JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

M.Sc.-I Semester (BT&BI)

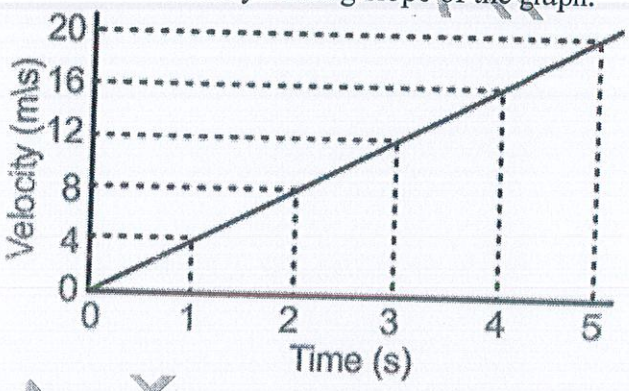
COURSE CODE (CREDITS): ~~25BHCE314~~ 20MS1PH111 MAX. MARKS: 15

COURSE NAME: Basic of Chemistry and Physics

COURSE INSTRUCTORS: GPL & RRS 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. Use of calculator is allowed.

Q.No	Question	Marks
Q1	a) How long a train will take to travel a distance of 200 km with a speed of 60 km h^{-1}, convert the result in m/s?	[1]
	b) What do you understand by precision and accuracy? Is it possible that an instrument can be precise but not accurate, explain with the help of example?	[2]
Q2	Two forces 5N and 7 N are acting at a point such that the angle between them is 30 degree. Find the resultant force.	[2]
Q3.	Evaluate the graph to find acceleration by finding slope of the graph. 	[2]
Q4	a) Analyze why blood pH is maintained between 7.35 and 7.45 using the H_2CO_3/HCO_3^- buffer system. What could happen if this system fails?	[2]
	b) Explain mechanism of buffer action by taking suitable example.	[1]
Q5	a) Calculate amount of HCl required for preparing 200 mL of 2.0 M HCl from a concentrated solution that has specific gravity of 1.17 and is 36.5% pure. (MW of HCl is 36.5)	[2]
	b) To 20 mL of 0.5M H_2SO_4, 80 mL of 0.75M H_2SO_4 is added. Calculate the conc. of the final solution if its volume is 100 mL.	[1]
Q6	Consider the following data HA ⟶ H^+ + A^- HB ⟶ H^+ + B^- If the conjugate base A^- is more stable than B^- then which is more acidic HA or HB. Justify your answer.	[2]