

**Examination October / November – 2019**  
**B.Sc. Semester – V**  
**Industrial Chemistry: Paper – ICHCC – 503, Code: 21508**  
**Subject Title: Study of various unit processes - II**

**Time: 2.30 hr]****[Total Marks: 70**

- Que.1 (A) Discuss industrial production of p-nitro aniline by amination. [14]
- OR
- Que.1 (A-I) Discuss industrial production of aniline. (Without flow sheet) [07]
- (A-II) Give industrial application of urea and N-methyl aniline. [07]
- Que.1 (B) Give the answer of following question. (Any four) [04]
- (1) Which catalyst is use for conversion of acrolein to N-propylene?  
 (a) H<sub>2</sub> (b) NH<sub>3</sub> gas (c) NH<sub>3</sub> liquid (d) None of these
- (2) Which catalyst is use for production of aniline?  
 (a) Copper oxide (b) Cuprous dioxide (c) Copper dioxide (d) Cuprous oxide
- (3) At which temperature N-methyl aniline produced?  
 (a) 180 °C (b) 188 °C (c) 280 °C (d) 215 °C
- (4) Give molecule.ar formula of carbon disulphide.  
 (a) CS (b) CS<sub>3</sub> (c) C<sub>2</sub>S (d) CS<sub>2</sub>
- (5) Give molecular formula of crotonaldehyde.
- (6) Which compound is obtained from dithiocarbamates?
- Que.2 (A) What is hydrogenation? Discuss high pressure autoclave in detail. [14]
- OR
- Que.2 (A-I) Discuss industrial production of methanol. (Without flow sheet) [07]
- (A-II) Give industrial application of cotton seed oil and methanol. [07]
- Que.2 (B) Give the answer of following question. (Any four) [04]
- (1) Which equipment is used to remove foul smell of any compound?  
 (a) Charcoal tank (b) Chilling tank (c) Decolourizer (d) None of these
- (2) What temperature is required for hardning of fat?  
 (a) 100 – 250 °C (b) 100 – 290 °C (c) 100 – 200 °C (d) 150 – 250 °C
- (3) Which equipment is used to get pure methanol from crude?  
 (a) Distillation (b) Filtration (c) Crystallization (d) All
- (4) Hydrogen is available from hydrocarbon by \_\_\_\_\_ process.  
 (a) 1 (b) 2 (c) 3 (d) 4

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- (5) Which catalyst is used in Oppanauer Oxidation reaction?
- (6) Which process is use for conversion of hydrocarbon to hydrogen?
- Que.3 (A) Discuss industrial production of polyethylene terephthalate. [14]
- OR
- Que.3 (A-I) Give industrial application of cellulose acetate and vinyl acetate. [07]
- (A-II) What is esterification? Explain it. [07]
- Que.3 (B) Give the answer of following question. (Any three) [03]
- (1) Which of following first manufacture nitro glycerine?  
 (a) Morio Biazzi (b) Maxico (c) Herman (d) All
- (2) Which catalyst is used for manufacturing of vinyl acetate?  
 (a) Zn (b) Mg (c) Zn acetate (d) MgO
- (3) What is the molecular formula of Palmitic acid?  
 (a)  $C_{16}H_{32}COOH$  (b)  $C_{15}H_{31}COOH$  (c)  $C_{16}H_{31}COOH$  (d)  $C_{15}H_{32}COOH$
- (4) Which mixed acid is used for manufacturing of nitro glycerine?
- (5) Give full name of DMTP.
- Que.4 (A) What is hydrolysis? State and explain industrial application of ethanol. [14]
- OR
- Que.4 (A-I) Discuss industrial production of ethyl benzene and tetra ethyl lead. [07]
- (A-II) Write a note on alkylating agents. [07]
- Que.4 (B) Give the answer of following question. (Any three) [03]
- (1) What is the boiling point of phenol?  
 (a)  $180^{\circ}C$  (b)  $190^{\circ}C$  (c)  $182^{\circ}C$  (d)  $205^{\circ}C$
- (2) Which of following is used as hydrolysing agent?  
 (a)  $H_2O$  (b)  $MnO_2$  (c)  $CaO$  (d)  $MgO$
- (3) Which acid is used for manufacturing of glycerol?  
 (a)  $HOCl$  (b)  $H_2SO_4$  (c)  $HNO_3$  (d)  $HCl$
- (4) How many types of hydrolysis reactions occur in industry?
- (5) Which process is used for manufacturing of furfural?