



**AAV-003-001416**      Seat No. \_\_\_\_\_  
**Second Year B. Sc. (Sem. IV) (CBCS) Examination**  
**April / May - 2016**  
**IC.P-401 - Industrial Chemistry**

**Faculty Code : 003**  
**Subject Code : 001416**

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

[ Total Marks : 70

- Instructins :**
- (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 MCQ and should be written in the same answer sheet.
  - (6) Question - 2 and 3 carries 25 marks each.

**1 MCQ :**

**20**

- (1) Term mixed acid in nitration process represents mixture of \_\_\_\_\_
  - (A)  $\text{HCl} + \text{H}_2\text{SO}_4$
  - (B)  $\text{CH}_3\text{COOH} + \text{HCl}$
  - (C)  $\text{HNO}_3 + \text{H}_2\text{SO}_4$
  - (D) All above
- (2) Which compound has rose like odour?
  - (A) Phenyl Ethyl Alcohol
  - (B) N,N-Diethyl Aniline
  - (C) Aniline
  - (D) Toluene

- (3) For conversion of benzene to dodecyl benzene, which reaction condition is favourable?
- (A)  $\text{FeCl}_3$  and  $83^\circ\text{C}$
  - (B)  $\text{AlCl}_3$  and  $83^\circ\text{C}$
  - (C)  $\text{FeCl}_3$  and  $183^\circ\text{C}$
  - (D)  $\text{AlCl}_3$  and  $183^\circ\text{C}$
- (4) Isomers of dinitrobenzene are separated by
- (A) HCl wash
  - (B) NaOH wash
  - (C)  $\text{H}_2\text{O}$  wash
  - (D)  $\text{Na}_2\text{CO}_3$  wash
- (5) During manufacturing of Dioctyl Phthalates water is produced, which remove by use of \_\_\_\_\_ as an azeotropic breaker?
- (A) Acetone
  - (B) Ethanol
  - (C) Xylene
  - (D) Benzene
- (6) Which catalyst is suitable for manufacturing of vinyl acetate from acetylene and acetic acid?
- (A) Sodium amalgam
  - (B) Sodium sulphate
  - (C) Zinc acetate
  - (D) Magnesium chloride
- (7)  $\text{R} - \text{NO}_2 + 3\text{Na}_2\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{R} - \text{NH}_2 + 3\text{Na}_2\text{SO}_4$ ; this method is known as \_\_\_\_\_
- (A) Bechamp method
  - (B) Piria method
  - (C) Lucas method
  - (D) Kart method

- (8) Which types of iron are used in Bechamp-reduction reaction?
- (A) Finely divided iron
  - (B) Soft iron
  - (C) grey cast iron
  - (D) All above
- (9) \_\_\_\_\_ used against rats and mice.
- (A) Rodenticides
  - (B) Nematicides
  - (C) Molluscides
  - (D) All of the above
- (10) The efficiency of the Aerated lagoon for BOD removal is \_\_\_\_\_.
- (A) 25-30%
  - (B) 45-50%
  - (C) 70-95%
  - (D) None of the above
- (11) Most clocks are \_\_\_\_\_ instruments.
- (A) Indicating
  - (B) Recording
  - (C) Transmitting
  - (D) None
- (12) Iron oxide is used to manufacture \_\_\_\_\_ colour glass.
- (A) Golden yellow
  - (B) Grey
  - (C) Green
  - (D) Opal
- (13) \_\_\_\_\_ is used for manufacturing of glass.
- (A) Tank furnace
  - (B) Electric arc furnace
  - (C) Open hearth furnace
  - (D) Reverberatory furnaces

- (14) 99.5% Silica glass is also known as \_\_\_\_\_
- (A) Vitreosil
  - (B) Borosilicate
  - (C) Polycrystalline
  - (D) None
- (15) Which glass is known as shatter and shock proof glass?
- (A) Soda lime glass
  - (B) Laminated glass
  - (C) Flint glass
  - (D) Lead glass
- (16) Mcleod gauge is widely used to measure \_\_\_\_\_
- (A) Viscosity
  - (B) Temperature
  - (C) Liquid level
  - (D) Pressure
- (17) Which of the following waste water treatment known as Biological treatment?
- (A) Primary
  - (B) Secondary
  - (C) Tertiary
  - (D) Quaternary
- (18) How many days required for the standardized of the BOD in the Sewage water?
- (A) 5 Days
  - (B) 10 Days
  - (C) 3 Days
  - (D) 2 Days
- (19) During phase three in sanitary landfill, \_\_\_\_\_ takes place.
- (A) Acidogenic activity
  - (B) Methanogenic activity
  - (C) Pyrogenic activity
  - (D) Hydrogenic activity

(20) Heating value of Garbage is \_\_\_\_\_.

- (A)  $2.5 \times 10^6$  J/kg
- (B)  $6 \times 10^6$  J/kg
- (C)  $15 \times 10^6$  J/kg
- (D)  $20 \times 10^6$  J/kg

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

- (1) Define: Nitration and give example.
- (2) Define: Alkylation and give example.
- (3) Write down the uses of Borosilicate glass.
- (4) State the principle of Vapor Actuated Thermometer.
- (5) Define :
  - (i) DO
  - (ii) Water Pollution
- (6) Explain open dumping of solid waste in brief.

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

- (1) Explain manufacturing of m-nitro aniline from m-dinitrobenzene.
- (2) Describe manufacturing of Ethyl acetate by batch process.
- (3) Explain Annealing treatment of glass manufacturing process.
- (4) Explain Diaphragm gauge. Discuss its advantages and disadvantages.
- (5) Discuss Dissolved-air flotation system for waste water in detail.
- (6) Explain control of Thermal pollution in detail.

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

- (1) Describe various chemical and physical factors affecting to Ammonolysis.
- (2) Describe manufacturing process of Aniline from nitrobenzene.
- (3) Write down the principle, construction and working of Rotational Viscometer.
- (4) Explain in detail Mcleod gauge with appropriate diagram.
- (5) Explain Sanitary landfill in detail.

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

- (1) Define: Esterification and give example.
- (2) Define: Ammonolysis, aminolysis and hydro Ammonolysis.
- (3) Write down advantages and disadvantages of Bellows gauge.
- (4) Discuss control of Noise pollution in brief.
- (5) Write an effect of radiation pollution.
- (6) Give difference between Air pollution and Noise Pollution.

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

- (1) Describe manufacturing of N, N-Dimethyl aniline.
- (2) Describe manufacturing of P-Nitro acetanilide from acetanilide.
- (3) Write a short note on Elements of an instrument.
- (4) Explain safety glass in detail.
- (5) Explain 'Incineration of Solid waste in detail.
- (6) Discuss effects of Pesticide pollution in detail.

(c) Answer any two :

10

- (1) Describe manufacturing of Cellulose acetate.
  - (2) Describe manufacturing of Detergent.
  - (3) Describe in detail nitration of benzene by fortified spent acid for manufacturing of nitrobenzene.
  - (4) Write down the Principle, construction and working of Pressure Spring Thermometer.
  - (5) Explain Inhoff Tanks in detail.
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