

## U.G. 5th Semester Examination-2021

### BOTANY

#### [HONOURS]

Discipline Specific Elective (DSE)

Course Code : BOT-H-DSE-T-02B

(Plant Breeding and Biometry)

Full Marks : 40

Time : 2½ Hours

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

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

1. Answer any **five** of the following questions: 2×5=10
  - a) What is genetic erosion?
  - b) Define inbred line.
  - c) Why is emasculation done?
  - d) What is meant by goodness of fit?
  - e) Mention two demerits of pureline selection.
  - f) What is random sampling?
  - g) Name a plant introduction agency in India.
  - h) Calculate the median number of flowers as obtained from seven garden plants: 20,17,25,18,23,21,16
2. Answer any **two** of the following questions: 5×2=10
  - a) Discuss different theories of heterosis.

- b) Mention the objectives of plant breeding.
- c) Write short note on Plant genetic resources.
- d) The frequency of distribution of seed yield of 50 plants is given below.

Seed Yield in gm (x)	3	4	5	6	7
Frequency (f)	4	6	15	15	10

Calculate the standard error of the mean from the above data.

3. Answer any **two** of the following questions:

10×2=20

- a) Define polygenic inheritance. Briefly describe the polygenic inheritance in wheat. 2+8
  - b) What is distant hybridisation? Discuss the role of biotechnology in crop improvement. 2+8
  - c) What will be the degree of freedom in monohybrid and dihybrid cross? In pea plant round seed is dominant trait over wrinkled seed. In a monohybrid cross the following data were observed in F<sub>2</sub> generation: Round seeded plant = 125 and wrinkled seeded plant = 75. According to Mendel's law, find the Chi-square value of the data and predict the goodness of fit. 2+8
- [Note: The Chi-Square value at 0.05 is 3.841 against df = 1]

- d) Describe the laws of probability with suitable examples. The frequency of two alleles in a gene pool is 0.19 (A) and 0.81 (a). Assume that the population is in Hardy-Weinberg equilibrium. Calculate the percentage of heterozygous individuals in the population. 5+5
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