JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS- 2025

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

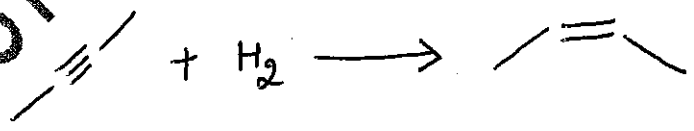
COURSE CODE (CREDITS): ~~25BHCE314~~ 20MSIPH111 MAX. MARKS: 25

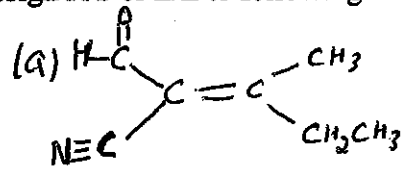
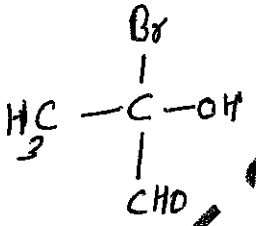
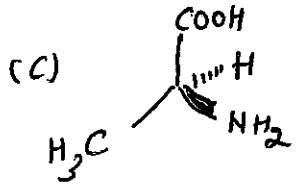
COURSE NAME: Basic of Chemistry and Physics

COURSE INSTRUCTORS: GPL & RRS MAX. TIME: 1 Hour 30 Min

Note: (a) All questions are compulsory.

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

Q.No	Question	Marks
Q1	a) Define angular momentum. Write its SI unit. b) State and explain the law of conservation of angular momentum. Give one suitable practical example.	[1] [1.5]
Q2	a) What is the power of a machine that does 500 J of work in 10 s? b) A force of 20 N is applied on a body at rest of mass 4 kg. Find its acceleration. c) Calculate the kinetic energy of a ball of mass 0.5 kg moving with speed 4 m/s^2.	[2] [2] [2]
Q3	a) Sketch a suitable diagram to explain all the basic characteristics of waves. b) What is the frequency of a wave of wavelength 2 m traveling with velocity 10 m/s?	[2.5] [2]
Q4.	Predict the fate of following chemical reaction/process at very high/very low temp. Justify your answer. 	[3]
Q5.	a) Compare configuration and conformation with suitable example. Draw and explain Fisher Projection, Flying wedge Projection. b) Compare the possible conformations of n-butane about the central C–C bond. For each conformer, draw the Newman projection, give the C–C–C–C torsion angle, state the relative energy compared to the lowest conformer, and explain the physical origin of the energy	[2] [3]

	differences. c) What weight of $KMnO_4$ will be required to prepare 200 mL of the 0.1 N solution if eq. wt. of $KMnO_4$ is 31.6?	[2]
Q6.	Assign R/S or E/Z to following compounds. (a)  [0.5] b)  [1] (c)  [0.5]	[2]