CO5. Conceptual understanding of nanomaterials and their applications in the field of Engineering and medical sciences.

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Mid Term Examination, Even Semester 2022-23

B. Tech. I Year (All Branches), Semester II

BCHS 0101: Engineering Chemistry

Time: 1 Hours **Max. Marks: 30**

Section – A

Note: All questions are compulsory ***3 × 5 = 15 Marks***

No.	Detail of Question	Marks	CO	BL	KL
1	Draw conformational isomers of n-butane. Also compare their stability.	3	CO5	A	C
2	What are ceramic materials? Enlist important applications of ceramic materials. OR Name and draw the structure of monomers of (Any three): i. Nylon 66 ii. Teflon iii. Polystyrene iv. Buna-S	3	CO2	A	C
3	Describe the working principle of 'Bergius method' for synthesis of petrol with a well labelled diagram.	3	CO2	U	C
4	Define lubricants? How they are classified?	3	CO4	A	M
5	Enlist applications(at least three of each) of borosilicate and optical glass.	3	CO5	C	M

Section – B

Note: All questions are compulsory ***5 × 3 = 15 marks***

Q. No.	Detail of question	Marks	CO	BL	KL
1	Draw MO diagram of O_2 molecule. Also, calculate bond order and assign magnetic character.	5	CO2	C	M
2	Write a short note on: i. Proximate analysis of coal ii. Neutralization number of lubricants iii. Cloud point iv. Calorific value v. Flash point of lubricants	5	CO4	A	F
3	Describe how the calorific value can be determined using the Bomb calorimeter? Mention the formula involved with all descriptors. In a bomb calorimeter experiment, following data was obtained: amount of coal = 0.85gm, W = 2.5kg, w = 0.5kg, observed rise in temperature = 2.25 °C, C_A = 38.6 calories, C_F = 6.8 calories, and T_C = 0.05 °C. Calculate net calorific value if the coal contains 10 % hydrogen?	5	CO4	C	F

End of Question paper