

B.Sc. Semester - 6 (CBCS) Examination
March/April-2023 (NEW COURSE)
Cytogenetics, Molecular - Bio. (Core (New))

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 the following question. (04)

1. The plant cell wall is made up of four layers. Give its name.
2. The enzyme RuDP carboxylase present in which location of Chloroplast?
3. Each chlorophyll molecule consists of a Mg _____ head and _____ tail.
4. State the name of the pigments present in chloroplast.

Q.1(B) Answer the following question. (Any One) (03)

1. Explain thickening in xylum cell wall.
2. Why chloroplast play important role in cytoplasmic inheritance?

Q.1(C) Answer the following question. (Any One) (07)

1. Describe the cell organelles – Nucleus
2. Discuss the ultra structure of “Mitochondria”

Q.2(A) Answer the following question. (04)

1. Define linkage and who discovered this phenomenon?
2. What is crossing over?
3. How many types of point mutation can occurs? Name any two.
4. State the Hardy Weinberg’s law.

Q.2(B) Answer the following question. (Any One) (03)

1. Give the significance of linkage.
2. Explain “Framshift” mutation.

Q.2(C) Answer the following question. (Any One) (07)

1. Explain types of linkages.
2. Discuss the chromosome map.

Q.3(A) Answer the following question. (04)

1. The initiation codon is located at the ____ end of mRNA and termination codone is located at the ____ end of mRNA.
2. State the role of SDS in DNA isolation.
3. What is direct reversal of DNA repair mechanism?
4. Define DNA repair by excision

Q.3(B) Answer the following question. (Any One) (03)

1. What is monocistronic and polycistronic mRNA?
2. What do you mean by “cap” and UTR in RNA structure?

Q.3(C) Answer the following question. (Any One) (07)

1. Explain the theory of Lac operon.
2. Give the steps for DNA purification with explanation.

- Q.4(A) Answer the following question. (04)**
1. What is reverse transcriptase?
 2. Define restriction endonuclease.
 3. How the name of plasmid pBR322 is derived?
 4. Give an example of transgenic plant.
- Q.4(B) Answer the following question. (Any One) (03)**
1. In genetic engineering – Discuss the technique of desired gene insertion into plasmid.
 2. Shortly describe role of degradative plasmids in controlling of environmental pollution.
- Q.4(C) Answer the following question. (Any One) (07)**
1. Describe the techniques of introduction of rDNA into host cells in detail.
 2. Discuss the technique for preparation of desired gene.
- Q.5(A) Answer the following question. (04)**
1. Give the principle of electrophoresis.
 2. On which principle PCR works?
 3. Define HPLC.
 4. In HPLC technique, which solvents are used?
- Q.5(B) Answer the following question. (Any One) (03)**
1. State an application of PCR.
 2. State an application of Electrophoresis.
- Q.5(C) Answer the following question. (Any One) (07)**
1. Write a note on GC.
 2. Write a note on TLC.
