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6 SEM TDC DSE BOT (CBCS) 1 (H)

2025

(May)

BOTANY

(Discipline Specific Elective)

(For Honours)

Paper : DSE-1

(**Plant Breeding**)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct answer of the following : 1×3=3
 - (a) 'Sonalika' and 'Kalyan Sona' are the varieties of wheat/rice/millet/pulses.
 - (b) Sum total of living genetic resources such as seeds or tissues that are maintained for the purpose of animal and plant breeding, preservation and the research uses is seed bank/gene bank/herbarium/germplasm.

- (c) A progeny descendent solely by self-pollination from a single, homozygous plant is called line breeding/advance line/pure line/inbred line.

2. Fill in the blanks :

1×2=2

- (a) A variety that is propagated vegetatively by a single plant is called ____.
- (b) The record of the ancestry of an individual selected plant for various generations is known as ____.

3. Write short notes on any *three* of the following :

4×3=12

- (a) Acclimatization and plant adaptation
- (b) Undesirable consequences of plant breeding
- (c) Clonal selection
- (d) Emasculation
- (e) Heterosis (hybrid vigor)

4. Write explanatory notes on any *two* of the following :

6×2=12

- (a) Procedure of plant introduction
- (b) Polygenic inheritance in kernel colour of wheat

- (c) Germplasm collection and conservation
- (d) Merits and demerits of mass selection

5. What is pure line? Describe the procedure of pure line selection and discuss its merits and demerits. $1+(7+4)=12$

Or

Write an essay on polyploid breeding and its application in crop improvement. $8+4=12$

6. Differentiate between somatic and gametic hybridization. Write the types and procedure of gametic hybridization. $(2+2)+8=12$

Or

Write explanatory notes on the following : $6 \times 2 = 12$

- (a) Mutation and its application in plant breeding
- (b) Role of tissue culture in crop improvement
