QP Code: RM22MSC049 | Reg. No | | | | | | | | | | | AR 22

GIET UNIVERSITY, GUNUPUR – 765022

M. Sc. (First Semester) Examinations, March – 2023

22BTPC107 – Basics of Chemistry and Physics

(Bio-Technology)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A **(2 x 10 = 20 Marks)**

Q.1. Answer all questions	CO#	Blooms Level
a. What is VSEPR theory?	CO2	K2
b. Find mass of 2 moles of sulphur dioxide.	CO1	K1
c. Draw the structure and Geometry of PCl_5.	CO2	K2
d. Explain Ionic and covalent bond with example.	CO1	K1
e. What is enthalpy?	CO1	K1
f. Write the unit and dimension of gravitational constant "G"	CO4	K1
g. What are the different types of energy?	CO4	K1
h. On which law of thermodynamics Refrigerator work?	CO3	K2
i. What is the outcome of Bernoulli's theorem	CO4	K2
j. State triangle law of vector addition.	CO4	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO#	Blooms Level
2. a. Brief basics and principle of Photo Electron Spectroscopy.	4	CO2	K2
b. Draw the structure, shape, and hybridisation of SF_4, H_2O, XeO_2F_2.	6	CO1	K1
3.a. Explain Arrhenious equation.	6	CO2	K2
b. Write down the relation between free energy, enthalpy and entropy.	4	CO2	K1
4. a. Derive Maxwell-Boltzmann Distribution.	6	CO1	K1
b. Explain Nernst Equation.	4	CO2	K2
5.a. Write down concept of pH and pOH	5	CO1	K1
b. Explain different types of liquid flow and how Reynold's number related with it.	5	CO3	K2
6. a. Derive the kinematic equation $v^2-u^2=2as$	7	CO3	K1
b. Discuss different types of thermodynamic process with suitable example.	3	CO4	K2
7. State and prove Bernoulli's theorem	10	CO3	K1
8. a. State and explain laws of thermodynamics.	6	CO4	K1
b. Write down the unit and dimension of torque and energy.	4	CO3	K1

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