

2024

BOTANY — HONOURS

Paper : SEC-B-1 and SEC-B-2

The figures in the margin indicate full marks.

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

SEC-B-1

(Plant Breeding)

Full Marks : 80

1. Answer the following questions : 2×10
 - (a) What is gene bank?
 - (b) What is acclimatization?
 - (c) Distinguish between pedigree and bulk selection methods.
 - (d) What is backcross method of breeding?
 - (e) Give an example each of physical mutagen and chemical mutagen.
 - (f) What are fusogens? Give an example.
 - (g) Cite examples of two genetically modified crops.
 - (h) What is genetic erosion?
 - (i) State two applications of mass selection.
 - (j) Mention two limitations of plant hybridization.

2. Answer *any four* of the following questions : 5×4
 - (a) Explain the genetic basis of heterosis.
 - (b) Discuss the role of mutation in crop improvement.
 - (c) Classify apomixis with the help of a chart.
 - (d) Write a note on plant introduction.
 - (e) Describe the procedure of pure line selection.
 - (f) Write a note on cytoplasmic-genetic male sterility and its importance.

3. Answer *any four* questions :
 - (a) Define hybridization. What is emasculation? Discuss in detail the different techniques of emasculation. 2+2+6
 - (b) What is inbreeding? What is inbreeding depression? Discuss the genetic basis of outcrossing effects. 2+2+6

Please Turn Over

(2)

B(4th Sm.)-Botany-H/SEC-B-1 & SEC-B-2/CBCS

- (c) How does biotechnology help in plant breeding? Explain four tissue culture techniques that are applied in plant breeding. 2+8
- (d) What is germplasm? What is the difference between *in situ* and *ex situ* germplasm conservation? Discuss briefly about different methods of germplasm conservation. 2+2+6
- (e) Discuss briefly about the different objectives of plant breeding. Mention the two achievements and two undesirable consequences of plant breeding. 6+(2+2)
- (f) What are molecular markers? Discuss about the various types of molecular markers. State the applications of marker-assisted selection. 2+4+4

SEC-B-2**(Mushroom Culture Technology)****Full Marks : 80****1. Answer in brief (*any ten*) :****2×10**

- (a) Give an example of edible mushroom from ascomycetes and basidiomycetes respectively.
- (b) Name two sub-tropical mushrooms cultivated in India.
- (c) Name two surface sterilizing chemicals.
- (d) What are 'Ink cap mushroom'?
- (e) Name two toxins present in the poisonous mushroom.
- (f) Name one bacterial disease of mushroom along with the name of causal organism.
- (g) Name two essential amino acids available in mushrooms.
- (h) Name two agricultural wastes used in mushroom cultivation.
- (i) What do you mean by spawn run period?
- (j) Name one regional and one national mushroom research centre of India.
- (k) Name two artificial culture media for mushroom cultivation.
- (l) Why are mushrooms not stored below 4°C?
- (m) Name two pests of mushroom.
- (n) Name two hallucinogenic mushrooms.
- (o) Name two chemicals used in storage of mushrooms.

2. Write short notes on (*any four*) :**5×4**

- (a) Nutritional value of mushrooms
- (b) Methods of spawn preparation
- (c) Method of short composting
- (d) Mushroom canning technique
- (e) Process of Casing in *Agaricus* cultivation
- (f) Mushroom marketing in India and abroad.

3. Answer *any four* questions :

- (a) Classify the mushroom on the basis of taxonomic group, use, climatic condition and significant characters. Write the identifying characters of poisonous mushrooms. 8+2
 - (b) State the importance of laminar air flow and incubator in mushroom cultivation. 5+5
 - (c) How can sugar trash and banana leaves are used for mushroom bed preparation? Give an outline of bed preparation for cultivation of paddy straw mushroom. 6+4
 - (d) Describe in detail the medicinal importance of mushrooms. Name two mushroom producing antibiotics. 8+2
 - (e) (i) What is vacuum cooling? Write the characteristic features of mushroom fat.
(ii) Write a note on health hazards caused by poisonous mushrooms. (2+3)+5
 - (f) Summarize financial analyses of any commercially cultivated mushroom on a small scale. Name two food items prepared from mushrooms. Mention the benefits of mushrooms in daily diet. 6+2+2
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