

[A-55]

No. Of Printed Pages: 2

Sardar Patel University  
T.Y. B.Sc. Industrial Chemistry Vocational,  
Semester-6  
US06CICV06-Selected topics  
9<sup>th</sup> April 2016

Time: 02:30 pm to 05:30 pm

Total Marks: 70

Q1. Answer the following multiple choice questions

[10]

- Which of the following is the basic step to establish a detailed commercial plant?  
(a) Process design (b) Process evaluation (c) Process research (d) Process cost
- How many shifts of operations are arranged in Five-day operation schedule?  
(a) 1 (b) 4 (c) 5 (d) None of these
- Which of the following is not a unit operation?  
(a) Autoclaving (b) Mixing (c) Distillation (d) Drying
- In homogeneous catalysis reaction if reactants are in gas phase then phase of catalyst should be \_\_\_\_\_  
(a) Liquid (b) Gas (c) Solid (d) Slurry
- Decomposition of hydrogen peroxide in presence of iodine ion is the example of \_\_\_\_\_  
(a) Homogeneous catalysis (c) Acid base catalysis  
(b) Heterogeneous catalysis (d) Enzyme catalysis
- The impurities which decreases the activity of catalysts are called \_\_\_\_\_  
(a) Negative catalyst (b) Promoter (c) Catalytic poison (d) None of the above
- $P^H$  range in cellulose acetate membrane should be:  
(a) 1-3 (b) 3-7 (c) 7-10 (d) 10-12
- Electro dialysis is used to remove ionized substance from \_\_\_\_\_  
(a) Liquid (b) Gas (c) Solid (d) Solid-liquid mixture
- The parts of process that have ability to store energy/material as \_\_\_\_\_  
(a) Capacitance lag (b) Time lag (c) Resistance lag (d) Both (a) & (b)
- Property introducing time lag due to time required to carry change in the process is termed as \_\_\_\_\_  
(a) Dead time lag (b) Resistance time (c) Time constant (d) All of these

Q-2 Answer the following short questions: (Any Ten)

[20]

- Draw a neat sketch of CSTR.
- Explain pilot plant.
- Enlist the objectives of good plant layout.
- Give two examples of acid base catalysis.
- Define Negative catalysis.
- Define Activation energy.
- Enlist the various nanofiltration membranes for water softening.
- Give the structure of polyether sulfone and polysulfone
- Enlist the classification of membranes.
- Explain the term Decay ratio
- Define Rise time.
- Write down the advantages of Automatic control system.

Q - 3 Explain various stages for logical evolution of process. [10]

OR

Q - 3 (a) Explain flow reactors and give it types with suitable diagram. [05]

(b) Enlist with brief various factors affecting plant location. [05]

Q - 4 (a) Explain the various characteristics of catalytic reactions. [05]

(b) Define Enzyme catalysis. Explain its mechanism and its characteristics. [05]

OR

Q - 4 Describe various theories of catalysis in detail. [10]

Q - 5 Write short note on: [10]

(a) Poly ether sulfone and polysulfone

(b) Poly(vinylidene fluoride)

OR

Q - 5 (a) Explain the membrane for RO system in liquid separation. [05]

(b) Explain the membrane for ultra-filtration. [05]

Q - 6 Explain in detail various types of lags [10]

OR

Q - 6 With neat diagram explain in detail the automatic control system. [10]

X=X=X