



**JV-003-001537**

Seat No. \_\_\_\_\_

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

**October - 2019**

**IC-501 : Dyes-1 & Petrochemicals**

**Faculty Code : 003**

**Subject Code : 001537**

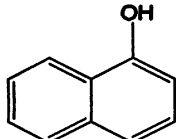
Time : **2:30** Hours]

[Total Marks : **70**

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

**1** Answer the following questions : **20**

- (1) Indigo is an example of \_\_\_\_\_ dye.
- (2) "Color of a substance is due to quinonoid condition" concept was given by?
- (3) According to Molecular orbital theory  $n \rightarrow \sigma^*$  transition requires highest energy.  
(True/False)
- (4) Give the structure of H-acid
- (5) Enlist various effluent treatment plant equipments.

- (6)  is the structure of which dye intermediate?

- (7) Give one function of dispersing agent.
- (8) Who defined Reactive dye?
- (9) Dibenzathrone can be prepared from?
- (10) Give one example of Acid azo dye.

- (11) Which solvent can be used for extraction of BTX ?
- (12) Enlist uses of Ethylene.
- (13) What is HTS & LTS in Natural gas Steam reforming?
- (14) In manufacturing of ethylene oxide, \_\_\_\_\_ catalyst is used.
- (15) \_\_\_\_\_ is the intermediate product of the manufacturing of acetic acid from ethylene.
- (16)  $\alpha$ -naphthol is used as insecticide Sevin.  
(True/False)
- (17) Methacrylic acid is synthesized from \_\_\_\_\_.
- (18) Which catalysts are involved in the manufacturing of Glycerol?
- (19) In manufacturing of acrylic acid, oxidation can be controlled by admission of \_\_\_\_\_.
- (20) In manufacturing of isobutanol, which two unit processes are involved?

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

6

- (1) Give chemical reaction for manufacturing of Acetic Acid.
- (2) By which processes, Acrylonitrile can be produced?
- (3) Give chemical reaction for Phthalic anhydride from oxidation of Naphthalene.
- (4) Explain : Basic dyes in brief.
- (5) Define: (i) Direct dye, (ii) Oxidation dye.
- (6) Explain: Acetone is colorless while biacetyl is yellow in color.

- (b) Answer any **three** : **9**
- (1) Draw process flow diagram and uses of Carbon disulphide.
  - (2) Give chemical reaction and uses of toluene diisocyanates.
  - (3) Draw only process flow diagram for manufacturing propylene oxide.
  - (4) Explain: Ethylene is colorless but  $\beta$ -Carotene is Orange red.
  - (5) Give synthesis of Indanthrene Yellow 4GK
  - (6) Give limitations of poor plant layout.
- (c) Answer any **two** : **10**
- (1) Explain manufacturing of Hydrogen cyanide in detail.
  - (2) Discuss manufacturing of Maleic anhydride in detail.
  - (3) Discuss SNG Production via partial oxidation in detail.
  - (4) Discuss: Molecular Orbital Theory in detail.
  - (5) Give any two synthesis of Indigo.
- 3** (a) Answer any **three** : **6**
- (1) Enlist properties and uses of methanol.
  - (2) Write a chemical reaction for  $\beta$ -naphthol from naphthalene.
  - (3) Enlist properties and uses of butadiene.
  - (4) Explain : p-Nitro phenol is colorless but in yellow in alkaline solution
  - (5) Define : (i) Fastness Properties, (ii) Dye
  - (6) Explain: VAT dyes in brief.

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

- (1) Draw only process flow diagram for manufacturing of Cumene.
- (2) Give chemical reaction for styrene production.
- (3) Draw only process flow diagram for Naphtha steam reforming.
- (4) Give the synthesis of Disperse Red 4.
- (5) Give synthesis of VAT blue 4.
- (6) Give synthesis of Caledone Jade Green.

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

- (1) Explain manufacturing of caprolactum in detail.
  - (2) Discuss manufacturing of Acetylene in detail.
  - (3) Explain : Manufacturing of Indanthrene Rubene-R in detail.
  - (4) Describe : Witt's theory in detail.
  - (5) Explain : Manufacturing of Reactive Red in detail.
-