



**DAB-003-1014006**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. IV) (CBCS) (W.E.F. 2016) Examination**

**April - 2022**

**Botany : B - 401**

*(Study of Plants With Reference to Anatomy, Embryology,  
Physiology, Ecology & Application)*

**Faculty Code : 003**

**Subject Code : 1014006**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :**
- (1) This question paper contains ten questions. Write any five questions.
  - (2) Write answers of all the questions in main answer sheet.
  - (3) Draw neat and labeled diagram wherever necessary.
  - (4) Figures to the right side indicate full marks for the question.

- 1 (a) Answer the following objective type questions : 4
- (1) In the dicot the thickening of stem increase by activity of.
  - (2) Define : amphistomatic leaf.
  - (3) Which types of tissues are produced in secondary growth ?
  - (4) Which types of vascular bundles are found in *Dracaena* ?
- (b) Answer in brief : 2  
Define : secondary growth and anomalous secondary growth.
- (c) Answer in detail : 3  
Give differences between dicot and monocot stem.
- (d) Write note on : 5  
Describe anatomy of dicot stem with diagram.

- 2 (a) Answer the following objective type questions : 4
- (1) State true / false : bulliform cells are present in dicot leaf.
  - (2) Cork-cambium is also called \_\_\_\_\_.
  - (3) Which types of vascular bundles are found in Bignonia stem ?
  - (4) Dead part of periderm is called \_\_\_\_\_.
- (b) Answer in brief : 2  
Draw labelled diagram of monocot leaf.
- (c) Answer in detail : 3  
Draw only labelled diagram of Bignonia stem.
- (d) Write note on : 5  
Describe anomalous secondary growth in Dracaena stem.
- 3 (a) Answer the following objective type question : 4
- (1) Write down the names of cells found in typical embryo sac.
  - (2) The pepromia type of embryo sac is \_\_\_\_\_ nucleated.
  - (3) The entry of pollen tube from micropylar region is called \_\_\_\_\_.
  - (4) Define : double fertilization.
- (b) Answer in brief : 2  
Draw labelled diagram of typical ovule.
- (c) Answer in detail : 3  
Describe : germination of pollen grain with diagram.
- (d) Write note on : 5  
Explain : megasporogenesis.
- 4 (a) Answer the following objective type question : 4
- (1) The process of double fertilization was discovered by \_\_\_\_\_.
  - (2) True or false : Double fertilization is characteristic of Angiosperm.
  - (3) The monosporic eight nucleate embryosome seen in \_\_\_\_\_.
  - (4) The endosperm of angiosperm is \_\_\_\_\_ N.
- (b) Answer in brief : 2  
Describe : chalazogamy with diagram.
- (c) Answer in detail : 3  
Describe : bisporic embryo sac.
- (d) Write note on : 5  
Explain : tetrasporic embryo sac.

- 5 (a) Answer the following objective type questions : 4
- (1) Define : Imbibition.
  - (2) Write down example of diffusion of solid into gas and liquid into gas.
  - (3) In vernalization process the seed are exposed to which temperature ?
  - (4) Write down full form of OP, SP and DPD.
- (b) Answer in brief : 2  
Describe : hypertonic and hypotonic solutions.
- (c) Answer in detail : 3  
Describe : protoplasmic streaming theory.
- (d) Write note on : 5  
Explain : Munch hypothesis.
- 6 (a) Answer the following objective type questions : 4
- (1) Write two significance of imbibition.
  - (2) \_\_\_\_\_ helps in primary translocation of solutes.
  - (3) Write down the name of hormone produced during vernalization.
  - (4) The process of osmosis is facilitated by \_\_\_\_\_ membrane.
- (b) Answer in brief : 2  
Describe : importance of diffusion in plants.
- (c) Answer in detail : 3  
Describe : diffusion.
- (d) Write note on : 5  
Explain: causes of seed dormancy.
- 7 (a) Answer the following objective type questions : 4
- (1) Write down names of different soil water.
  - (2) Define : pedology.
  - (3) Write down full form of ISSS.
  - (4) The formation of soil involves which two steps ?
- (b) Answer in brief : 2  
Write down name and size of soil particles.
- (c) Answer in detail : 3  
Describe : wind erosion.
- (d) Write note on : 5  
Explain : soil profile.

- 8 (a) Answer the following objective type questions : 4
- (1) Biologist celebrate 5th June as \_\_\_\_\_.
  - (2) Which type of soil water is useful to the plant ?
  - (3) What is soil erosion ?
  - (4) Write down names of different horizon in soil.
- (b) Answer in brief : 2
- Describe : sheet and rill erosion.
- (c) Answer in detail : 3
- Applications of remote sensing.
- (d) Write note on : 5
- What is soil ? Explain the process of soil formation.
- 9 (a) Answer the following objective type questions : 4
- (1) Write down the standard size of herbarium sheet.
  - (2) What is heteroploidy ?
  - (3) Who first proposed the term artificial seeds ?
  - (4) Write down the full form of CSAR.
- (b) Answer in brief : 2
- Write down disadvantages of Mass selection.
- (c) Answer in detail : 3
- Describe : autopolyploids and allopolyploids.
- (d) Write note on : 5
- What is artificial seed ? Discuss various method of making artificial seeds.
- 10 (a) Answer the following objective type questions : 4
- (1) Who coined the term pure line ?
  - (2) Write down type of artificial seeds.
  - (3) What is the scientific name of 4 o'clock plant.
  - (4) What do you mean by mt DNA.
- (b) Answer in brief : 2
- Write any two limitations of artificial seeds.
- (c) Answer in detail : 3
- Briefly describe cytoplasmic inheritance in yeast.
- (d) Write note on : 5
- Explain : Different steps involves in herbarium technique.