

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech VIII- Semester (BT/BI)

COURSE CODE (CREDITS): 18B1WBT831 (3.0.0)

MAX. MARKS: 15

COURSE NAME: Genetic Counselling

COURSE INSTRUCTORS: Dr. Tyson

MAX. TIME: 1 Hour

**Note:** (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	Imagine a family has a history of a genetic disorder but is unsure about the risks for future generations. How might a genetic counselor assist them in understanding their situation, and what factors would the counselor consider when providing guidance?	1	3
Q2	A couple learns that their unborn child has been diagnosed with a chromosomal condition, such as Down syndrome. What are the typical signs and symptoms associated with this condition, and what underlying genetic or chromosomal changes cause it?	2	3
Q3	How do the inheritance patterns of autosomal recessive disorders differ from X-linked recessive disorders and why might X-linked conditions affect males more frequently than females? Explain with examples.	2	3
Q4	A child is diagnosed with severe anemia due to thalassemia, but neither parent shows significant symptoms. How can the genetics of thalassemia explain this? Why might symptoms vary between individuals with the same mutation, and how do treatments address the underlying cause of the disorder?	2	3
Q5	Explain the difference between a point mutation and a frame shift mutation, and provide one example of how each type of mutation can affect the function of a protein.	2	3