Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

COLLEGE OF AGRICULTURE

B.Sc. (Hons.) Agriculture Summer 2021 - 22 Examination

Semester: 3 **Date: 21/03/2022**
Subject Code: 20102202 **Time: 2:00 pm to 4:30 pm**
Subject Name: Fundamentals of Plant Breeding **Total Marks: 50**

Instructions
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.

A. Fill in the blanks. (Each of 1.00 marks) **(05)**

1. Transfer of pollen grain from_____ to _____ is called as pollination.
2. A population of genetically similar plants is called as_____.
3. Cross pollination taken place by wind is called as _____.
4. _____and_____ are helping and protecting the sexual parts of flower.
5. Out crossing per cent in wheat is _____.
6. The process by which liv ing organism give rise to the offspring of similar kind is known as _____.
7. Development of embryo either from synergids or antipodal cells is termed as _____.
8. The term self incompatibility was coined by _____ in _____.
9. Self incompatibility promotes _____.
10. Pure line theory was proposed by _____.

B. Multiple choice type questions. (Each of 1.00 mark) (05)

1. Self pollination is a form of
   A) Inbreeding C) Random Mating
   B) Outbreeding D) None
2. Development of embryo either from synergids or antipodal cells is referred as
   A) Parthenogenesis C) Apogamy
   B) Androgenesis D) Apospory
3. Asexual reproduction includes
   A) Autogamy C) Apomixis
   B) Allogamy D) Amphimixis
4. Self incompatibility was first reported in
   A) Verbascumphoeniceum C) Nicotianasanderae
   B) Medicagosativa D) Lycopersiconperuvianum
5. Gametophytic system of self incompatibility was first discovered by
   A) Hughes And Babcock (1950) C) Bateman (1952)
   B) Gerstel (1950) D) East And Mangelsdorf (1925)
6. Male sterile line is referred to as
   A) A Line C) B Line
   B) R Line D) None Of The Above
7. The sources of male sterility include
   A) Spontaneous Mutations C) . Interspecific Crosses
   B) Induced Mutations D) All Of The Above
8. Bulk breeding method was dev eloped by
   A) . Johannsen (1903) C) Nilssonsehle (1908)
   B) Shull (1908) D) Allard (1960)
9. In cross pollinated species , mass selected variety is a mixture of several
   A) . Inbred Lines C) Pure Lines
   B) Heterozygotes D) Homo And Heterozygotes
10. The most effective method for the transfer of oligogenic character is
    A) Bulk Breeding C) Back Cross Breeding
    B) Pedigree Breeding D) Disruptive Mating
11. Self pollination refers to
    A) Allogamy C) Dichogamy

B) Autogamy D) Herkogamy

12. Self incompatibility can be overcome by
    A) Bud Pollination C) Irradiation
    B) Delayed Pollination D) End Of Season Pollination
13. In flowering plants , male sterility was first reported by
    A) Koelreuter (1763) C) Allard (1960)
    B) Stout (1917) D) Duvick (1966)
14. A homogeneous population includes
    A) A Pure Line C) F1 Between Two Pure Lines
    B) An Inbred Line D) All Of The Above
15. Concept of diallel selective mating was developed by
    A) Mather And Jinks (1971) C) Russell (1978)
    B) Jensen (1970) D) Simmonds (1979)
16. Mass selection is rarely used in
    A) Allogamous Species C) Asexually Propagated Species
    B) Autogamous Species D) Seed Propagated Species
17. The term heterosis was coined by
    A) Shull (1914) C) Hull (1945)
    B) East (1908) D) Davenport (1908)
18. The dominance hypothesis of heterosis was first reported by
    A) East (1908) C) Davenport (1908)
    B) Shull (1914) D) Hull (1945)
19. The term overdominance was coined by
    A) Shull (1908) C) Bruce (1910)
    B) East (1908) D) Hull (1945)
20. Inbreeding of cross pollinated species leads to increase in
    A) Homozygosity C) Heterozygosity
    B) Population Mean D) All Of The Above

Q.2 Do as Directed.

A. Define the following. (Any five) **(05)**

1. Carpel
2. Self pollination
3. Pure Line
4. Heterosis
5. Homozygous
6. Male sterility
7. Mass Selection

B. Answer the following. (Any Five) **(05)**

1. Briefly describe the major difference between mass selection and Pure line selection.
2. Summarize the various objectives and important of plant breeding.
3. Draw Net and clean diagram of flower.
4. Enlist the types of pollination in plant breeding.
5. Enlist the types of breeding population. Explain Any One in Detail.
6. Enlist the types of Heterosis.
7. State the breeding methods for the plant breeding.

Q.3 Write short notes. (Any five) **(15)**

1. Pure line selection
2. Genetic Male Sterility
3. Heterosis
4. Cross pollination
5. Self Incompatibility
6. Mass Selection

Q.4 Long Questions **(15)**

1. Explain in Detail: Bulk Method
2. Pollination
3. Mode of Reproduction
4. Male sterility