

**VIT[®]**Vellore Institute of Technology
(Deemed to be University under section 3 of UCI Act, 1956)

Slot : B2+TB2

School of Bio Sciences and Technology

Fall Semester 2023-2024

Continuous Assessment Test – II

Programme Name & Branch: B Tech, Biotechnology

Course Name & code: Cell Biology and Genetics, BBIT204L

Class Number (s): VL2023240101986 & VL2023240101988

Faculty Name (s): ABUL KALAM AZAD MANDAL & SUNITA NAYAK

Exam Duration: 90 Min.

Maximum Marks: 50

General instruction(s):**Draw neat DIAGRAMS wherever necessary**

Q.No.	Question	Max Marks
1.	In animals, signaling by soluble extracellular molecules can be classified into three types. Compare these three types of signaling.	10
2.	Receptors are located over the mammalian cell membrane. They are involved in various signal transduction processes. They are grouped into three types. Name these receptor types. Compare their structure, mode of action, and functions.	10
3.	Which second messenger is produced by activated adenylyl cyclase? Discuss the signal transduction pathway of this second messenger in hepatic cell.	10
4.	In some cases of flower colour inheritance, dominant allele is not expressed fully in heterozygotic condition in F1 generation. If these heterozygotes are self-pollinated, what will be the outcome in the F2 generation? Which of the Mendel's laws is not followed here? Explain in detail with an example.	10
5.	In sharks, sharp teeth are dominant (T) to dull teeth (t). If a sharp toothed shark was found, how can we find out its genotype using an established method of breeding? Prove it with Punnett Squares indicating all genotypes and phenotypes.	10