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SB—20—2022

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

MAY/JUNE, 2022

(New/CBCS Course)

CHEMISTRY

Paper—VIII

(Organic and Inorganic Chemistry)

(Wednesday, 8-6-2022)

Time : 2.00 p.m. to 4.30 p.m.

Time— 2½ Hours

Maximum Marks—40

1. Solve any *three* of the following :

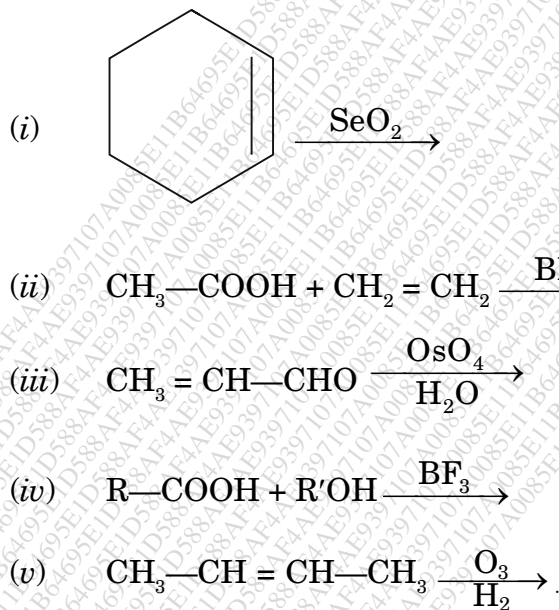
- (a) Give the electronic configuration of 2nd transition series elements.
- (b) What is Lanthanide contraction ? Give consequences of Lanthanide Contraction.
- (c) How Uranium is extracted from Pitchblend by acid digestion method ?
- (d) Explain the following properties of first transition series elements :
 - (i) Complex formation
 - (ii) Magnetic properties.
- (e) What are the applications of Lanthanides ?

2. Solve any *three* of the following :

- (a) What is stereoisomerism ? Write R and S forms of :
 - (i) 3-chloro 2-methyl pentane
 - (ii) 2-chlorobutane.
- (b) How will you convert Glucose to Mannose ?

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- (c) How will you prepare Urea by Wohler's method? What is the action of the following on Urea?
- Heat;
 - SOCl_2 ;
 - Acetyl chloride;
 - Nitrous Acid.
- (d) What is Isomerism? Explain types of structural isomerism.
- (e) Predict the product:



3. Solve any *two* of the following:

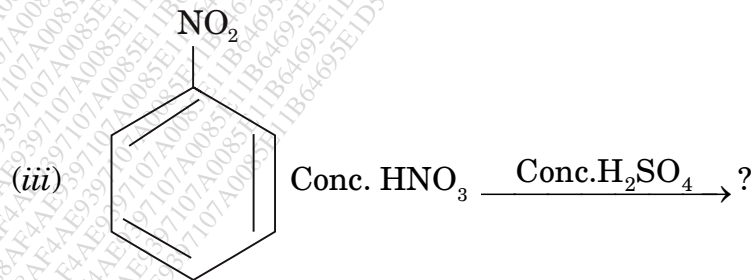
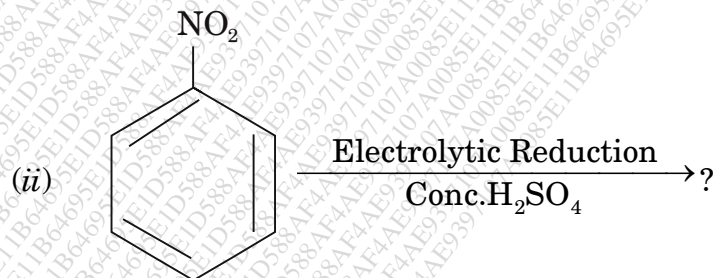
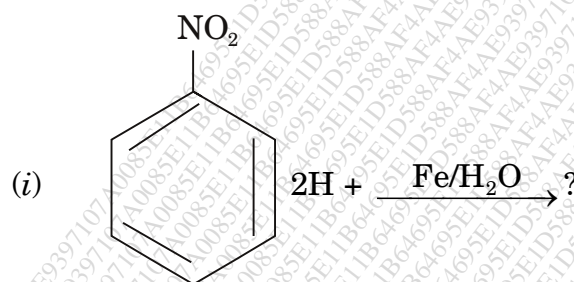
- (a) How will you convert:
- Aniline to phenyl isocyanide;
 - Phenol to Aniline;
 - Nitrobenzene to Aniline;
 - Glucose to Glucosazone;
 - Glucose to Sorbitol.

(b) Define the following terms :

- (i) Asymmetric carbon atom;
- (ii) Racemic Mixture;
- (iii) Resolution;
- (iv) Plane of Symmetry;
- (v) Optical Isomerism.

(c) What is mutarotation ? Give its mechanism.

(d) Predict the product :

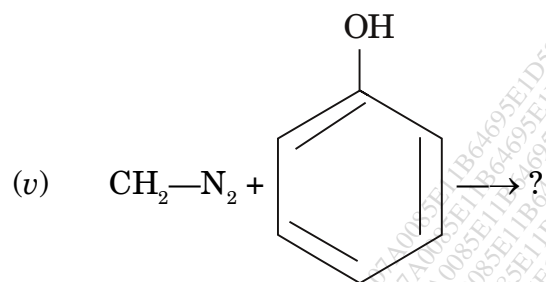
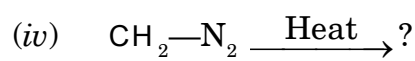


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