T-02B****(Stress Biology)****Full Marks : 40****Time : 2½ Hours***The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five of the following questions: $2 \times 5 = 10$
 - a) What are phytoalexins? Give example.
 - b) Define phytoremediation.
 - c) What are compatible solutes? Give example.
 - d) Distinguish between acclimatization and adaptation.
 - e) What are PR proteins? State their function.
 - f) What are phytochelatins? Give example.
 - g) Distinguish between mesophytes and xerophytes with example.
 - h) What are HSPs?

[Turn over]

2. Answer any two of the following questions: $5 \times 2 = 10$
- a) What are secondary metabolites? Discuss the role of various secondary metabolites in contributing plant defense.
 - b) Write a short note on SAR in plants.
 - c) Describe the various morpho-physiological adaptations developed by plants to combat drought stress.
 - d) Elucidate the role of MAPK in perceiving plant stress and inducing downstream signalling.
3. Answer any two of the following questions: $10 \times 2 = 20$
- a) Define ROS. Discuss the role of Asada-Halliwell pathway in ROS detoxification. 2+8
 - b) Name one chill-sensitive and one chill tolerant plant. Briefly describe the mechanisms of chill resistance in plants. What is ice nucleation? 2+6+2
 - c) What is lipid peroxidation? Describe the various mechanisms adopted by plants to cope with such adversities. 2+8
 - d) Elucidate the different mechanism by which plants cope with heat stress. 10