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RA-0719

Second Year B. Sc. Examination

March / April – 2010

Industrial Chemistry (Vocational) : Paper - IV

(Unit Process in Organic Chemicals Manufacture - I)

Time : Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **S. Y. B. Sc.**

Name of the Subject :

☛ **Industrial Chemistry (Vocational) : Paper - 4**

☛ Subject Code No. : **0 7 1 9** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) All questions of question no. **1** are **compulsory**.
(3) Give diagrams, figures and equations wherever **necessary**.
(4) Figures to the **right** indicate full marks of questions.

1 Answer the following questions in short : **15**

(i) Differentiate unit operations and unit process.
(ii) How iodination can be carried out?
(iii) Define nitration. Enlist different nitrating agents.
(iv) give conversion of nitro benzene and m-dinitrobenzene from benzone.
(v) Define COD.
(vi) Explain the term effluent.
(vii) Enlist **two** different chlorinating agents.
(viii) Give one merit and demerit of wet collector.
(ix) How water is taken out from the sludge?
(x) Complete the following reactions :
(a) $CH_3COOH + Cl_2 \rightarrow ?$
(b) $C_2H_5OH + HCl \xrightarrow[FeCl_3]{} ?$
(xi) What is rubbish? Give its examples.
(xii) Give important use of dry ice.
(xiii) Define Gerobic sewage.
(xiv) What is liquification of gases?
(xv) State the D.V.S's formula.

2	(a)	Explain steam hydrocarbon reforming process.	4
		OR	
	(a)	Give industrial manufacturing of oxygen and nitrogen by claude process.	4
	(b)	Discuss industrial manufaturing of acetylene by calcium carbide method.	4
		OR	
	(b)	Write a note on shift conversion.	4
	(c)	Describe production of hydrogen from synthetic gas.	3
3	(a)	Explain gas phase reaction for nitration of parafinic hydrocarbons.	4
		OR	
	(a)	Explain industrial nitration of mononitrotoluene.	4
	(b)	Write a note on continuous nitration with fortified spent acid.	4
		OR	
	(b)	Discuss the preparation and separation of ortho and parachloronitrobenzene.	4
	(c)	Describe the methods for the production of p-nitroacetanilide.	3
4	(a)	Give the kinetics of halogenation.	4
		OR	
	(a)	Describe fluorination of hydrocarbon.	4
	(b)	Enlist the different sulphonating agents and explain the physiochemical factors in sulphonation.	4
		OR	
	(b)	With a neat flow-diagram describe the commercial preparation of Freon-12.	4
	(c)	Describe commercial sulphonation to naphthalene.	3
5	(a)	What is anaerobic digestion of sewage? Explain various biochemical activities involved in it.	4
		OR	
	(a)	Discuss tricking, filter and biological treatment of sewage using it.	4
	(b)	Explain primary and secondary sedimentation equipments.	4
		OR	
	(b)	How strength of sewage and quality of sewage effluent is described? Explain.	4
	(c)	Discuss about dewatering of sewage sludge and its disposal to land.	3

6 (a) Enlist the different methods of disposal of solid waste. Discuss one of them. **4**

OR

(a) Explain about recycling of metals and alloys. **4**

(b) Explain the terms pyrolysis and pyrophoric wastes. **4**

OR

(b) Discuss merits and demerits of electrostatic precipitator. **4**

(c) Write a note on "absorbers". **3**
