



HCL-003-001537 Seat No. \_\_\_\_\_

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

October - 2017

IC - 501 : Dye - 1 & Petrochemicals

Faculty Code : 003

Subject Code : 001537

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

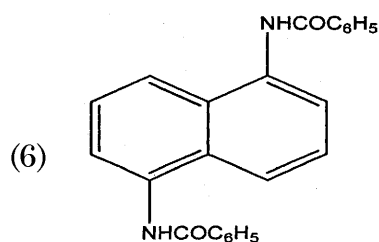
[Total Marks : 70

**Instructions :**

- (1) All questions are compulsory.
- (2) Figures to the right indicate maximum marks.
- (3) Draw labelled 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) Royal Purple or Tyrian purple is an example of \_\_\_\_\_ dye.
- (2) "Depth of the color depends on the length of conjugated chain" theory was given by ?
- (3) According to Molecular orbital theory which transition requires lowest energy ?
- (4) Give the structure of H-acid.
- (5) Enlist various Effluent Treatment Plant equipments.



- (7) Give one function of dispersing agent.
- (8) Caledone Jade Green can be prepared from ?
- (9) Give one example of Acid dye.
- (10) The first member of Disperse dye was introduced in which year ?
- (11) Which solvent can be used for extraction of BTX ?
- (12) Which raw material is used in the manufacturing of BisPhenol-A ?
- (13) Which scrubbing liquid is used in hydrogen cyanide production ?
- (14) In manufacturing of ethylene oxide, \_\_\_\_\_ catalyst is used.
- (15) What is the purpose of methanator in SNG production ?
- (16) Enlist uses of styrene.
- (17) In manufacturing of Cumene, Benzene and olefin stream are mixed in the ratio of \_\_\_\_\_.
- (18) Which catalysts are involved in the manufacturing of Glycerol ?
- (19) In manufacturing of acrylic acid, oxidation can be controlled by admission of \_\_\_\_\_.
- (20) Which unit process involved in the production of iso-butanol ?

2 (a) Answer any three :

6

- (1) Write properties and uses of Toluene diisocyanates.
- (2) Draw process scheme for carbon monoxide production.
- (3) Enlist properties and uses of methanol.
- (4) Explain : VT dyes in brief.
- (5) Define : (i) Disperse dye (ii) Reactive dye.
- (6) Explain : p-Amino azobenzene is yellow but in acidic solution it becomes violet.

- (b) Answer any three : 9
- (1) Draw only process flow diagram of SNG production from naphtha.
  - (2) Write a chemical reaction involved in iso-propanol.
  - (3) Draw process flow diagram for manufacturing of Acrylonitrile.
  - (4) Explain : Fuchsonimine is colorless but Doebner's violet is colourful.
  - (5) Give limitations of poor plant layout.
  - (6) Give synthesis of Indanthrene Brown RRD.
- (c) Answer any two : 10
- (1) Explain manufacturing of Acetylene in detail.
  - (2) Give an account of Vinyl acetate monomer in detail.
  - (3) Explain natural gas steam reforming for synthesis gas in detail.
  - (4) Explain : Witt's Theory in detail.
  - (5) Explain : Manufacturing of Reactive Red in detail.
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- 3 (a) Answer any three : 6
- (1) Discuss ethylene glycol in brief.
  - (2) Write a chemical reaction and properties of Maleic anhydride.
  - (3) Write a chemical reaction and uses of propylene oxide.
  - (4) Explain : Ethylene is colourless but  $\beta$ -Carotene is Orange red.
  - (5) Define : (i) White dyes (ii) Pigment
  - (6) Explain : Acid dyes in brief.

(b) Answer any three : 9

- (1) Write a chemical reaction for acetic acid.
- (2) Draw only process flow diagram for manufacturing of Adipic acid.
- (3) Write properties, chemical reaction and uses of Carbon disulphide.
- (4) Give synthesis of Thioindigo.
- (5) Give synthesis of Caledone Jade Green.
- (6) Give the synthesis of Disperse Red 4.

(c) Answer any two : 10

- (1) Discuss manufacturing of Caprolactum in detail.
  - (2) Explain manufacturing of Ethylene in detail.
  - (3) Explain : Manufacturing of Indanthrene Rubene-R in detail.
  - (4) Explain : Valence Bond Theory in detail.
  - (5) Give any two synthesis of Indigo.
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