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School of Engineering
First Sessional Examination, Odd Semester (AS: 2022-23)
B. Tech: First Year Semester: 1

Course Title: Chemistry
Course Code: BAS3103

Max Marks: 30
Time: 1 *HOUR*

Instructions if any: Read the question Carefully.

	SECTION 'A' Q.N.1. Attempt all parts of the following:	Course Objective	Marks
a)	Define threshold energy.	CO 1	1
b)	Give all four quantum number for 3d10	CO 2	1
c)	He_2^+ exits or not.	CO 2	1
d)	Define order of a reaction.	CO 4	1
e)	Discuss the structure of Fullerene.	CO 2	1
	SECTION 'B' Q.N.2. Attempt any two parts of the following:	Course Objective	Marks
a)	Discuss the classification of liquid crystal and its application.	CO 1	7.5
b)	Derive density of unit cell? Krypton crystallizes in a structure that has four krypton atoms in each unit cell, and the unit cell is a cube .the edge length of unit cell is 0.559 cm. Calculate the density of crystalline Kr. Z=4	CO 1	7.5
c)	What are stoichiometric and nonstoichiometric defects in crystal? no chemical formula	CO 4	7.5
d)	Write about molecular orbital theory. Draw the energy label diagram of HF molecule.	CO2	7.5
	SECTION 'C'	Course Objective	Marks
	Q.N.3. Attempt any one part of the following:		
a)	Draw energy label diagram of N_2 and O_2 molecule. Give the configuration and magnetic behaviour of molecules.	CO1	10
b)	Derive second order reaction when the concentration of reactants are different.	CO4	10
c)	Write about nanomaterials. Classify the nanomaterial on the basis of dimension. Give sol gel method for the synthesis of nanoparticle.	CO 1	10

Table 1: Mapping between COs and questions
(Number of COs may vary from course to course)

COs	Questions Numbers	Total Marks
CO1	1a,2a,2b,3a,3c	1+7.5+7.5+10+10=36
CO2	1b,1c,1e,2d	1+1+1+7.5=10.5
CO3	NA	NA
CO4	1d,2c,3b	1+7.5+10=18.5