

2021

**BOTANY — HONOURS**

**Paper : DSE-A-4**

**(Stress Biology)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer **any five** of the following in few words : 2×5
    - (a) Differentiate acclimation and adaptation in relation to stress.
    - (b) Mention one amino acid and one sugar alcohol used by plants as compatible solutes.
    - (c) What are the differences between stress avoidance and stress tolerance response?
    - (d) What is physiologically dry soil?
    - (e) What is aerenchyma tissue?
    - (f) What is singlet oxygen?
    - (g) Mention any two major non-enzymatic antioxidants in plants.
    - (h) What do you mean by PR protein? Mention the name of one PR protein.
  
  2. Answer **any two** of the following : 5×2
    - (a) Discuss the role of jasmonic acid in disease resistance.
    - (b) How compatible solutes provide resistance during salinity stress in plants?
    - (c) Explain the G protein activation mechanism in plant signalling.
  
  3. Answer **any three** of the following :
    - (a) Discuss developmental and physiological parameters plants develop against abiotic stress. 5+5
    - (b) Discuss the mechanism of ROS production and the role of ROS scavenging enzymes in plants. 5+5
    - (c) What are the impacts on plants, exposed to abiotic stresses in relation to root-shoot ratios and aerenchyma development? Differentiate freezing and chilling stresses in plants. (4+4)+2
    - (d) Describe the role of phospholipids in signalling during abiotic stress conditions in plants. 10
    - (e) Explain the role of salicylic acid in eliciting Systemic Acquired Resistance in plants. Discuss various pathogenesis-related proteins in plants and their functions. 5+5
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