

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, Even Semester 2021-22

B.Tech. Year-Ist, Semester-IInd

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

3 X 5 = 15 Marks

Attempt All Questions

No.	Detail of Question	Marks	CO	BL	KL
1	Analyzing a fuel for its calorific value, explain briefly how HCV & LCV of a fuel can be determined 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	Analyze proximate analysis of coal and explain its significance.	3	2, 3	U, An	M
4	Elucidate the preparation and uses of any two such polymers of your choice that are widely used in our daily life.	3	1, 4	U, R	F
5	Applying the concept of combustion, evaluate the volume of air needed for burning 100 kg of a coal sample, containing 60% carbon, 10% hydrogen, 5% oxygen, 5% sulphur and rest nitrogen.	3	5	A, F	M

Section – B

Attempt All Questions

5 X 3 = 15 Marks

No.	Detail of Question	Marks	CO	BL	KL
1	Vulcanization is recommended to remove all shortcomings of natural rubber. Understanding the process vulcanization, explain (with reaction) how it is carried out in laboratory? Highlight all possible improvement achieved in property of rubber after vulcanization.	5	1.4	U, A	P
2	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 oxygen molecule, justifying its magnetic behavior and bond order.	5	5	A, C	F
3 A.	Assign R&S, OR E&Z to the following stereoisomer with proper numbering: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>(i.)</p> </div> <div style="text-align: center;"> <p>(ii.)</p> </div> <div style="text-align: center;"> <p>(iii.)</p> </div> </div>	3 +	5	An. A	M
3 B.	Draw only the schematic diagram to show synthesis of synthetic petrol by any one method of your choice.	2	2	U, R	P

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