BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MSC/PRE-PHD **SEMESTER : I/NA**
BRANCH: CHEMISTRY **SESSION : MO/19**

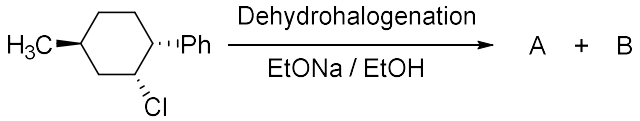
SUBJECT: CH405 PRINCIPLE OF ORGANIC SYNTHESIS

TIME: 3.00Hrs. **FULL MARKS: 50**

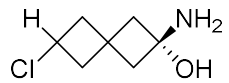
INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

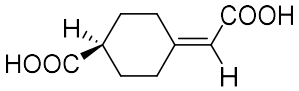
Q.1(a) Draw and explain the conformer of 2,3-dibromobutane using Newman Projection Formula. [5]

Q.1(b) Explain the role of conformation in the following elimination reaction and identify the major and minor product. [5]

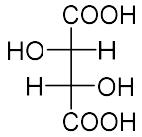


Q.2(a) Identify the R,S-Configuration of the following molecules: [5]

i) 

ii) 

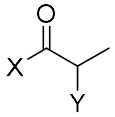
Q.2(b) Identify the R,S-Configuration from the following Fisher Formula. Convert the following Fisher Formula to Newmann and Sawhorse Projection. [5]



Q.3(a) Draw and discuss the transition states for the addition of HCl to butadiene. [5]

Q.3(b) Draw the potential energy diagram of the above reaction and discuss thermodynamic/kinetic control. [5]

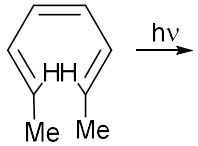
Q.4(a) Write the enol form of the following ketone and discuss the substituent effect on its enolization. [5]



Q.4(b) In a reaction involving two interconverting conformers **A** and **B**, products **C** and **D** are formed irreversibly respectively. If the product formation is faster than interconversion of conformers, draw a labeled potential energy diagram and explain the product ratio. [5]

Q.5(a) Draw and Explain the concerted reaction with example and classification. [5]

Q.5(b) Draw the correlation diagram for the following photochemical electrocyclic ring closure and explain the stereochemistry of the product. [5]



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