



HDB-003-001316 Seat No. _____

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

November/December – 2017

IC.P-301 : Industrial Chemistry

Faculty Code : 003

Subject Code : 001316

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 labelled diagram wherever necessary.
- (4) Assume suitable data.

1 Answer the following questions. 20

- (1) Which group decreases rate of sulfonation reaction ?
- (2) Sulphuric acid is used in sulfonation reaction. True/False.
- (3) Describe temperature in recycle apparatus used for hydrogenation of oil _____ °C.
- (4) Pd is an oxidizing agent. True/False
- (5) Fluidized bed catalyst for hydrogenation comes under _____.
- (6) In hydrogenation reaction _____ is converted into _____ product.
- (7) Biotic components include _____ (Living organism/Non living organism)
- (8) Which scrubber is suitable when particulates matter is sticky, flammable or corrosive ?
- (9) Hydrosphere covers _____ % part of earth surface.
- (10) Los Angeles Smog is also known as _____
- (11) Enlist classification of pollution according to environment.

- (12) _____ is extended upto 50 km above from the earth surface.
- (13) _____ is natural polymer.
- (14) Fe_2O_3 impurity should be avoided for manufacturing of _____ cement.
- (15) Highly ductile material possesses _____ percentage elongation.
- (16) Bulletproof Glass is _____ type composite material.
- (17) Vitreous enamel decreases _____ from surface of ceramics.
- (18) Principle constituent of bronze are _____ and _____.
- (19) Material of Uniform cross sectional area can be prepared by _____ type molding.
- (20) _____ equipment is used to convert cement particles into powder form.

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

- (1) Explain chemical and physical factors affecting to sulfonation.
- (2) Define the term halogenation with example.
- (3) Draw only diagram of Oxygen cycle.
- (4) Write a short note on Photochemical Smog.
- (5) Define :
 - (a) Creep
 - (b) Plasticity
- (6) Explain purpose of alloying with three examples.

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

- (1) Explain various types of oxidation reaction in brief.
- (2) Draw only diagram of Chloral manufacturing process.
- (3) Explain sulphur cycle with neat diagram.
- (4) Draw only diagram of gravitational settling chamber with diagram.
- (5) Explain weight average molecular and number average molecular weight of polymer with equations.
- (6) Give types of composite based on their structure. Draw diagram of sandwich composite material.

- (c) Answer any two : **10**
- (1) Describe manufacturing process of naphthalene sulphonic acid from naphthalene.
 - (2) Explain continuous sulfonation of benzene.
 - (3) Explain cyclone separator with neat diagram.
 - (4) Discuss various factors affecting corrosion with examples.
 - (5) Explain dry process for manufacturing of cement with diagram.

- 3** (a) Answer any three : **6**
- (1) Enlist any three oxidizing agents.
 - (2) Enlist hydrogenation catalysts.
 - (3) Write a note on air pollutants.
 - (4) Draw only diagram of packed tower.
 - (5) Enlist different types of coatings for protection against corrosion.
 - (6) Write Pilling-Bedworth rule with one example.

- (b) Answer any three : **9**
- (1) Explain flame Ionization detector technique for hydrocarbon in detail.
 - (2) Write a short note on Global warming.
 - (3) Explain only reactions and parameters of hydrogenation of acids to ester or alcohol.
 - (4) Define hydrolysis and enlist various hydrolysis agents.
 - (5) Enlist six different properties of material. Give examples of mechanical properties.
 - (6) Write types of polymers on the basis of sources with examples and uses.

- (c) Answer any two : **10**
- (1) Explain source, reaction and effects of SO_x in detail.
 - (2) Explain synthesis of methanol in detail with diagram.
 - (3) Explain preparation of chlorobenzene from benzene.
 - (4) Give a detail account of electrostatic precipitator with schematic diagram.
 - (5) Explain injection molding of polymer in detail with diagram, advantages and uses.