

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE

B.Sc. (Hons.) Agriculture Winter 2019-20 Examination

Semester: 5

Date: 22/11/2019

Subject Code: 20102302

Time: 10.30 am to 1.00 pm

Subject Name: Crop Improvement-I (Kharif Crops)

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 0.5 marks)****(05)**

1. For certified quality seed production leave a distance ofm all around the field from the same and other varieties of Maize.
2. Multiplication of plants through embryos which have developed by fusion of male and female gametes is known as
3. The term heterosis was first used by
4. The production of male and female gametes in the microspores and megaspores is known as.....
5. The term ideotype was first proposed by
6. Conservation of germplasm under natural conditions is referred to as in
7. All the alleles of various genes, present in a crop species and its wild relatives is referred to as
8. DNA segments from the genomes of germplasm accessions are maintained and conserved in
9. A single sporophytic cell inside the ovule, which undergo meiotic division to form haploid megaspore, is called
10. The development of embryo directly from the diploid cells of ovule lying outside the embryo sac belonging to either nucellus or integuments is referred to as.....

B. Multiple choice type questions. (Each of 0.5 mark)**(10)**

1. Wild species of maize is

a) Teosinte	c) <i>Sachharum officinarum</i>
b) <i>Zea mays</i> L.	d) <i>Hordeum vulgare</i>
2. Chromosome number of ragi is

a) 36	c) 20
b) 30	d) 22
3. Law of homologous series of variations was proposed by.....

a) N. I. Hull	c) Gregor Mendel
b) Francis Crick	d) N. I. Vavilov
4. The species which are located far away from the primary centre of origin are called as.....

a) Crop	c) Variation
b) Secondary originated species	d) primary centre
5. Total genetic variability present in a species is called as.....

a) Phenotype	c) Genotype
b) Germplasm	d) Genetic constitution
6. Wild species of sorghum is

a) <i>Hordeum vulgare</i>	c) Teosinte
b) <i>Tripsacum</i>	d) <i>Sorghum halepense</i>
7. The chromosome number of sorghum is

a) 24	c) 20
b) 42	d) 14

8. Unbiased allocation of treatments to the experimental units
 - a) Replication
 - b) Randomization
 - c) Local control
 - d) Repetition
9. Minimizing the effect of heterogeneity of the experimental units
 - a) Replication
 - b) Randomization
 - c) Local control
 - d) Repetition
10. The wild species of pearl millet is
 - a) *Pennisetum purpureum*
 - b) *Sorghum halepense*
 - c) *Pennisetum glaucum*
 - d) *Sorghum vulgare*
11.refers to interaction between alleles of two or more different loci.
 - a) Dominance
 - b) Recessive
 - c) Epistasis
 - d) Additive
12. Bulk Population Breeding is suitable for
 - a) Small grain crop
 - b) Fruit crop
 - c) Flower Crop
 - d) Vegetable crop
13. The concept of centre of origin was conceived by _____.
 - a) Mendel
 - b) N I Vavilov
 - c) Johannsen
 - d) Watson
14. Family of Maize is _____.
 - a) *Poaceae*
 - b) *Gamineae*
 - c) *Fabaceae*
 - d) None of the above
15. Triticale is a new variety obtain by combining the genome of a wheat with _____.
 - a) Rice
 - b) Rye
 - c) Sorghum
 - d) None of the above
16. Rice crop having _____ Stamens
 - a) 4
 - b) 5
 - c) 6
 - d) 7
17. Local name of Pearl Millet is _____.
 - a) Bajra
 - b) Maize
 - c) Rice
 - d) All of The above
18. The most effective method for the transfer of oligogenic character is
 - a) Bulk breeding
 - b) Pedigree breeding
 - c) Back cross breeding
 - d) Disruptive mating
19. The term overdominance was coined by
 - a) Shull (1908)
 - b) East (1908)
 - c) Bruce (1910)
 - d) Hull (1945)
20. Development of embryo either from synergids or antipodal cells is referred as
 - a) Parthenogenesis
 - b) Androgenesis
 - c) Apogamy
 - d) Apospory

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. Heterobeltiosis
7. Qualitative characters

B. Answer the following. (Any Five)

(05)

1. Briefly explains about staminate flower in Maize.
2. Explain Methods for Estimation of Heterosis
3. Briefly describe the major difference between mass selection and Pure line selection.
4. Draw Net and clean diagram of flower.
5. Enlist the methods of Breeding for asexually propagated crop.
6. Briefly Describe the Pedigree method.
7. Enlist the Features of Ideotype Breeding

Q.3 Write short notes. (Any five)

(10)

1. Qualitative and Quantitative characters
2. Traditional breeding and ideotype breeding
3. Cross pollination
4. Define centre of origin? Explain the law of homologous series of variation
5. Bulk method
6. RBD design

Q.4 Attempt any Three/Long Questions/Example

(15)

1. Define apomixes? And explain tytypes of gametophytic apomixes?
2. Mode of Reproduction
3. Heterosis
4. Major breeding objectives