BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – B.Sc.(Ag)-Hons-2022
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 the number of center of origin proposed by Vavilov initially

a) 8 b) 9
c) 10 d) 11

(ii) Identify the modified stem of potato

a) Sucker b) Tuber
c) Bulb d) Corm

(iii) Infer what does self pollination in a population icrease

a) Homozygosity b) Heterozygosity
c) Homogeneity d) Heterogeneity

(iv) Identify the generation where Heterosis is often observed

a) F1 b) F2
c) F3 d) P

(v) Explain the basis of heterosis according to the dominance hypothesis

a) Masking of expression of deletorious recessive alleles b) The cumulative effects of multiple gene loci
c) Epistatic interactions among different alleles d) The presence of recessive alleles in the hybrid offspring

(vi) Identify which of the following mutagen is non ionizing in nature

a) X-Ray b) Gamma rays
c) UV rays d) alpha rays

(vii) Identify the term given to superior individuals selected of in a segregating generation called

a) Heterosis b) Heterobeltiosis
c) Transgressive segregants d) heterobeltiosis

(viii) Identify the term given to the process of bringing wild species under human management.

a) Domestication
b) Introduction
c) Accimatisation
d) None of these

(ix) Identify the breeding method used for rectifying quality character in a popular variety

a) Bulk Method
b) Pedigree Method
c) Backcross method
d) Single seed decent method

(x) Identify the breeding method which is also known as Evolutionary method of Plant Breeding

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(xii) Infer what domestication leads to from the following options.

a) decrease in fitness
b) increase in fitness
c) Domestication is not related with fitness
d) Increase diversity

(xiii) Identify from which generation onwards, selection can be practised.

a) F1
b) F2
c) F3
d) F4

(xiv) Choose the maximum proportion of heterozygosity in a population from the following option.

a) 0.25
b) 0.5
c) 0.75
d) 1

(xv) Identify from the following the breeding method which utilises the existing genetic variability of a population.

a) Mass Selection
b) Pedigree Method
c) Bulk Method
d) Single seed decent method

(xvi) Choose the corner stone of plant breeding frpm the following options.

a) Introduction
b) Domestication
c) Selection
d) Acclimatisation

(xvii) Identify the term given to the plants bearing male and flowers in a same individual.

a) Dioecious
b) Monoecious
c) Complete
d) andromonoecious

(xviii) Identify the reason for cross pollination in maize.

a) Complete flower
b) Protandry
c) Protogyny
d) dioeci

(xix) Relate which of the following breeding method should be used if there is prepondence of non-additive gene action.

a) Mutation Breeding
b) Heterosis Breeding
c) Backcross Breeding
d) Syhtetic breeding

(xx) Interpret for which kind of breeding, Heterosis is fully exploited.

a) Hybrids
b) Pureline
c) Synthetics
d) Composites

Group-B

(Short Answer Type Questions) 2.5 x 10=25

2. Compare between gametophytic incompatibility and sporophytic incompatibility (2.5)
3. Explain adventive embryony with examples (2.5)
4. Infer the term genetic load. (2.5)

5. Outline the concept of seed gene bank (2.5)
6. Identify the A line, B line and R line in three line breeding system. (2.5)
7. Identify the factors promoting cross pollination (2.5)
8. Assess the genetic constitution and breeding approach of self pollinated crops. (2.5)
9. Formulate a breeding method which utilises both SCA and GCA (2.5)
10. Illustrate the procedure of Plant Introduction (2.5)
11. Elaborate Sporophytic Self-Incompatibility. (2.5)

OR

Formulate the major difference in breeding approach for self pollinated crops and cross pollinated crops (2.5)

Group-C

(Long Answer Type Questions) 5 x 1=5

12. Formulate a mutation breeding programme. (5)

OR

Elaborate one breeding method for self pollinated crop which is based on exploitation of existing variability in a population. (5)

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