Course Name: B.Tech.

Course Outcome:

CO1- Understanding. fundamental concepts of chemistry and its applications in the various branches of engineering sciences.

CO2- Applying the knowledge of chemistry in solving socio-economic and environmental issues.

CO3- Identify and analyze engineering problems to achieve practical solutions

CO4- Knowledge of chemical science for better appreciation of applications in engineering chemistry.

CO5- Student ability to perform, analyze and interpret the experimental data for better understanding

Printed Pages: 2 **University Roll No. .....**

Mid Term Examination, Odd Semester 2022-23
B.Tech. Year-Ist, Semester-Ist
Subject Code: (BCHS-0101)
Subject Name: Engineering Chemistry

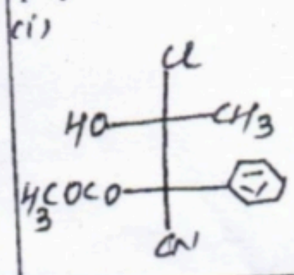
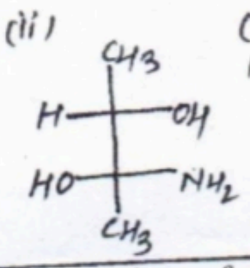
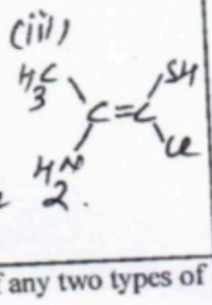
Time: 2 Hours **Maximum Marks: 30**

Instruction for students:

1. All questions are compulsory to attend.
2. You are advised to read the question paper carefully and write relevant answers accordingly.
3. Appropriate diagrams (if any) in support of the answer is desirable.

Section – A

*Attempt **All** Questions* 3 X 5 = 15 Marks

No.	Detail of Question	Marks	CO	BL	KL
1	Explain briefly how HCV of the fuel can be derived experimentally by Bomb calorimeter, with the help of a suitable diagram?	3	1	U, A	C
2	Create various conformers of n-butane and highlight them on the energy diagram with their stability order.	3	4	C	F
3	Assign **R&S**, OR **E&Z** to the following stereoisomer with proper numbering: (i)  (ii)  (iii) 	3	3,5	An,A	M
4	Give the chemical composition and uses of any two types of glasses. (i) Flint glass (ii) Borosilicate glass (iii) Hard glass	3	1, 4	An,R	F

5	Applying the concept of combustion technique, evaluate the weight of air needed for the combustion 60 kg of a coal sample, containing 50% carbon, 10% hydrogen, 10% oxygen, 10% Sulphur, 5% nitrogen and remaining ash.	3	5	A, E	M

Section – B

Attempt All Questions 5 X 3 = 15 Marks

No.	Detail of Question	Marks	CO	BL	KL
6	Elucidate the preparation, properties and uses of the following polymers (Any Two) (i) Buna-S (ii) PHB (iii) Nylon66	5	1, 4	U, R	F
7	The magnetic behavior of any chemical molecule depends upon the number of electrons present in its last orbital. Applying the same concept, create a molecular orbital diagram of Fluorine molecule, justifying its magnetic behavior and bond order.	5	5	A, C	F
8 A	Analyze the Lubricants for its following properties. (i) Flash Point and Fire point (ii) SEN (iii) Specific Heat	3	4	An	M
8 B	Draw the schematic labelled diagram to show synthesis of synthetic petrol by Fischer-Tropsch method.	2	2	U, R	P

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