



H-003-001537 Seat No. _____
Third Year B. Sc. (Sem. V) (CBCS) Examination
May / June - 2017
IC-501 : Industrial Chemistry

Faculty Code : 003
Subject Code : 001537

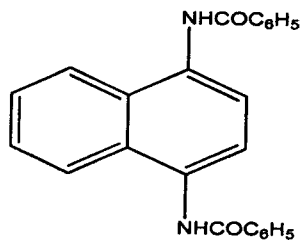
Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :**
- 1) All the questions are compulsory
 - 2) Figures to the right indicate maximum marks.
 - 3) Draw labeled diagram wherever necessary.
 - 4) Assume suitable data.
 - 5) Question-1 carries 20 marks.
 - 6) Question-2 and 3 carries 25 marks each.

- 1 Answer the following questions. **20**
1. In manufacturing of styrene, Benzene and Ethylene is charged in packed bed reactor in the molar ratio of _____
 2. In manufacturing of Hydrogen cyanide, which scrubbing liquid is used?
 3. In which proportion, methane and oxygen are fed in the reactor in methanol production?
 4. What is the purpose of methanator in SNG production?
 5. Adipic acid is monomer for the production of Nylon-6. - True/False
 6. In shift converter, which main reaction occurs?
 7. Which parameters must be considered during synthesis of propylene oxide to avoid side product ?
 8. In production of butadiene, Butadiene is extracted with _____ Solvent.
 9. Enlist uses of Glycerol.
 10. To separate iso-butane and iso-butene, extractive distillation is used. True/False
 11. Give one example of Natural dye.

12. Which theory is also known as 'Chromophore - Auxochrome' theory?
13. Who defined Reactive dyes?
14. Give one example of Acid dye?
15. Enlist various Effluent Treatment Plant equipments.



16. CC(=O)Nc1ccc2ccccc2c1C(=O)N is the structure of which dye?
17. Give one function of dispersing agent.
18. Caledone Jade Green can be prepared from?
19. The first VAT dye was introduced in which year?
20. Give the structure of H-acid.

- 2 (a) Answer any Three 6
- 1) Write properties and uses of Acetylene.
 - 2) Draw only diagram for manufacturing of ethylene glycol.
 - 3) By which process Acrylonitrile can be produced.
 - 4) Define: (i) Pigments (ii) White dye
 - 5) Explain: Difference between Reactive dyes and Direct dyes (any four)
 - 6) Give : limitations of poor plant layout.
- (b) Answer any Three 9
- 1) Write properties, chemical reaction and uses of Carbon disulphide,
 - 2) Draw only process flow diagram for glycerin,
 - 3) Write chemical reaction of α -naphthal and β -naphthol from Naphthalene.
 - 4) Give reason: Ethylene is colorless but β -carotene is orange red
 - 5) Give reason: Benzene is colorless; p-Nitro aniline is pale yellow while p-Nitro aniline is dark yellow.

- 6) Explain: important data for plant scale-up and pilot plant
- (c) Answer any Two 10
- 1) Explain manufacturing of ethanol in detail.
 - 2) Describe manufacturing of Methacrylic acid in detail,
 - 3) Discuss BTX extraction in detail.
 - 4) Explain: Witt's theory in detail
 - 5) Give manufacturing of Reactive Red in detail.
- 3 (a) Answer any Three 6
- 1) Write properties and chemical reaction for Cumene.
 - 2) Give chemical reaction of TDI.
 - 3) Draw the scheme for CO production.
 - 4) Explain: Requisites of a true dye (any four)
 - 5) Give synthesis of Vat Blue 4
 - 6) Give properties of disperse dye
- (b) Answer any Three 9
- 1) Write properties and draw process flow diagram of methanol.
 - 2) Draw only process flow diagram for Natural Gas Steam Reforming.
 - 3) Write chemical reaction and uses of IPA,
 - 4) Give reason: Fuchsonimine is colorless, but Doebner's violet is colorful.
 - 5) Give synthesis of Indanthrene Yellow 4GK
 - 6) Give synthesis of Disperse Red 4.
- (c) Answer any Two 20
- 1) Explain: SNG production from Naphtha in detail,
 - 2) Discuss: Ethylene production in detail,
 - 3) Explain: Manufacturing of Indantherene Rubene-R in detail,
 - 4) Give two synthesis of Indigo
 - 5) Explain.: Molecular Orbital Theory.