

B.Sc.(Honours)Examination, 2018

Semester-III

Chemistry (Honours)

Course: BCHC-32

(Organic Chemistry)

Time: Three Hours

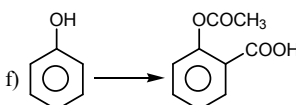
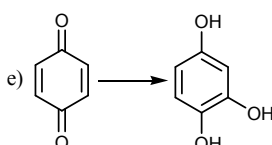
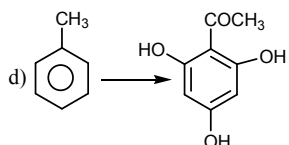
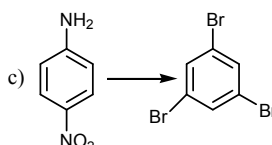
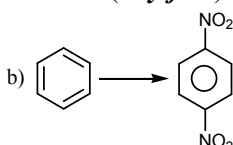
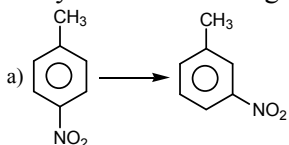
Full Marks: 30

Questions are of value as indicated in the margin.

Answer **any three** questions

1. Carry out the following conversions (**any five**):

5x2



2. Give explanation for the following:

5x2

- 2,4-Dinitrofluorobenzene reacts 3300 times faster than 2,4-dinitroiodobenzene in presence of piperidine base.
- Cyclooctatetraene is not anti-aromatic compound.
- Azulene shows extremely high dipole moment.
- When benzene is separately reacted with $\text{Me}_3\text{C}-\text{CH}_2\text{Cl}$ and $\text{Me}_2\text{CH}-\text{CH}(\text{Cl})\text{CH}_3$ in the presence of anhydrous AlCl_3 , same product is formed.
- Cyclopropanone shows exceptionally high dipole moment.

3. Write short notes on the following:

2.5x4

- Hydroboration - oxidation
- Ozonolysis
- Oxymercuration - demercuration
- Carbene

4. How would you carry out the following transformations:

5x2

- Cyclohexanol \rightarrow *cis* and *trans*-cyclohexane-1,2-diol
- 2-propanol \rightarrow 1-propanol
- 2-butene \rightarrow 1-butene
- Styrene \rightarrow 2-phenyl-1-bromo ethane
- Cyclopentanol \rightarrow Hexanediol

5. Explain the following observations:

5x2

- Indene (benzocyclopentadiene) reacts with HCl to give 1-chloroindane rather than 2-chloroindane.
- Fluoroethene, $\text{CH}_2=\text{CHF}$, reacts with HF to give 1,1-difluoroethane rather than 1,2-difluoroethane.
- In cationic polymerization, 2-methylpropene reacts faster than propene.
- Alkenes (except ethylene) on hydration, generally fails to give primary alcohols.
- Acetylene is more easily hydrogenated catalytically than ethylene.