

B.Sc. Semester - 6 (CBCS) Examination**April/May-2022 (OLD COURSE)****GENETICS, MOLECULAR BIO, BT, HORTI, PLANT BREED AND ANATOMY (CORE)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Q.1(A) **Answer in detail: (Any One)** (07)
- (1) What is chromosome map? Explain Preparation of chromosome map.
 - (2) Describe the structure of t-RNA.
- Q.1(B) **Answer in brief: (Any One)** (04)
- (1) Explain: Bateson and punnett Repulsion hypothesis.
 - (2) Distinguish between: Spontaneous mutation and Induced mutation.
- Q.1(C) **Objective type questions: (Any Three)** (03)
- (1) Give the term: The tendency of two dominant alleles or recessive alleles coming from two parents tend to Separate each other and enters different gametes.
 - (2) The homologous chromosomes move towards each other and come lie side by side, name this phenomenon of pairing of homologous chromosomes.
 - (3) Fill in the blanks: When a t-RNA is charged with an amino acid, it is called _____
 - (4) Fill in the blanks: The gene may undergo sudden change in expression due to change in its composition. This phenomenon of change is known as _____
 - (5) True or false: The number of crossing over between two genes is represented by percentage of crossing over.
- Q.2(A) **Answer in detail: (Any One)** (07)
- (1) Discuss the joining of foreign DNA fragment to a cloning vector.
 - (2) Explain: Concept of regulation of gene expression in prokaryotes.
- Q.2(B) **Answer in brief: (Any One)** (04)
- (1) Explain: The plane of cutting DNA.
 - (2) Explain: Plasmid as vector.
- Q.2(C) **Objective type questions: (Any Three)** (03)
- (1) Fill in the blanks: The direct intake of naked DNA from the culture medium by eukaryotic cells, is called _____
 - (2) Define the term: Plasmids.
 - (3) Some restriction enzymes cut the two strands of DNA along the line of symmetry of recognition site. Name the style of cut.
 - (4) Name the enzyme synthesized by structural gen-Z in lac operon.
 - (5) Fill in the blanks: Fragments of DNA formed after treatment with endonucleases are separated by the technique of _____
- Q.3(A) **Answer in detail: (Any One)** (07)
- (1) Explain composition of nutrient media.
 - (2) Discuss different strategies and genes used for developing herbicide resistance transgenic crop.
- Q.3(B) **Answer in brief: (Any One)** (04)
- (1) Describe application of tissue culture in preparation of artificial seeds.
 - (2) Explain: In-situ conservation of germplasm.

- Q.3(C) **Objective type questions: (Any Three)** (03)
- (1) Which enzyme extracted from papaya tree is used in deworming?
 - (2) Which bacterium is used for the production of insect resistant transgenic plant?
 - (3) Which is the most commonly used culture medium for plant cells and tissues?
 - (4) Fill in the blanks: Preparation of M.S. medium the pH of the medium is adjusted _____
 - (5) Define: Callus in tissue culture.
- Q.4(A) **Answer in detail: (Any One)** (07)
- (1) Explain: The dedigree method with reference to plant breeding.
 - (2) Describe: Different type of grafting method.
- Q.4(B) **Answer in brief. (Any One)** (04)
- (1) Explain: A hybridization technique, Emasculation.
 - (2) Enumerate the main objectives of plant breeding.
- Q.4(C) **Objective type questions: (Any Three)** (03)
- (1) Fill in the blanks: After emasculation, the flowers are enclosed in a muslin bag. This phenomenon is called _____
 - (2) Complete the statement: Breeding in which seeds of Superior individuals are collected, bulked and sown repeatedly until a new variety is formed, is called _____
 - (3) What is Hybridization?
 - (4) Fill up the blanks: Mound layering is also known as _____
 - (5) Give the term: The propagation of plants by planting the cut vegetative parts of plants.
- Q.5(A) **Answer in detail: (Any One)** (07)
- (1) Explain with figure anomalous secondary growth in salvadora stem.
 - (2) Describe the phloem tissue with figure.
- Q.5(B) **Answer in Brief. (Any One)** (04)
- (1) Describe: The procedure of block preparation.
 - (2) Write characteristic of parenchyma with two examples, of specialised parenchyma cells.
- Q.5 (C) **Objective type questions: (Any Three)** (03)
- (1) Complete the statement: The cambium present in the primary vascular bundles is known as _____
 - (2) Fill in the blanks: All Xylem elements, when mature are dead except _____
 - (4) Name vascular bundle, in which centrally located phloem is surrounded by Xylem.
 - (5) Name the microtome in which glass or Diamond knife is used sectioning?
 - (5) Define the term: Sectioning.
