Exam. Code: 0003
Sub. Code: 0277

1127

B.A./B.Sc.(General)-3rd Semester

Industrial Chemistry

Paper-A: Material Science

Time allowed: 3 Hours | Max. Marks: 75

NOTE: *Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I-IV.*

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UNIT – I

I. (a) What is the purpose of making alloys? Explain with the help of different types of alloy steels. (Atleast three examples)

(b) Explain the manufacturing process of cement and their applications. (8+7)

II. Explain briefly with examples: -

(a) Moulding of plastics

(b) Mercerization

(c) Polymer initiators (3×5)

UNIT – II

III. (a) Explain kinetics & mechanism of nitration of paraffinic hydrocarbons.

(b) Give a detailed account of different nitrating agents with significance. (8+7)

IV. (a) How can you manufacture monochloroacetic acid commercially?

(b) Explain kinetics of nuclear and side chain halogenation of aromatic compounds. (8+7)

UNIT – III

V. Give the descriptive mechanism of: -

(a) Liquid phase oxidation

(b) Oxidising agents

(c) Mechanism of hydrolysis (3×5)

VI. How can you manufacture commercially?

(a) Mallic anhydride

(b) Benzoic acid

(c) Ethyl acetate (3×5)

UNIT – IV

VII. Describe briefly commercial manufacture of: -

(a) Aniline

(b) O-alkyl benzene

(c) N-alkyl aniline (3×5)

P.T.O.

VIII. (a) How can you manufacture methanol from carbon monoxide and hydrogen?

(b) Give a detailed account of methods of reduction in organic materials. (7+8)

UNIT-V

IX. (a) How electrical and thermal conductivity of materials changes with respect to temperature?

(b) Give a brief review of reagem for hydrolysis.

(c) What do you know about hydrogenation of vegetable oils?

(d) What is setting of cement?

(e) Explain briefly halogenating agents. (5×3)

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