



**MBD-003-1014012** Seat No. \_\_\_\_\_

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

**March / April - 2018**

**BS-IC-401 : Industrial Chemistry**

**Faculty Code : 003**

**Subject Code : 1014012**

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

[Total Marks : 70

- Instructions :** (1) Question paper carries total 5 questions.  
(2) All the questions are compulsory & carry 14 marks each.  
(3) Draw labelled diagrams wherever necessary.  
(4) Assume suitable data.

- 1 (A) Answer the following questions : 4
- (1) Secondary treatment of sewage is also known as \_\_\_\_\_ treatment.
  - (2) Which filter produces insects and odour?
  - (3) Colour of fresh sewage is \_\_\_\_\_
  - (4) Moisture content available in garbage is \_\_\_\_\_ %
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Enlist classification of water pollutants.
  - (2) Draw only diagram of zigzag separator.
- (C) Answer in detail : (Any **one** out of two) 3
- (1) Discuss dissolved air flotation method for sewage with diagram.
  - (2) Write a note on total solids.
- (D) Write notes on : (Any **one** out of two) 5
- (1) Explain activated sludge system with block diagram.
  - (2) Discuss various chemical tests for sewage in detail.

- 2 (A) Answer the following questions : 4
- (1) Which pesticides are used to control undesirable fish species and other aquatic animals?
  - (2) Any unwanted electromagnetic signals that produce displeasing effect is called \_\_\_\_\_
  - (3) In manufacturing of Aniline by continuous fluid bed vapor phase reduction of nitro benzene, favorable temperature is \_\_\_\_\_ °C
  - (4) Amines can be produced by reducing which compounds?
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Explain effects of radiation in brief.
  - (2) Enlist various types of alkylation reactions.
- (C) Answer in detail : (Any **one** out of two) 3
- (1) Explain sources of pesticides in detail.
  - (2) Enlist various nitrating agents.
- (D) Write notes on : (Any **one** out of two) 5
- (1) Discuss cooling towers and cooling ponds in detail.
  - (2) Describe manufacturing process of aniline from nitrobenzene.
- 3 (A) Answer the following questions : 4
- (1) Favorable temperature in manufacturing of ethyl acetate from ethanol and acetic acid is \_\_\_\_\_ °C
  - (2) Give raw materials required for manufacturing of glycine.
  - (3) In manufacturing of vinyl acetate from acetylene, catalyst used is \_\_\_\_\_
  - (4) Solubility of reactant should be \_\_\_\_\_ in solvent during ammonolysis.
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Enlist various types of reduction methods for the preparation of amines.
  - (2) Discuss various types of esterification reactions.
- (C) Answer in detail : (Any **one** out of two) 3
- (1) Describe manufacturing of ethyl acetate by batch process.
  - (2) Explain manufacturing of m-nitroaniline from m-dinitrobenzene.

- (D) Write notes on : (Any **one** out of two) 5
- (1) Describe chemical and physical factors affecting Ammonolysis.
  - (2) Explain manufacturing of cellulose acetate.
- 4 (A) Answer the following questions : 4
- (1) Enlist functions of measuring instruments.
  - (2) Give examples of self-operated devices.
  - (3) Convert  $37^{\circ}\text{C}$  in to  $^{\circ}\text{F}$
  - (4) "Viscosity of a fluid is measurement of its resistance to flow" is this statement true or false?
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Explain dead zone and sensitivity of measuring instrument.
  - (2) Give types of orifice type viscometer
- (C) Answer in detail : (Any **one** out of two) 3
- (1) Explain in brief falling sphere viscometer.
  - (2) Draw diagram of resistance thermometer circuit.
- (D) Write notes on : (Any **one** out of two) 5
- (1) Explain pressure spring thermometer with diagram, application and uses.
  - (2) Explain Saybolt viscometer in detail with diagram.
- 5 (A) Answer the following questions : 4
- (1)  $N/m^2$  is unit of \_\_\_\_\_ measurement.
  - (2)  $P = h\delta g$ , here h stands for \_\_\_\_\_
  - (3) Enlist methods for measurement of density.
  - (4) "Density of kerosene is less than water" is this statement true or false?
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Explain Pirani gauge in detail.
  - (2) Explain in brief radiation assisted liquid level measurement.

- (C) Answer in detail : (Any **one** out of two) **3**
- (1) Explain in brief: barometer for pressure measurement.
  - (2) Explain sight glass type liquid level measurement in detail.
- (D) Write notes on : (Any **one** out of two) **5**
- (1) Explain bellows gauge with diagram, working, construction and applications.
  - (2) Explain diaphragm box type liquid level measurement in detail.
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