Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE
B.Sc. (Hons.) Agriculture Winter 2018 - 19 Examination

Semester: 1 **Date: 04/12/2018**
Subject Code: 20110101 **Time: 10:30 am to 1:00 pm**
Subject Name: Fundamentals of Plant Biochemistry and Biotechnology **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. Steroids are the compounds containing a cyclic steroid nucleus namely _____.
2. _____ is technique for detection of specific RNA Sequence.
3. Development of hybrid plants through the fusion of somatic protoplasts of two different plant species/varieties is called _____.
4. Glucose+Galactose=_____.
5. _____is the site where the DNA is cut by a restriction endonuclease.
6. _____is found as structural constituent of membranes in yeast and fungi.
7. Protein shape is determined by sequence of _____.
8. _____ is a branch of biomedical science that covers the study of all aspects of the immune system in all organisms
9. _____ is used as flavouring agent in food industry and Chinese food.
10. The fatty acids that cannot be synthesized by the body and therefore should be supplied in the diet are known as _____.

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

1. _____ Seeds are encapsulated by protective gel like calcium alginate against microbes and desiccation.
   a) Synthetic c) Round
   b) Globular d) All of the above
2. _____ is not the reducing sugar.
   a) Sucrose c) Glucose
   b) Fructose d) Lactose
3. Proteins conjugated with pigment is known as_____.
   a) Chromo proteins c) Nucleoproteins
   b) Metalloproteinase d) None of the above
4. Which is the following is saturated fatty acids _____.
   a) Stearic acid c) Lauric acid
   b) Palmitic acid d) All of the above
5. How many molecules of fatty acid occur in a lipid (fat) molecule_____.
   a) 1 c) 3
   b) 2 d) 4
6. _____ is Hydrophilic in nature.
   a) Haemoglobin c) Albumin
   b) Myoglobin d) Globulin
7. Which of the following is Acidic amino acids _____.
   a) Glutamic acid c) Lysine
   b) Aspartic acid d) Both (a) and (b)
8. Which of the following is ketogenic amino acids_____.
   a) Lysine c) Tryptophan
   b) Tyrosine d) None of the above

9. _____ developed an in vitro anther culture technique for the production of haploid Datura innoxia plants.
   a) Bergner
   b) Kao
   c) Kasha
   d) Guha and Maheshwari
10. The technique_____which contain Primary antibody as a probe.
   a) Northern blotting
   b) Southern blotting
   c) Both (a) and (d)
   d) Western blotting
11. Which of the following is use as a cryoprotectant_____.
   a) NAA
   b) DMSO
   c) IBA
   d) Cytokinines
12. Development of plants from the male gametophyte by the culture of anthers or microspores is known as _____.
   a) Embryogenesis
   b) Morphogenesis
   c) Friability
   d) Androgenesis
13. _____ introduced the term 'Protoplast'.
   a) Cooking
   b) Power
   c) Hanstein
   d) Klercker
14. Which of the following is ketose sugar _____.
   a) Fructose
   b) Glucose
   c) Xylose
   d) Ribose
15._____ is known as " Fruit Sugar".
   a) Maltose
   b) Fructose
   c) Glucose
   d) Galactose
16. Changes in parts of chromosome sets is known as _____.
   a) Aneuploidy
   b) Monoploidy
   c) Polyploidy
   d) Euploidy
17. Glucose is also known as _____.
   a) Sucrose
   b) Fructose
   c) Dextrose
   d) Lactose
18. Lipids are _____.
   a) Insoluble in water
   b) Important constitute of biological membrane
   c) Readily soluble in organic solvent
   d) All the above
19. Which method is suitable for the transfer of DNA via a vector_____.
   a) *Agrobacterium*
   b) Microinjection
   c) Electroporation
   d) None of the above
20. Table sugar is _____.
   a) Sucrose
   b) Ribose
   c) Maltose
   d) Glucose

Q.2 Do as Directed.

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

1. Haploids
2. Somatic Hybridization
3. Somaclonal Variation
4. Recombinant DNA technology
5. Micropropagation
6. Pollen
7. Biochemistry

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

1. Explain: Cryopreservation.
2. Give the limitations of the anther culture.
3. Enlist the steps of Micropropagation.
4. Explain: Parthenogenesis.
5. Explain: Zwitter ion.
6. Write down the characteristics of synthetic seeds.
7. What is Plant Biotechnology?

Q.3 Write short notes. (Any five) **(10)**

1. Give the characteristics of Restriction Enzymes.
2. Give the difference between reducing and non reducing sugars.
3. Give the difference between amylose and amylopectin.
4. Write down the advantages of ovule culture.
5. Enlist the steps of mechanism of cryopreservation.
6. Write down the steps involved in induction and selection of Somaclonal Variations.

Q.4 Attempt any Three/Long Questions/Example **(15)**

1. Explain the *Agrobacterium* method of gene transfer.
2. Explain the structural organization of protein with diagram.
3. Give the detailed classification of Lipids.
4. Explain the Southern blotting method with diagram.