



PAP-003-001537

Seat No. _____

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

October / November - 2018

IC-501 : Dyes - 1 & Petrochemicals

Faculty Code : 003

Subject Code : 001537

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

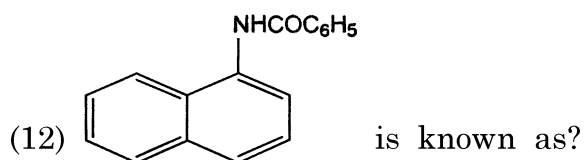
[Total Marks : 70

- Instructions :**
- (1) All the questions are compulsory.
 - (2) Figures to the right indicate maximum marks.
 - (3) Draw labeled diagram wherever necessary.
 - (4) Assume suitable data.

1 Answer the following questions : 20

- (1) In manufacturing of Carbon disulphide, the reaction is Exothermic in nature. (True/False)
- (2) Enlist uses of styrene.
- (3) Which scrubbing liquid is used in hydrogen cyanide production?
- (4) In manufacturing of isopropanol, which two unit processes are involved?
- (5) In manufacturing of Cumene, Benzene and olefin are mixed in the ratio of _____.
- (6) Enlist the uses of Butadiene.
- (7) What is the purpose of methanator in SNG production?
- (8) Which raw material is used in the manufacturing of BisPhenol-A?
- (9) Adipic acid is a monomer for the production of _____.
- (10) In manufacturing of ethanol, phosphoric acid used as catalyst. (True/False).

(11) Give one example of Natural dye.



(13) Picric acid is an example of _____ dye.
(Natural/Synthetic)

(14) Who defined reactive dye?

(15) Give the structure of cyanuric chloride.

(16) What is the range to measure Color fastness properties in a scale?

(17) Dyes can be attached to the fiber by which types of forces (give any one)

(18) Who gives the concept of "Depth of the color depends on the length of conjugated chain"?

(19) The first member of disperse dye was introduced in which year?

(20) The energy required for $\sigma \rightarrow \sigma^*$ transition is the lowest.
(True/False)

2 (a) Answer any **three** :

6

(1) Give chemical reaction and uses of ethylene oxide.

(2) Enlist properties of glycerol.

(3) Draw only process flow diagram for BTX separation.

(4) Give properties of disperse dye (any four)

(5) Give limitations of poor plant layout (any four)

(6) Explain: Difference between Reactive dyes and Direct dyes (any two)

(b) Answer any **three** : **9**

- (1) Draw process flow diagram for manufacturing of Acetylene.
- (2) Give chemical reaction and properties for propylene oxide.
- (3) Draw scheme for CO and H₂ production.
- (4) Give synthesis of Indanthrene Brown RRD.
- (5) Give important data for plant scale-up.
- (6) Give synthesis of Indanthrene Yellow 4GK.

(c) Answer any **two** : **10**

- (1) Give two synthesis of Indigo.
- (2) Explain: Witt's theory in detail.
- (3) Explain manufacturing of methanol in detail.
- (4) Discuss manufacturing of Acrylic acid with process flow diagram in detail.
- (5) Explain manufacturing of Caprolactum in detail.

3 (a) Answer any **three** : **6**

- (1) Draw process flow diagram for Ethylene glycol.
- (2) Enlist properties and uses of Maleic anhydride.
- (3) Give chemical reaction and uses of Dimethyl terephthalate (DMT).
- (4) Define: (i) Fastness Property (ii) Pigment.
- (5) Define: (i) Reactive dye (ii) Disperse dye.
- (6) Explain: p-Amino azo-benzene is yellow but in acidic solution it becomes violet.

(b) Answer any **three** : **9**

- (1) Give Chemical reaction for Vinyl Acetate Monomer (VAM).
- (2) Give chemical reaction and uses of Toluene Diisocyanates.
- (3) Draw only process flow diagram for SNG production from Naphtha.
- (4) Give synthesis of Disperse Red 4.
- (5) Give reason: Ethylene is colorless but β -carotene is orange red in color.
- (6) Explain: VAT dye.

(c) Answer any **two** : **10**

- (1) Explain manufacturing of Ethylene in detail.
 - (2) Explain natural gas steam reforming in detail.
 - (3) Explain: Valence Bond Theory.
 - (4) Explain: Manufacturing of Indanthrene Rubene-R.
 - (5) Explain: Manufacturing of Reactive Red.
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