

B.Sc. Semester - 6 (CBCS) Examination

Oct/Nov -2020

GENETICS, MOLECULAR BIO, BT, HORTI, PLANT BREED AND ANATOMY (CORE)

Time: 2:00 Hours

Marks: 56

Instructions:

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any four of the following questions.

Q-1 Answer the following questions as per instruction.

(A) Answer in very short (any three) :

03

1. What is repulsion?
2. **Complete the statement:** The points of contact between non-sister chromatids is called.....
3. **True or False?** The 3' end of m-RNA is a polyadenylate sequence.
4. Name the type of m-RNA is formed from many cistrons and encodes several different polypeptide chains.
5. **Define:** Chromosome map

(B) Answer in brief (any one):

04

1. Describe the structure of t-RNA
2. Distinguish between: Somatic and germ line mutation

(C) Answer in detail (any one):

07

1. Discuss phenomenon of Coupling and Repulsion in *Lathyrus odoratus*.
2. Describe basis and preparation of chromosome map.

Q-2 Answer the following questions as per instruction.

(A) Answer in very short (any three):

03

1. Name first isolated restriction endonuclease enzyme.
2. **True or False?** The plasmids are single stranded DNA.
3. Write the function: Restriction endonuclease
4. Which main technique is used to isolate DNA from any plant cell?
5. Match the column:

A. Gene-z	1. Transacetylase
B. Gene-y	2. b-Glactosidase
C. Gene-a	3. Permease

(B) Answer in brief (any one):

04

1. Explain: The sticky ends cutting of DNA by a restriction enzyme.
2. Write notes on: Properties of Plasmids

(C) Answer in detail (any one):

07

1. Explain insertion of r-DNA into bacterial cell.
2. Discuss the lac operon concept of gene expression in *E. coli*.

Q-3 Answer the following questions as per instruction.

(A) Answer in very short (any three):

03

1. What is the first transgenic plant?
2. What is used as a source of carbon in M.S. medium?
3. Define the term: Cryoprotectants
4. The collection and storage of hereditary material is called?
5. Mention the property that enables the explants to regenerate into new plant.

(B) Answer in brief (any one):

04

1. Explain transgenic plant with male sterility.

2. Describe application of tissue culture in Somaclonal variation.

(C) Answer in detail (any one):

07

1. Explain: Technique of Cryopreservation.
2. Describe composition of M.S.medium.

Q-4 Answer the following questions as per instruction.

(A) Answer in very short (any three):

03

1. Which technique is used to protect flower from contaminating pollen grains in hybridization?
2. Which method of emasculation is used in very small flowers?
3. True or False? In bulk method of hybridization selection is started from the F₂ generation.
4. Explain: Bud wood
5. In cleft grafting, which type of shape is cut at the base of the scion?

(B) Answer in brief (any one):

04

1. Explain various steps involved in the preparation of air layering.
2. What is Emasculation? Discuss the forceps or Scissor method of emasculation.

(C) Answer in detail (any one):

07

1. What is cutting? Describe root and stem cutting
2. Describe Bulk methods of Hybridization.

Q-5. Answer the following questions as per instruction.

(A) Answer in very short (any three):

03

1. Name type of collenchyma, the thickenings is restricted to the wall of the regions bordering air spaces.
2. **Fill in the blank:** xylary fibres with very thick secondary wall and simple pits are called...fibres.
3. What is double staining?
4. **Complete the statement:** All xylem elements when mature becomes dead except.....
5. What type of anomalous structure will be formed by cambium strips which are normal in position but abnormal in function?

(B) Answer in brief (any one):

04

1. Write notes on: Principles and mechanism of staining
2. Write characteristics and types of sclerenchyma

(C) Answer in detail (any one):

07

1. With the help of suitable diagrams, describe location and structure of xylem elements
2. Give an illustrated account of anomalous secondary structure in stem of member of Nyctaginaceae.
