

**Final Assessment Test – November 2024**Course: **TBIT201L - Genetics**Class NBR(s): **1183 / 4111**Time: **Three Hours**Slot: **B1+TB1**Max. Marks: **100**

- **KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE**
- **DON'T WRITE ANYTHING ON THE QUESTION PAPER**

PART – A (8 X 5 = 40 Marks)Answer **ALL** Questions

1. The mapping of genes to a specific location on chromosome is a critical step in the understanding of genetic diseases. What is the statement related to? Explain physical mapping.
2. What is the chart that can represent a family tree along with the family members and their genetic traits? Explain with a chart.
3. Microbes are now used for several purposes, and are particularly important in producing large amounts of pure human proteins for use in medicine. What is the statement related to? Explain with examples.
4. Explain the invitro and invivo genotoxicity testing methods.
5. When a gene is present on the X chromosome, but not on the Y chromosome, it is said to be X-linked. Explain the statement with a model organism.
6. Explain about bacterial transformation.
7. The production of genetically enhanced children, gives them the genetic characteristics of the parents. What is the statement related to? Explain how fetal anomalies or genetic disorders can be identified?
8. Explain DNA repair mechanism with examples.

PART – B (6 X 10 = 60 Marks)Answer **ALL** Questions

9. Cells in an organism are capable of shedding minute particles called germules. What is the statement related to? Explain in detail with example.
10. Explain in detail the different types of chromosomes and their structure.
11. Changes in the gene frequencies from one generation to another occur because of the possibility for it to occur when populations are finite in size. What is the statement related to? Explain.

12. In agarose gel electrophoresis, a specific chemical carcinogen is routinely used. Write the name of the chemical, and what are its effects? In a cell culture lab, researchers use UV light before starting experiments. What is the purpose of this? Do you consider UV light to be a carcinogen? If yes, what type of carcinogen is it?
- 13.a) The body cannot properly turn food into energy. What is the disorder it can lead to? Explain in detail with the pathway involved.

OR

- 13.b) This species has an orange pigment, while some members of the same species have a bright orange coloured mold. What is the organism referred to here? Explain in detail with example
- 14.a) A couple has been trying to conceive for the past three years without success. What could be the possible reasons for this delay, and what steps can they take to address the issue?

OR

- 14.b) Patients at risk of developing an inherited disorder are advised of the consequences and nature of the disorder and also the probability of developing or transmitting the disease. What is the process referred to here? Explain.

⇔⇔⇔ BG/K/TX ⇔⇔⇔