City College

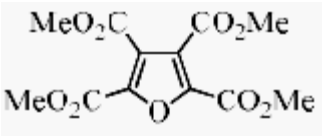
B.Sc Semester 5, Internal Assessment(nline), under CU 2020-21

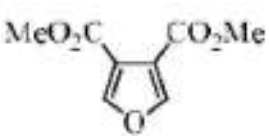
CHEMISTRY- HONOURS
Paper-CC-5-12 (Organic chemistry)
Full Marks-10
Attempt all questions

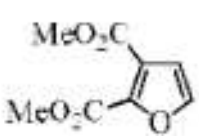
1. The heterocyclic diene employed in cyclo – addition reactions is:

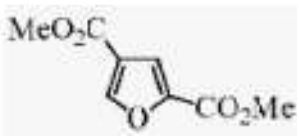
   A. Furan, B. Pyrrole, C. 2, 5-dimethylpyrrole, D. Thiophene

2. Furan on prolonged heating with dimethyl acetylenedicarboxylate yields:


A


B

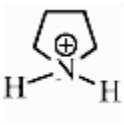

C

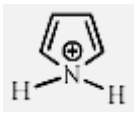

D

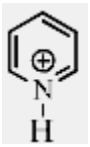
3. Pyridine undergoes electrophilic nitration at elevated temperature to given the following as a major product:

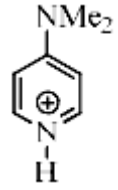
   A. 2-nitropyridine, B. 3-nitropyridine, C. 4-nitropyridine, D. 2,3-dinitropyridine

4. The most acidic species is:

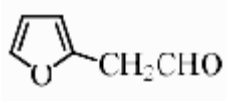

A

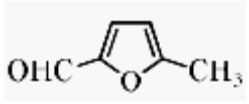

B

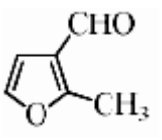

C

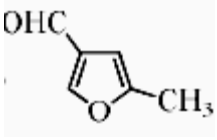

D

5. The reaction of 2-methylfuran with DMF-$POCl_3$ would give:


A


B


C


D

6. Which of the following statements best describes the theory of Conservation of Orbital Symmetry?

   A) Molecular orbital of the transition state must be similar to that of the reactant.

   B) Molecular orbital of the transition state must be similar to that of the product.

   C) Only s orbitals from reactants and products are utilized.

   D) Molecular orbitals of reactant and product must have similar symmetry.

7. Which of the following statements regarding chair cyclohexane is wrong?

   A. The dihedral angle of the two axial bonds on adjacent carbons is 180°.

   B. The dihedral angle of the two equatorial bonds on adjacent carbons is 60°.

   C. The dihedral angle between the axial bond and the equatorial bond on adjacent carbons is 120°.

   D. The axial hydrogen atoms on C1, C3, and C5 form an equilateral triangle (as do C1, C3, and C5 themselves and the equatorial hydrogens on them).

8. Which cyclohexane conformation has the highest energy?

   A. Chair, B. Boat, C. Twist-boat, D. Twist-chair

9. Which of the following will produce yellow colour with ninhydrin?

   A. Glycine, B. Aspertic acid, C. Proline, D. Lysine

10. The nitrogenous base present in RNA but not in DNA is

    A. Guanine, B. Cytosine, C. Uracil, D. Adenine