



RN-003-001537

Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

February - 2019

IC-501 : Dyes-1 & Petrochemicals

Faculty Code : 003

Subject Code : 001537

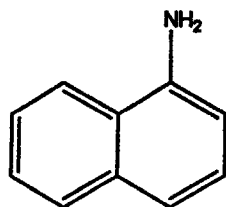
Time : $2\frac{1}{2}$ Hours]

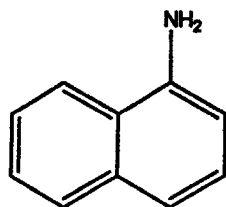
[Total Marks : 70

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

1 Answer the following questions : 20

- (1) Logwood is an example of _____ dye.
- (2) "With increase in molecular mass color deepens" concept was given by whom?
- (3) According to Molecular orbital theory $\sigma \rightarrow \sigma^*$ transition requires highest energy. True/False
- (4) Give the structure of H-acid.
- (5) Enlist various Effluent Treatment Plant equipment.



- (6)  is the structure of which dye intermediate?
- (7) Give one function of dispersing agent.
- (8) Dibenzathrone can be prepared from?
- (9) Give one example of Basic azo dye.
- (10) Who defined Reactive dye?
- (11) Enlist uses of styrene.

- (12) In manufacturing of Cumene, Benzene and olefin are mixed in the ratio of _____.
- (13) β – naphthol is used as insecticide Sevin. True/False.
- (14) In acetylene production, which solvent is used in absorber?
- (15) Enlist uses of iso-butanol.
- (16) In manufacturing of Butadiene from n-butane, _____ use as catalyst.
- (17) Enlist uses of Toluene diisocyanate.
- (18) In manufacturing of ethanol, phosphoric acid used as catalyst. True/False.
- (19) Mixture of Hydrogen and Carbon monoxide is designated as _____.
- (20) Adipic acid is monomer for the production of Nylon –6 (True/False)

2 (A) Answer any Three : 6

- (1) Enlist properties and uses of ethylene oxide.
- (2) Give chemical reaction for Glycerol.
- (3) Give chemical reaction and uses of Dimethyl terephthalate (DMT).
- (4) Explain: p-Amino azobenzene is yellow but in acidic solution it becomes violet.
- (5) Define : (i) White dyes, (ii) Pigment.
- (6) Explain: Mordant dyes in brief.

(B) Answer any Three : 9

- (1) Draw scheme for CO & H₂ production.
- (2) Enlist properties and uses of methanol.
- (3) Draw only process flow diagram for linear alkyl benzene and its sulphonates.
- (4) Give the synthesis of Disperse Red 4.
- (5) Give limitations of poor plant layout.
- (6) Give synthesis of Thioindigo.

- (C) Answer any **Two** : **10**
- (1) Explain manufacturing of Ethylene in detail.
 - (2) Explain manufacturing of Bis-Phenol A in detail.
 - (3) Discuss manufacturing of Acrylic acid with process flow diagram in detail.
 - (4) Explain: Witt's Theory in detail.
 - (5) Explain: Manufacturing of Indanthrene Rubene-R in detail.
- 3** (A) Answer any **Three** : **6**
- (1) Give chemical reaction for manufacturing of Acetic Acid.
 - (2) Enlist properties and uses of Maleic anhydride.
 - (3) Give chemical reaction for Phthalic anhydride from oxidation of Naphthalene.
 - (4) Explain: Fuchsonimine is colorless but Doebner's violet is colorful.
 - (5) Define : (i) Disperse dye, (ii) Reactive dye.
 - (6) Explain: VAT dyes in brief.
- (B) Answer any **Three** : **9**
- (1) Draw only process flow diagram for Natural gas steam reforming.
 - (2) Give chemical reaction and properties for propylene oxide.
 - (3) Draw process flow diagram and uses of Carbon disulphide.
 - (4) Give synthesis of Indanthrene Brown RRD.
 - (5) Give synthesis of Caledone Jade Green.
 - (6) Explain: Ethylene is colorless but (3-Carotene is Orange red.
- (C) Answer any **Two** : **10**
- (1) Explain SNG production from Naphtha in detail.
 - (2) Explain manufacturing of Hydrogen cyanide in detail.
 - (3) Explain: Manufacturing of Reactive Red in detail.
 - (4) Discuss: Molecular Orbital Theory in detail.
 - (5) Give any two synthesis of Indigo.