17193

BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(Ag)-Hons-2023
Course Name – Commercial Plant Breeding
Course Code - EC-BAG471-C(T)
(Semester IV)

Full Marks : 50 **Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 20=20

1. *Choose the correct alternative from the following :*

(i) Identify from which generation onwards, selection can be practised.
a) F1 b) F2
c) F3 d) F4

(ii) Choose the maximum proportion of heterozygosity in a population from the following option.
a) 0.25 b) 0.5
c) 0.75 d) 1

(iii) Show what low value of genetic advance indicates.
a) the character is governed by Additive genetic variance b) the character is governed by Dominance genetic variance
c) the character is governed by Epistatic genetic variance d) none of these

(iv) Identify the term used for average performance of a line in hybrid combinations.
a) General Combining ability b) Specific Combining Ability
c) Genetic advance d) Heterosis

(v) Rephrase Mendelian population.
a) Panmictic population b) Open populated population
c) Both of Panmictic population and Open populated population d) none of the options

(vi) Identify the cause of variability in asexual reproduction.
a) Mutation b) Segregation
c) Somaclonal variation d) all of these

(vii) Select the chromosome number of endosperm of wheat.
a) 42 b) 21
c) 63 d) 14

(viii) Identify the result of megasporogenesis of a single cell.

a) Four functional cells
b) Seven functional cells
c) One functional cell
d) Eight functional cell

(ix) Choose the correct answer from the statement: For 100 fertilisation events how many cells have to undergo Micro and Megasporogenesis.

a) 50 and 50
b) 25 and 100
c) 100 and 100
d) 50 and 100

(x) Identify the estimation of Heterosis in relation to the best commercial variety.

a) Useful heterosis
b) Commercial heterosis
c) Standard heterosis
d) all of these

(xi) Relate the other name of Microsatellite Repeats.

a) RFLP
b) SSR
c) AFLP
d) SNP

(xii) Identify the Male sterility system used in vegetatively propagated crops.

a) GMS
b) CMS
c) CGMS
d) TGMS

(xiii) Identify the genotype in tristyly having long style.

a) mmss
b) MMSS
c) MmSs
d) mmSS

(xiv) Infer the components of genetic variance from the following.

a) Addetive genetic variance
b) Dominance genetic variance
c) Epistatic genetic variance
d) All of these

(xv) Infer who proposed gene micro centre.

a) Harlan
b) Zukovasky
c) Vavilov
d) Went

(xvi) Infer the name of the flower where pollen is set in closed flower.

a) Cleistogamous
b) Chasmogamous
c) Protandrous
d) Protogynous

(xvii) Identify the situation when naroow sense heritability is desired.

a) Seggregating generations
b) Pure generation
c) Both of these
d) None of these

(xviii) Identify the location of Sugarcane Breeding Institute Located

a) Coimbatore
b) Bettsville
c) Florida
d) Wisconsin

(xix) Infer the physical mutagen from the following.

a) EMS
b) Acroflavin
c) Gamma rays
d) EES

(xx) Infer non-ionising physical mutagen from the following.

a) UV rays
b) X-rays
c) Gamma rays
d) α-rays

Group-B

(Short Answer Type Questions) 2.5 x 10=25

2. Elaborate Sporophytic Self-Incompatibility. (2.5)
3. Explain the purpose of plant introduction. (2.5)
4. Develop a breeding method involving pure line selection. (2.5)
5. Compare between top cross and double top cross hybrids. (2.5)
6. Illustrate the process of double fertilisation. (2.5)
7. Illustrate the major activities of plant breeding. (2.5)
8. Explain Heterosis. (2.5)
9. Explain the theories related to heterosis. (2.5)

10. Infer why population improvement is important for cross pollinated crops. (2.5)
11. Formulate a breeding strategy for transferring disease resistance to a popular variety. (2.5)

OR

Elaborate the Evolutionary method of plant breeding. (2.5)

Group-C

(Long Answer Type Questions) 5 x 1=5

12. Justify the statement maximum heterozygote frequency in a population can never exceed 0.5. (5)

OR

Justify the significance of narrowsense heritability. (5)

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