

2012

**BOTANY (Optional)**

100702

**वनस्पतीशास्त्र ( वैकल्पिक )**

**Time : 3 hours**

**Maximum Marks : 200**

**Note :**

- (i) Answers must be written in English only.
- (ii) Question No. 1 is compulsory. Of the remaining questions, attempt **any Four** by selecting one question from **each** section.
- (iii) Figure to the **RIGHT** indicates marks of the respective question.
- (iv) Number of optional questions upto the prescribed number in the order in which they have been solved will only be assessed. Excess answers will not be assessed.
- (v) Credit will be given for orderly, concise and effective writing.
- (vi) Illustrate your answers with suitable sketches wherever necessary.
- (vii) Candidates should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise they will be penalised.

**1. Answer any four of the following questions :**

- (a) Give an account of normal secondary growth in perennial plants and its significance. **10**
- (b) Give salient features of Fungi and give classification by Alexopoulos. **10**
- (c) What is sterilization ? Describe the different methods of sterilization used in tissue culture laboratory and microbiology. **10**
- (d) Define plant succession. Describe the steps involved in hydrosere with diagrammatic presentation. **10**
- (e) Explain the mechanical tissues in plants and their distribution in monocot stem. **10**

**SECTION - A**

**2. Answer the following questions :**

- (a) Define cell cycle. Explain various phases of cell cycle and describe the importance of cell cycle in the mechanism of cell division. **20**
- (b) Describe various types of ploidy levels in plants. Give its role in crop improvement. **20**

**3. Answer the following questions :**

- (a) Describe ultrastructure and chemical composition of mitochondria. **20**
- (b) Define mass selection. Explain mass selection method of crop improvement. **20**

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## SECTION - B

4. Answer the following questions :
- (a) What is Botanical Nomenclature ? Explain the rules and principles of botanical nomenclature with suitable examples. 20
  - (b) Describe structure and development of female gametophyte (embryo sac) and explain monosporic embryo sacs. 20
5. Answer the following questions :
- (a) Give an account of Engler and Prantl's system of plant classification with merits and demerits. 20
  - (b) What is an endosperm ? Describe the structure and different types of development of endosperms with their importance. 20

## SECTION - C

6. Answer the following questions :
- (a) What is photophosphorylation ? Explain non-cyclic photophosphorylation and add a note on its significance. 20
  - (b) Define enzymes. Give classification of enzyme and add a note on 'Lock and key' theory of mechanism. 20
7. Answer the following questions :
- (a) What are plant growth regulators ? Give role and functions of Auxins in plant growth and development. 20
  - (b) What are  $C_3$  plants ? Describe the various steps involved in Calvin's cycle. 20

## SECTION - D

8. Answer the following questions :
- (a) What is somaclonal variation ? Describe significance of somaclonal variation. 20
  - (b) Give an account of energy flow in an ecosystem with suitable diagram. 20
9. Answer the following questions :
- (a) Describe plants used as human resources with respect to Botanical name, plant part used, active principles and uses 20
    - (i) Fibres
    - (ii) Beverages
    - (iii) Spices and condiments
    - (iv) Medicinal plants
  - (b) Define pollution. Describe sources of soil pollution. Add a note on control measures. 20

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