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RE-5373

M. Sc. (Part - II) Examination

April / May – 2010

Industrial Chemistry (Self Finance) : Paper - I

(Chemistry in Industry)

Time : **3** 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 :

☛ M. SC. - 2

Name of the Subject :

☛ INDUSTRIAL CHEMISTRY (SELF FINANCE) - 1

☛ Subject Code No. : 3 3 7 3 ☛ Section No. (1, 2,.....) : 1&2

Seat No. :

Student's Signature

(2) Attempt all the six questions.

(3) Figures to the right indicate full marks.

SECTION - I

1 (a) Deine and explain unit processes and unit operations. Describe industrial uses of sulfonation. Explain sulfonation of benzene. **6**

(b) Describe halogenation reactions with examples. Explain chlorination of toluene and naphthalene. **6**

OR

1 (a) Define nitration and describe nitration of naphthalene. Write synthesis of any three explosives. **6**

(b) Describe different reduction methods for the preparation of amines. Explain giving reactions. **6**

2 (a) Derive an expression for rate of heat flow through an infinite slab with thickness b, and thermal conductivity k. **6**

(b) Describe qualitative and quantitative risk assessment. **5**

OR

2 (a) What is stoichiometry? Write and balance the overall equation for the manufacture of vinyl chloride from ethylene, Cl_2 and O_2. **6**

(b) Describe different methods for waste disposal. **5**

3 (a) Describe waste minimization in context to green chemistry. **6**

(b) Define supercritical fluids. Write application of supercritical CO_2 in drycleaning and decaffenation of coffee. **6**

OR

3 (a) Explain Knoenvenagel condensation in context to green chemistry. **6**

(b) Write conventional and green synthesis of methyl methacrylate. **6**

SECTION - II

4 (a) What are ionizing and nonionizing radiations? Describe the effect of ionizing radiation. **4**

(b) Write the sources of pollutants NO_x, SO_x, and CO_x. **4**

(c) What is chemical speciation? Describe with suitable examples. **4**

OR

4 (a) Write a note on Global warming. **4**

(b) Give an account on nuclear fallout. **4**

(c) Write a note on water quality parameters. **4**

5 (a) Discuss the various types of fertilizers. **4**

(b) Define the terms soaps and detergents. Explain the advantages of detergents over soaps. **4**

(c) Describe with examples the function of pigments, volatile vehicle and binders in paint industries. 4

OR

5 (a) Write notes on fermentation and its applications. 4

(b) Explain hydrogenation of oils. 4

(c) What are paints? Describe their classification. 4

6 (a) Write note on synthetic detergents. 4

(b) Discuss carbamate pesticides. 3

(c) What are explosives? How are they classified? Explain with examples. 4

OR

6 (a) What are surfactants? Give their classification with examples. 4

(b) Write synthesis of Dynamite and Picric acid. 4

(c) What are pesticides? How are they classified? Explain with examples. 3