



UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Sixth Semester – 2019

Paper: Applied Chemistry

Course Code: CHEM-321 Part – I (Compulsory)

Time: 15 Min. Marks: 10

Roll No. in Fig.

Roll No. in Words.

Signature of Supdt.:

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.

Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the correct choice.

(1x10=10)

- i) Soaps were originally made from
 - a) Protein
 - b) Animal fat
 - c) Chemicals
 - d) Vegetable oil and animal fat
- ii) Hydrogenation catalysts are
 - a) Metals
 - b) Hydroxides
 - c) Organic compounds
 - d) None of the above
- iii) Picric acid is formed when phenol reacts with
 - a) Nitric acid
 - b) Hydrogen
 - c) Sulphuric acid
 - d) Formaldehyde
- iv) Tallow is a
 - a) Fatty material
 - b) Low melting fat
 - c) Digest of animal fat with steam
 - d) All above
- v) Density of phenol is
 - a) More than water
 - b) Less than water
 - c) Equal to water
 - d) None of these
- vi) In high Silica glass, percentage of Silica is
 - a) 96
 - b) 90
 - c) 95
 - d) 92

P.T.O.

- vii) Which of the following is a unit operation
- a) Oxidation
 - b) Hydration
 - c) Bromination
 - d) Filtration
- viii) Glass is
- a) Undercooled liquid
 - b) A union of nonvolatile inorganic oxides
 - c) Amorphous solid
 - d) All above
- ix) Which of the following can be used as fabric softeners?
- a) Cationic surfactants
 - b) Anionic surfactants
 - c) Amphoteric surfactants
 - d) Non-ionic surfactants
- x) Which of the following substance(s) is used as filler in soap manufacturing
- a) Sodium silicate
 - b) Sodium chloride
 - c) Caustic soda
 - d) All can be used



ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Short Questions

2x10 = 20

- i. Define UNIT CHEMICAL PROCESSES with examples.
- ii. Discuss oxidation of AMINES.
- iii. Describe the structure of CATIONIC surfactants.
- iv. Draw the flow sheet diagram of NITRATION process.
- v. What is the significance of ANNEALING in glass industry?
- vi. What are homogeneous CATALYSTS?
- vii. What are Metallic soaps?
- viii. Describe any two SULFONATING agents?
- ix. Why SO_2 is not directly added to the water in CONTACT process?
- x. Describe the principle of multiple effect evaporator.

Q.3 Extensive Questions

6 x 5 = 30

- a) Describe manufacturing of ACETIC ACID in industry?
- c) What is a TEMPERED safety glass? How is it manufactured?
- d) Describe SOAP manufacturing by KETTLE process.
- e) How NITRATION of benzene is carried out in industry?
- f) Explain MULTIPLE EFFECT EVAPORATOR. Why is it preferred over single effect evaporator?