

U.G. 3rd Semester Examination - 2021

CHEMISTRY

[HONOURS]

Course Code : CHEM-H-CC-P-07

(Organic)

[PRACTICAL]

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

Answer any **four** from the following questions:

$$5 \times 4 = 20$$

1. a) Write the test and reactions for detection of Nitrogen and Sulphur in Lassaigne's test.
- b) Why excess of ferrous sulphate has to be added to the sodium extract for detection of nitrogen in presence of sulphur?
- c) What are the oxidation states of iron in Prussian blue? $(1\frac{1}{2} + 1\frac{1}{2}) + 1 + 1 = 5$
2. a) An organic sample contains nitrogenous functional group; it is observed that while testing the solubility in dilute NaOH, the sample

dissolves. Why does it happen? Write the reaction to explain the observation.

- b) Between 2,6-dimethyl benzamide and 3,5-dimethyl benzamide, which one do you think to react faster with NaOH? $(1\frac{1}{2} + 1\frac{1}{2}) + 2 = 5$
3. a) *p*-Cholorobenzaldehyde readily gives precipitate with 2,4-dinitrophenyl hydrazine but for benzophenone the same reaction needs longer time. Why?
- b) Between *p*-nitrotoluene and phenylnitro methane whose nitro group you can detect by reduction with Sn/HCl followed by diazo-coupling reaction? Give relevant reactions.
- c) Why diazotization of aromatic amines is carried out in excess of acid? $2 + 2 + 1 = 5$
4. a) How can you detect nitro group in presence of an amino group? Give relevant reaction.
- b) Which of the phenyl rings in benzanilide undergoes bromination on treatment with a mixture of potassium bromated and potassium bromide in presence of acid? Explain with relevant reaction.
- c) Sulfanilic acid exists as zwitterions but *p*-aminobenzoic acid does not. Why? $2 + 2 + 1 = 5$

[Turn over]

5. a) What happens when cinnamic acid is treated with permanganate? Give relevant reaction.
- b) Decolourisation of permanganate and bromine water cannot be considered as convincing evidence in favor of the presence of olefinic unsaturation. Explain with examples.
- c) Phenol does not react with sodium bicarbonate but 2,4-dinitro phenol gives effervescence with sodium bicarbonate. Why? $2+2+1=5$
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