

<b>CSM – 15/16</b>
<b>Botany</b>
<b>Paper – II</b>

*Time : 3 hours*

*Full Marks : 300*

*The figures in the right-hand margin indicate marks.*

*Candidates should attempt Q. No. 1 from Section – A and Q. No. 5 from Section – B which are compulsory and any **three** of the remaining questions, selecting at least **one** from each Section.*

**SECTION – A**

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1. Answer any **three** of the following :  $20 \times 3 = 60$ 
  - (a) Draw a neat, labelled sketch of an ultrastructural view of a plant cell.
  - (b) Name the semi-autonomous organ in the plant cell. Why is it called so ? What is their role in the cellular metabolism ?
  - (c) Write an essay on the signal transduction.

- (d) Outline the structure of polythene and beta chromosomes. Add a note about their significance in the cell.
2. (a) Write briefly about molecular basis of sex differentiation in plants.
- (b) Differentiate spontaneous mutation with that of artificial mutation. What is the need for artificial mutation. Explain their molecular basis. **Techofworld.In**
- (c) What is the role of endoplasmic reticulum and write briefly about the role of ribosomes in protein synthesis.  $20 \times 3 = 60$
3. (a) What is cytoplasmic inheritance ? How is it different from that of sex-linked inheritance.
- (b) Briefly outline the structure and synthesis of DNA.
- (c) What is the role of molecular markers in plant breeding ?  $20 \times 3 = 60$
4. (a) List out various methods employed in plant breeding and what for plant breeding is carried out.

- (b) Write any two methods employed for direct method transfer in plants.
- (c) How will you develop plants for herbicide ? resistance. Illustrate with suitable examples.

**Techofworld.In**  $20 \times 3 = 60$

**SECTION – B**

5. Answer any **three** of the following in **200** word each :  $20 \times 3 = 60$
- (a) How do mineral ion transport takes place in plants ?
- (b) What are C3 and C4 cycle ? Outline both of them with four differences between each .
- (c) Outline the classification of enzymes. Add a note on co-enzymes and their biological importance.
- (d) What is fermentation ? List out their importance.
6. (a) What is the role of photoperiodism in flowering ?
- (b) How will you map the growth of an organism ? Illustrate your answer with an example.
- $30 \times 2 = 60$

7. (a) What is the role of growth hormones (both chemicals and gaseous) in agriculture and horticulture. **Techofworld.In**
- (b) Write a short essay on stress physiology induced by salinity and metals.  $30 \times 2 = 60$
8. (a) What is a biosphere ? Let out any three biospheres present in India with suitable examples.
- (b) What is phytoremediation ? How will you apply it for abatement of pollution ?
- (c) Write an essay on the different forest types present in Odisha State.  $20 \times 3 = 60$

