



PBH-003-1013012 Seat No. _____

B. Sc. (Sem. III) (CBCS) Examination

November / December - 2018

BS - IC - 301 : Industrial Chemistry

Faculty Code : 003

Subject Code : 1013012

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

[Total Marks : **70**

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

- 1** (a) Answer the following questions : **4**
- (1) Enlist types of environment.
 - (2) Atmosphere is extended to height of about _____ km from earth surface.
 - (3) Photochemical smog is also known as _____.
 - (4) Consumers are dependent on producers. True/False ?
- (b) Answer in brief : (any **one** out of two) **2**
- (1) Define air pollution with example.
 - (2) Define : (a) Symbiotic (b) Antagonist
- (c) Answer in detail : (any **one** out of two) **3**
- (1) Write a note on greenhouse effect.
 - (2) Discuss source and reaction of sulphur oxide.
- (d) Write a note on : (any **one** out of two) **5**
- (1) Explain Nitrogen cycle in detail.
 - (2) Discuss component of ecosystem in detail.

- 2 (a) Answer the following questions. 4
- (1) Give full form of NDIR.
 - (2) Nitrogen oxide can be determined by colorimetry method. True/False ?
 - (3) Reaction temperature maintained in continuous sulfonation of benzene is _____ °C.
 - (4) Molasses is converted into alcohol by _____ enzyme.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Enlist source correction method.
 - (2) Explain acid hydrolysis with reaction.
- (c) Answer in detail : (any **one** out of two) 3
- (1) Discuss flame ionization detector with figure.
 - (2) Explain mechanism of sulfonation.
- (d) Write a note on : (any **one** out of two) 5
- (1) Explain electrostatic precipitator with neat diagram.
 - (2) Discuss sulfonation of dodecylbenzene with diagram.
- 3 (a) Answer the following questions : 4
- (1) Potassium permanganate is used as strong _____ agent.
 - (2) The process where one or more halogen atoms are introduced into an organic compound is known as _____ process.
 - (3) Enlist any two factors affecting hydrogenation process.
 - (4) Raw material used for manufacturing of phthalic anhydride is _____.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Enlist various oxidizing agents.
 - (2) Write a brief note on hydrogenation catalyst.

- (c) Answer in detail : (any **one** out of two) **3**
- (1) Draw only diagram for manufacturing of chloral.
 - (2) Discuss kinetics of halogenation in brief.
- (d) Write a note on : (any **one** out of two) **5**
- (1) Explain vapour phase oxidation of ethanol to acetaldehyde with diagram.
 - (2) Discuss reforming process used in hydrogenation with diagram.
- 4** (a) Answer the following questions. **4**
- (1) Enlist factors affecting mechanical properties.
 - (2) Gun metal is made up of _____, _____ and _____.
 - (3) Electrode potential volts of _____ is 0.0 in electrochemical series.
 - (4) When Pb corrodes it is converted into _____.
- (b) Answer in brief : (any **one** out of two) **2**
- (1) Define Ductility, give equation of percentage elongation of ductile material.
 - (2) Explain Pilling-Bedworth rule.
- (c) Answer in detail : (any **one** out of two) **3**
- (1) Enlist alloying material used in steel. Give its importance.
 - (2) Explain cladding process for protection against corrosion in detail.
- (d) Write a note on : (any **one** out of two) **5**
- (1) Write short note on bronze. Give its properties, types, alloying material and uses.
 - (2) Write a note on factors influencing atmospheric corrosion.

- 5 (a) Answer the following questions : 4
- (1) Portland cement is also known as _____ cement.
 - (2) Enlist types of equipments used in grinding for cement manufacturing.
 - (3) NaCl can be used in salt glazing method for ceramics. True/False ?
 - (4) Refractories having good _____ resistant power.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Write disadvantages of wet process for cement.
 - (2) Enlist raw materials used for manufacturing of ceramics.
- (c) Answer in detail : (any **one** out of two) 3
- (1) Enlist types of cement and discuss any two in brief.
 - (2) Write a note on acidic ceramics.
- (d) Write a note on : (any **one** out of two) 5
- (1) Discuss dry process for the manufacturing of cement with neat diagram.
 - (2) Explain manufacturing of refractories.
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