

**M.Sc. 1st Semester Practical Examination, 2021**

**CHEMISTRY**

**Course Title: Organic Chemistry Practical**

**Course Code: CHEM 105C(PR)**

**Course ID: 11465**

**Time: 2 Hours**

**Full Marks: 40**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as possible*

1. Answer *any five* of the following questions: 2×5 = 10

- (a) Write down the difference between qualitative and quantitative analysis.
- (b) Why is sodium metal kept in kerosine oil?
- (c) Why freshly prepared ferrous sulphate solution is used in Lassaigne's test?
- (d) Write down the formula of sodium nitroprusside and sodium thionitroprusside.
- (e) How will you identify a primary amine (-NH<sub>2</sub>) group chemically?
- (f) In Lassaigne's test the nitrogen atom of the organic compound is converted to  
(I) N<sub>2</sub> gas, (II) NH<sub>3</sub>, (III) NO, (IV) CN<sup>-</sup>
- (g) Give two uses of anthranilic acid.

2. Answer *any four* of the following questions: 5×4 = 20

- (a) What is Lassaigne's test? Why organic compound is fused with sodium metal? Can we use potassium in place of sodium? 2+2+1 = 5

(b) Describe the laboratory method for the preparation of Anthranilic acid from Phthalic anhydride. Write down the mechanism involved. 3+2 = 5

(c) What is Tollen's reagent? Write down the composition of Fehling's solution? Which class of compounds can be detected by Tollen's reagent and Fehling's solution? 2+2+1 = 5

(d) Write down the laboratory method for formation of benzylic acid from benzoin with reaction mechanism. 3+2 = 5

(e) Write short notes on: (I) Lucas test and (II) Iodoform test. 2.5+2.5 = 5

(f) Write down the mechanism involved for the formation of 4-aminobenzoic acid from 4-aminotoluene. Indicate the necessary precautions required. Give one use of 4-aminobenzoic acid. 2+2+1 = 5

3. Answer *any one* of the following questions: 10×1 = 10

(a) Give the principle and chemical reaction for the partial reduction of *m*-dinitrobenzene to *m*-nitroaniline. Describe the laboratory method for the preparation of *m*-nitroaniline from *m*-dinitrobenzene. Indicate the necessary precautions required. (2+2)+5+1 = 10

(b) Describe the laboratory method involved for the preparation of hippuric acid from glycine indicating chemicals, reagents and apparatus needed. Write down the principle and chemical reactions. Give one use of hippuric acid. 5+(2+2)+1 = 10

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