[46] SEAT No._____ No. of Printed Pages : 02

Sardar Patel University

B. Sc. Examination

(Semester – V)

Date: 13/11/2019, Wednesday Time: 10:00 am to 01:00pm

Industrial Chemistry Vocational

COURSE: US05CICV02 (Heavy and Fine Inorganic Chemicals)

Notes: Figures to the right indicate full marks. Total marks: 70

Q.1 Answer the following Multiple Choice Questions. (All are compulsory) (10)

1. Ammonia synthesis gas is passed through a filter to remove
   A. N_2
   B. Compression oil
   C. H_2S
   D. None of these
2. In HNO_3 manufacturing, gas passes downward with velocity design to give a contact time of about?
   A. 2.5×10^{-4}sec
   B. 2.0×10^{-4}sec
   C. 2.5×10^{-3}sec
   D. 2.5×10^{-2}sec
3. In yellow phosphorous manufacturing, the furnace gases pass into coolers where the vapors are liquefied and separated from the?
   A. CO
   B. CO_2
   C. NH_3
   D. None of these
4. In Fluorine manufacturing at which temperature cells are operated?
   A. 90^0C-95^0C
   B. 80^0C-90^0C
   C. 105^0C-110^0C
   D. 95^0C-105^0C
5. In bromine manufacturing, with which gas acid solution is treated, which reoxidizes the bromine back to free bromine?
   A. Fluorine
   B. Carbon dioxide
   C. Hydrogen
   D. Chlorine
6. In sodium sulfate manufacturing, at which temperature salt enriched brine leaving the well is chilled?
   A. 10^0F-15^0F
   B. 0^0F-5^0F
   C. 15^0F-20^0F
   D. 20^0F-25^0F
7. Perchloric acid forms_____ with water.
   A. Azeotrope
   B. Perchlorate
   C. Hydrate
   D. None of these
8. For which test $K_2Cr_2O_7$ paper can be used?
   A. NO2
   B. SO2
   C. CO2
   D. NO
9. Molecular formula of 1,2-naphthaquinone is?
   A. C10H6O2
   B. C11H6O2
   C. C10H8O2
   D. None of these
10. Absolute ethanol obtained by which method from ethanol-water mixture?
    A. Flash distillation
    B. Simple distillation
    C. Azeotropic distillation
    D. None of these

Q.2 Answer the following short questions. (Any TEN) (20)

1. Give properties of sodium borohydride
2. Write applications of "Oxalic acid".
3. Enlist methods for manufacturing soda ash.
4. Write properties of Methanol.
5. Enlist various solvents used in HPLC
6. Define term "Nujol"?
7. Give raw materials required for manufacture of superphosphate.
8. List the uses of Triple superphosphate.
9. Write uses of Ammonia.
10. Define term "Positive Catalyst".
11. Write the name of any four industrial catalyst
12. Give uses of Sodium thiaosulphate.

Q. 3 Enlist various methods of manufacture of phosphoric acid also write with the help of flow diagram for one of method for manufacturing it. (10)

OR

Q. 3 Write a notes on: "Manufacture of Ammonia", "Silicon carbide & Calcium carbide".(10)

Q. 4 Discuss the manufacturing of Fluorine and Bromine. (10)

OR

Q. 4 With the help of flow diagram, explain the manufacture of Sodium chloride. (10)

Q.5 With the help of flow diagram, explain the manufacture of Lithium aluminium hydride and Sodium borohydride. (10)

OR

Q. 5 Explain the Solvay's ammonia soda process and Leblanc process for manufacturing of soda ash. (10)

Q. 6 Write notes on Bio-chemical reagents and HPLC sovents. (10)

OR

Q. 6 Write notes on Methanol, Ethanol and Potassium bromide. (10)

— x —

(20)