BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(Ag)-Hons-2022/B.Sc.(Ag)-Hons-2023
Course Name – Fundamentals of Plant Breeding
Course Code - CC-BAG372(T)
(Semester III)

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 were proposed by Vavilov initially.

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

(ii) Identify what does self pollination in a population increase

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

(iii) Identify the generation where Heterosis is often observed:

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

(iv) 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

(v) Identify the method for the cross between inbred and open pollinated variety:

a) Single cross b) Top cross
c) Polycross d) Multiple cross

(vi) Infer what Heterobeltiosis is also known as.

a) Standard heterosis b) Better parent heterosis
c) Commercial heterosis d) luxuriance

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

a) Heterosis b) Heterobeltiosis
c) Transgressive segregants d) none of these

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

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

(ix) Infer what does self incompatibility promote?

a) Self pollination b) Cross pollination
c) apomixes d) Heterosis

(x) Identify from which generation onwards, selection can be practiced.

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

(xi) Identify the generation, where maximum heterozygosity exist.

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

(xii) Identify the fixable component of genetic variance.

a) Dominance Genetic variance b) Additive Genetic Variance
c) Epistatic genetic variance d) Dominace X Dominance variance

(xiii) Identify the corner stone of plant breeding.

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

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

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

(xv) Identify the term- A hybrid from a cross between two single crosses.

a) Single cross b) Double Cross
c) Three way cross d) Top cross

(xvi) Infer the ex situ germplasm conservation method used to store for long period of time.

a) Working collection b) Base collection
c) Active collection d) Field gene bank

(xvii) Identify the term when open pollination occurs in isolation.

a) Multiple cross b) Poly cross
c) Double top cross d) Top cross

(xviii) Identify the term used for average performance of a line in hybrid combinations is termed as:

a) General Combining ability b) Specific Combining Ability
c) Genetic advance d) Heterosis

(xix) Infer the difference between the lowest and the highest value in a sample referred to.

a) Range b) Skewness
c) Kurtosis d) Median

(xx) Relate which of the following is a farmer variety.

a) Obsolete variety b) Landraces
c) Mutant line d) Breeding lines

Group-B

(Short Answer Type Questions) 2.5 x 10=25

2. Indicate the A line, B line and R line in three line breeding system. (2.5)
3. Show the regional sub-stations under NBPGR. (2.5)
4. Identify the different kinds of germplasm of a crop species. (2.5)
5. Identify the genetic constitution and breeding approach of self pollinated crops. (2.5)
6. Interpret Apogamy. (2.5)
7. Explain luxuirance. (2.5)

8. Develop a breeding method involving Pure line selection. (2.5)
9. Illustrate the procedure of Plant Introduction. (2.5)
10. Elaborate the Evolutionary method of plant breeding. (2.5)
11. Elaborate tristyli type of self incompatibility. (2.5)

OR

Compare between gametophytic incompatibility and sporophytic incompatibility. (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

Assess the process of Reciprocal Recurrent selection. (5)

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