DA-003-001647

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

April / May – 2015

IC.P-602 : Industrial 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 labelled diagrams wherever necessary.

4) Assume suitable data.

5) Question-1 carries 20 marks MCQ & should be written in the same answer sheet.

6) Question-2 & 3 carries 25 marks each.

1 M.C.Q **20**

(1) SPAN and TWEEN are which types of Emulsifier?

(A) Cationic (C) Non-ionic

(B) Anionic (D) Amphoteric

(2) Which catalyst is most favorable for manufacturing of ketenes from Acetic acid?

(A) $LiAlH_4$ (C) $NaBH_4$

(B) Phosphate ester (D) All above

(3) Use of tributyl phosphate's as

(A) Plasticizers (C) Sodium sulfate

(B) Hardner (D) All above

(4) Industrial application of Surfactants is in

(A) Agricultural Industries

(B) Textile Industries

(C) $NaBH_4$

(D) All above

(5) Use of methyl amine as

(A) Refrigerant (C) Manufacturing of Herbicides

(B) Dye Preparation (D) All above

(6) _____ is most common source of radiation in infrared spectroscopy

(A) Deuterium lamp

(B) Hydrogen discharge lamp

(C) Nernst glower

(D) Common lamp

(7) 1,4-dioxane is obtained as a by-product in which compound's manufacturing process ?

(A) Ether (C) Diethylene glycol

(B) Ethylene glycol (D) All of the above

(8) Best manufacturing process for oxalic acids is

(A) Synthetic process from formates

(B) Fermentation process

(B) From wood wastes

(D) Oxidation of cellulose

(9) Suitable catalyst for manufacturing of Methanol is

(A) ZnO and Cr_2O_3 (C) $CuSO_4$ and CuO

(B) $K_2Cr_2O_7$ (D) Na_2SO_4 and NaCl

(10) Main raw material for manufacturing of THF is

(A) 1,4-dibromo butane (C) Diethylene glycol

(B) Furfural (D) Above all

(11) Non-electronic instrument is used in _____ titration.

(A) Conductometric (C) potentiometric

(B) pH (D) colorimetric

(12) _____ is used as dispersing device in UV-Visible spectroscopy.

(A) Prism (C) Slit

(B) Tungsten lamp (D) None of these

(13) Which of the following indicators is used for the potentiometric titration?

(A) Phenolphthalein (C) methyl orange

(B) EBT (D) none of these

(14) Which of the following is not used as carrier gas in gas chromatography?

(A) He (C) Ar

(B) Ne (D) Cl

(15) Which polarizing prism used in polarimeter?

(A) Nicol-prism

(B) Glan–Thompson prism

(C) (A) and (B) both

(D) None of these

(16) _____ is used as indicator electrode in potentiometric titration.

(A) Calomel electrode (C) H_2/Pt electrode

(B) All (D) Hydrogen electrode

(17) _____ is used in NMR Spectroscopy.

(A) Magnet (C) Deuterium lamp

(B) Prism (D) Hydrogen discharge lamp

(18) Which of the following detectors is used in the gas chromatography?

(A) FID (C) AED

(B) TCD (D) All of these

(19) Which prism is commonly used in Polarimeter?

(A) Nicol prism (C) Rochelle salt

(B) Glass (D) Lead crystal

(20) Applications of Citronellol is in

(A) Food Industry

(B) Mosquito repellent cream

(C) Bakery industry

(D) All of the above

2 (a) Answer any Three : **9**

(1) Enlist various uses of baking soda.

(2) Give properties and uses of Potassium bromide.

(3) Give manufacturing reaction, uses and properties of DMF.

(4) Give any two applications of polarimeter.

(5) Define the terms (i) Specific resistance and (ii) pH

(6) Give the principle of (i)Polarimetry (ii) Conductometric titration

(b) Answer any Three : **9**

(1) Explain about Perchloric acid.

(2) Explain about Karl-Fischer reagents.

(3) Define with examples isolates, synthetics and semi-synthetics.

(4) Explain application for UV spectroscopy.

(5) Write short note on Thermal conductivity detector in gas chromatography

(6) Give advantages of conductometric titration

(c) Answer any Two : **10**

1) Write a short note on Emulsifiers.

2) Write manufacturing process of mono,di and tri ethanol-amine.

3) Explain Solvay process in detail.

4) Draw the diagram of a UV-Visible Spectrophotometer & explain its various parts.

5) Explain construction and working of NMR spectroscopy.

3 (a) Answer any Three : **6**

1) Write four uses of triethanolamine.

2) Give manufacturing reaction, uses and properties of THF.

3) Give properties and uses of Potassium dichromate.

4) Any four applications of IR spectroscopy.

5) Define the terms :

(i) Spectroscopy

(ii) Chromatography

(ii) HPLC.

6) Write principle of (i) Infrared spectroscopy (ii) HPLC

(b) Answer any Three : **9**

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

2) Give manufacturing reaction, uses and properties of Sulfone.

3) Give manufacturing reaction, uses and properties of N-methyl-2-pyrolidone.

4) Write the applications of NMR spectroscopy.

5) Write the uses of HPLC.

6) State the principle of potentiometric titration.

(c) Answer any Two : **10**

1) Write a short note on Food additives.

2) Write manufacturing process of Carbon tetrachloride.

3) Explain manufacturing of Ethanol in detail.

4) Explain working of refractrometer with diagram

5) Write a short note on HPLC.
