

**CSM – 7/19**

**Agriculture**

**Paper – II**

*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**

1. Write short notes on any **three** of the following in about **200** words each : 20×3 = 60
  - (a) List the different modes of asexual reproduction in plants. Explain how apomixis is exploited in crop improvement programmes.
  - (b) What are the different types of male sterility? Explain with suitable examples how it is utilized in breeding programmes.

- (c) "Cell" is a basic unit of life. Describe the importance of this statement. What are the plastids present in the plant cell? Explain their functions.
- (d) What are the objectives of Backcross breeding? Describe the applications of backcross breeding and its merits and demerits.
2. Answer any **three** of the following in about **200** words each :  $20 \times 3 = 60$
- (a) Define "Plant Tissue Culture". Who is the father of tissue culture? Explain how tissue culture is applied as a tool in plant breeding.
- (b) What are quantitative traits in genetics? Address the challenges and prospects of QTLs.
- (c) List the structural and functional differences of DNA and RNA.
- (d) Explain the physiological bases of heterosis.
3. Write short notes on any **three** of the following in about **200** words each :  $20 \times 3 = 60$
- (a) Describe the physiological role and deficiency disorders caused by the immobile

- elements in field crops and suggest suitable alleviation measures to reduce the disorders.
- (b) Evaluate the following statement :  
"Both Pr and Pfr are physiologically active : they just have opposite effects."
- (c) How low moisture stress adversely affects the physiological processes in crop plants and explain the physiological approaches in improving the productivity under drought condition.
- (d) Explain the various steps involved in maintenance of Genetic Purity during seed production.
4. The productivity of Pulses and Oilseeds is low when compared with cereals. Discuss, in detail, the physiological constraints for higher productivity in Pulses and Oilseeds and it's amelioration.

60

### SECTION – B

5. Write short notes on any **three** of the following in about **200** words each :  $20 \times 3 = 60$
- (a) Give an account of post harvest handling of fruits and vegetables.

- (b) Define 'landscape' and explain the basic principles of landscape gardening.
- (c) Explain the process of cultivation of milky mushroom and its nutritional value.
- (d) Describe the field applications of Bio-control agents.
6. The post harvest fruit and vegetables losses are as high as 30 to 40%. Discuss the scope of fruits and vegetables preservation in India. Give an account of the principles and methods of preservation of fruits and vegetables. 60
7. Answer any **three** of the following :  $20 \times 3 = 60$
- (a) Enumerate the role of Parasitoids and Predators in IPM.
- (b) Give an account of the honey bee products, properties and their uses with nutritional value.
- (c) Define host plant resistance and different types of resistance and its mechanism existing in crop plants.
- (d) Explain the pesticide application techniques with suitable examples.
8. Give a detailed account of the National Food Policy of India. 60

