UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Sixth Semester – 2020

Paper: Applied Chemistry

Course Code: CHEM-321 Part – I (Compulsory) **Time: 15 Min. Marks: 10**

Roll No. in Fig. .....

Roll No. in Words. .....

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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. **(10x1=10)**

i) In high Silica glass, percentage of Silica is
   a) 96
   b) 90
   c) 95
   d) 92

ii) SO_3 and oleum are _____ agents
   a) nitrating
   b) sulphonating
   c) alkylating
   d) benzonating

iii) Soaps were originally made from
   e) Protein
   f) Animal fat
   g) Chemicals
   h) Vegetable oil and animal fat

iv) Combustion is a ..... process
   a) hydrogenation
   b) oxidation
   c) helogenation
   d) None of the above

v) Oxalic acid is a/an _____ agent
   a) oxidizing
   b) reducing
   c) carbonating
   d) chelating

vi) **Styrene** is also known as
   a) vinylbenzene,
   b) ethenylbenzene,
   c) cinnamene,
   d) All above

vii) Phthalic anhydride is produce by oxidation of _____ and ortho-xylene.
   a) naphthalene
   b) meta-xylene
   c) para-xylene
   d) aniline

viii) manufacturing of butadiene is important for
   e) rubber industry
   f) paint industry
   g) coating industry
   h) non of the above

ix) Which of the following is a unit operation
   a) Oxidation
   b) Hydration
   c) Bromination
   d) Filtration

x) ---------- can work in hard water
   a) Hard soaps
   b) Soft soaps
   c) Detergents
   d) a & c

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Sixth Semester – 2020

Roll No. ……

Paper: Applied Chemistry
Course Code: CHEM-321 Part – II

Time: 2 Hrs. 45 Min. Marks: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Short Questions **(10x2=20)**

i. What is significance of Safety glass?

ii. What are Metallic soaps?

iii. How evaporators are classified?

iv. Why SO_3 is not directly added to the water in CONTAT process?

v. Write down the chemical reaction for preparation of phthalic anhydride from naphthalene?

vi. Describe the annealing of glass.

vii. How GLYCERIN is recovered from spent LYE?

viii. Give two industrial applications of HYDRATION?

ix. Draw a flow sheet diagram of oxalic acid manufacturing from Sodium formate.

x. Define UNIT CHEMICAL PROCESSES with examples.

Q.3 Extensive Questions **6 x 5 = 30**

a) Briefly describe the role of following raw materials for the manufacturing of glass?
   a. Borax
   b. Sand

b) Describe manufacturing of PHTHALIC ANHYDRIDE in industry from naphthalene?

c) What is the composition of laboratory glassware? How this composition is appropriate for laboratory work?

d) Describe SOAP manufacturing by KETTLE process.

e) How NITRATION of benzene is carried out in industry?

f) Write a note on COLORED glass.