



School of Bio Sciences and Technology

Fall Semester 2022-2023 – CAT II

Course Name & code: Cell Biology and Genetics, BBIT204L

Programme Name & Branch: B. Tech, Biotechnology

Class Number: VL2022230101452, VL2022230101445, VL2022230101455

Slot: B1+TB1

Faculty Name: Abul Kalam Azad Mandal, Rajasekaran C, Raunak Das

Exam Duration: 90 minutes

Maximum Marks: 50

General instruction(s):

Draw neat diagrams wherever necessary

Q. No.	Question	Max Marks
1.	For the regulation of cell cycle, certain enzymes and proteins are required. Mention the names of these enzymes and proteins and their roles in various phases of cell cycle.	10
2.	What are the Na ⁺ driven symporter and antiporter? Taking one example from each, explain how they work in the cell.	10
3.	a) What are the three sub-units of trimeric-G protein? Where they are located in the cell? How they activate effector protein? Explain with an example. (5 Marks) b) How cAMP activates PKA? (5 Marks)	10
4.	Explain the mechanism of pathogenic virus entry into the cell.	10
5.	In humans, the ABO blood groups are controlled by three alleles (only two of which occur in any one individual): the alleles for A and B are co-dominant toward each other, and both are dominant to the allele O. If a person with type AB blood group marries someone with type O blood group, what will be the possible phenotypes of their offspring?	10