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PG-003-001647 Seat No. _____

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

July - 2018

IC - 602 : Industrial Chemistry

(Heavy & Fine Chemicals - II & Analytical Chemistry)

(New Course)

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 labelled diagram wherever necessary and assume suitable data.

(4) Question-1 carries 20 marks objective type questions.

(5) Question-2 and 3 carries 25 marks each.

1 Give the answers of following questions : **20**

(1) Tributyl phosphate is used as _____ for cellulose acetate, plastics and vinyl resins.

(2) $NaBH_4$ is used as _____ agent.

(3) Give full form of TEA.

(4) DMF can be manufactured by reaction of formic acid with _____

(5) Give minimum two uses of Ketenes.

(6) Give composition of Fehling Solution-1.

(7) Sodium ethoxide is also known as _____

(8) Give molecular formula of Citric acid.

(9) Hot fat extraction is also known as _____

(10) The nature of Alumina is _____ which is used as chromatographic coating material. (Basic/Neutral)

(11) Calomel electrode is also known as _____

(12) Enlist two types of conductance.

(13) Which instrument is used to measure angle of rotation of optically active compound ?

(14) Snell's law is applicable for _____ instrument.

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

(16) The main objective behind the sampling is to get _____ sample for any analysis to be done.

(17) Give full form of F.I.D.

(18) UV Spectroscopy is used to determine _____ present in the compound.

(19) Give full form of NMR Spectroscopy.

(20) Enlist components of Mass Spectrometer used in instrumentation.

2 (A) Answer any **Three** out of six : **6**

(1) Write properties of Ninhydrine.

(2) Give reaction for manufacturing of Vanillin from Eugenol.

(3) Enlist classification of food additives.

(4) Discuss principle of pH metric titration.

(5) Draw only diagram of Atomic Emission Detector.

(6) Discuss any one chromatography behaviour of solutes.

(B) Answer any **Three** out of six : **9**

(1) Draw only block diagram for manufacturing of potassium bromide.

(2) Give reaction for manufacturing of sodium bicarbonate.

(3) Give difference between Perfumes and Flavours.

(4) Discuss advantages of Conductometric titrations.

(5) Give applications of UV spectroscopy.

(6) Discuss various graph patterns of potentiometric titration.

(C) Answer any **Two** out of five : **10**

(1) Explain manufacturing of various alkyl amines with diagram.

(2) Give an account of Emulsifying agent in detail.

(3) Explain various Distillation methods for production of essential oils.

(4) Discuss NMR Spectroscopy with schematic diagram.

(5) Explain Polarimetry method with diagram.

3 (A) Answer any **Three** out of six : **6**

(1) What is H.L.V. ?

(2) Give reaction for manufacturing of acetaldehyde by oxidation of ethylene.

(3) Enlist applications of food additives.

(4) Write principle of Refractometry method.

(5) Draw only diagram for instrumentation of IR Spectroscopy method.

(6) What is sampling methodology?

(B) Answer any **Three** out of six : **9**

(1) Discuss Perchloric acid process with diagram.

(2) Write a brief note on 1,4-dioxane.

(3) Discuss various structures of Tartaric acid.

(4) Describe Thermal Conductivity Detector in brief.

(5) Discuss basic sampling rules.

(6) Discuss Electron Captured Detector in detail.

(C) Answer any **Two** out of five : **10**

(1) Explain production of chloromethane with diagram.

(2) Discuss manufacturing of Citric acid with neat diagram.

(3) Describe Gas-liquid chromatography with diagram.

(4) Discuss Potentiometric titration method in detail.

(5) Describe Refractometry method with diagram.
