



AAV-003-001416      Seat No.

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## Second Year B. Sc. (Sem. IV) (CBCS) Examination

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April / May - 2016

## **IC.P-401 - Industrial Chemistry**

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

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 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)  $\text{HCl}$  wash  
(B)  $\text{NaOH}$  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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