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BBG-003-001647 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

July – 2021

IC-602 : Heavy & Fine Chemicals-2 & Analytical Chemistry

Faculty Code : 003
Subject Code : 001647

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions :

(1) All the questions are compulsory.

(2) Figures to the right indicate maximum marks.

(3) Draw labeled diagram wherever necessary.

(4) Assume suitable data.

(5) Question 1 carries 20 marks.

(6) Question 2 and 3 carry 25 marks each.

1 Answer the following questions : **20**

(1) Fine chemicals are produced in a bulk. True/False.

(2) Sodium methylate is also known as _____.

(3) Give full form of DMF.

(4) 1,4-dioxane can be produced from diethylene glycol and _____.

(5) Triphenyl phosphine is used as _____.

(6) Merck process is used to produce _____ acid.

(7) Washing soda is _____ in nature. (Acidic/Basic)

(8) Baking soda is sodium hydrogen carbonate. True/False

(9) Enfleurage is also known _____ extraction.

(10) Give one example of flavouring agent used in food additives.

(11) Write full form of GLC.

(12) Indicator electrode is made up of _____.

(13) _____ can be used as detector for most of the Polarimeters.

(14) Carrier gas can be used as stationary phase in chromatography. True/False.

(15) In Chromatography, Chroma means _____.

(16) While splitting of the sample, _____ of the sample must not be changed.

(17) Give full form of AED.

(18) By which detector sample destruction takes place ?

(19) Give full form of HPLC.

(20) IR spectroscopy is used to identify _____ group present in compound.

2 (a) Answer any three out of six. **6**

(1) Elaborate the word 'Capacity ratio'.

(2) Write down the principle of NMR spectroscopy.

(3) What is R_f value ?

(4) Give uses and properties of Sulfolane.

(5) Give manufacturing reaction, uses and properties of Ethyl acetoacetate.

(6) Write a note on Triethyl phosphate.

(b) Answer any three out of six. **9**

(1) Give manufacturing reaction, uses and properties of DMSO.

(2) Explain Karl-Fischer reagents in brief.

(3) Give difference between perfumes and flavours.

(4) Explain graphical representations of conductometric titration method.

(5) Write a brief note on sampling methodology.

(6) Write a short note on Flame Ionization Detector (FID).

(c) Answer any two out five : 10

(1) Discuss manufacturing of carbon tetrachloride with neat diagram.

(2) Explain manufacturing of Ethanol in detail.

(3) Explain production of citric acid with block diagram.

(4) Write a detailed note on thermal conductivity detector with diagram.

(5) Explain in detail. Polarimetric titration.

3 (a) Answer any three out of six : **6**

(1) Give properties and uses of Tartaric acid.

(2) Write a brief note on DMF.

(3) Define the terms :

(i) Chromatography

(ii) Efluent.

(4) Write down the principle of colorimetric analysis.

(5) Give properties and uses of Potassium dichromate.

(6) Write a brief note on stationary phase selection in chromatography.

(b) Answer any three out of six. **9**

(1) Give manufacturing reaction, uses and properties of Tetra Hydro Furan.

(2) Write various industrial uses of food additives.

(3) What is hot fat extraction ?

(4) Discus principle and working of colorimetry with schematic diagram.

(5) Give advantages of conductometric titration.

(6) Write down applications of Gas-Liquid Chromatography.

(c) Answer any two out of five : **10**

(1) Write various manufacturing process of Oxalic acid.

(2) Discuss sampling of gasses in detail.

(3) Explain IR spectroscopy with diagram.

(4) Discuss industrial applications of essential oil.

(5) Explain in brief : Mass Spectroscopy.
