



MCP-003-001537 Seat No. _____

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

May / June - 2018

IC - 501 : Dye - 1 & Petrochemicals

Faculty Code : 003

Subject Code : 001537

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

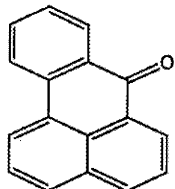
[Total Marks : 70

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

1 Answer the following questions : **20**

- (1) Which catalysts are used in synthesis of ethanol?
- (2) Which of the compound can favor the production of methanol when added in methane stream?
- (3) Reaction is exothermic in nature in manufacturing of styrene. True/False
- (4) In manufacturing of Cumene, Benzene and olefin stream is charged in packed bed reactor in the molar ratio of _____.
- (5) Bisphenol-A is a monomer for the production of Epoxy resins. True/False
- (6) Adipic acid is a monomer for the production of Nylon-6. True/False
- (7) In Naphtha steam reforming, what is the meaning of LTS?
- (8) To separate i-butane and i-butene, Extractive distillation is used. True/False
- (9) Why N_2 is introduced in manufacturing of acetic acid?
- (10) Carbon monoxide and hydrogen mixture known as _____.

- (11) Give one example of Basic dye.
- (12) 'Chromophore - Auxochrome' theory was given by _____.
- (13) According to Molecular Orbital theory _____ transition requires highest energy.
- (14) Logwood is an example of Synthetic dye. True/False
- (15) Color fastness can be denoted on the scale from _____ to _____.



- (16) _____ is the structure of which compound ?
- (17) Enlist various Effluent Treatment Plant equipment's.
- (18) Give the structure of Algal yellow.
- (19) Give one function of dispersing agent.
- (20) Enlist various types of dyeing process.

2 (A) Answer Any Three :

6

- (1) Write chemical reaction for ethylene oxide.
- (2) Write properties and chemical reaction for Acetylene.
- (3) Write chemical reaction for manufacturing of Toluene diisocyanate.
- (4) Define : (i) Dye (ii) Pigment
- (5) Explain: Difference between Reactive dyes and Direct dyes (any two)
- (6) Give any two function dispersing agent.

(B) Answer Any Three :

9

- (1) Discuss Ethylene glycol in brief.
- (2) Write chemical reaction involved in manufacturing of isopropanol (IPA).
- (3) Draw only process flow diagram for BTX Extraction from BTX crude.
- (4) Give reason: p-Amino azo benzene is yellow but in acidic solution it becomes violet.
- (5) Give reason: Ethylene is colorless but β -carotene is orange red.
- (6) Give the synthesis of Disperse Red 4

- (C) Answer Any **Two** : **10**
- (1) Discuss the manufacturing of Vinyl acetate monomer in detail.
 - (2) Explain manufacturing of butadiene in detail.
 - (3) Give an account of Natural gas steam reforming in detail.
 - (4) Explain: Molecular Orbital Theory
 - (5) Give any two synthesis of Indigo.
- 3** (A) Answer Any **Three** : **6**
- (1) Write chemical reaction and uses of Carbon disulphide.
 - (2) Draw scheme for production of CO.
 - (3) Enlist properties of Acrylonitrile.
 - (4) Explain: Requisites of a true dye (any four)
 - (5) Give synthesis of Flavanthrone
 - (6) Enlist imitations of poor plant layout (any four).
- (B) Answer Any **Three** : **9**
- (1) Write properties and chemical reaction of iso-butanol.
 - (2) Draw only process flow diagram for manufacturing of Acrylic acid.
 - (3) Write chemical reaction and enlist uses of Caprolactum.
 - (4) Give reason: Benzene is colorless; p-Nitro benzene is pale yellow while p-Nitro aniline is dark yellow.
 - (5) Give synthesis of Indanthrene Yellow 4GK.
 - (6) Explain: Important data for plant scale-up and pilot plant.
- (C) Answer Any **Two** : **10**
- (1) Explain manufacturing of Adipic acid in detail.
 - (2) Explain manufacturing of Ethylene in detail.
 - (3) Explain: Manufacturing of Indanthrene Rubene-R in detail.
 - (4) Give manufacturing of Reactive Red in detail.
 - (5) Explain: Witt's theory in detail.