(b) Explain the manufacture process of lime with flow chart. 4

(c) Draw and explain manufacturing process of urea. 4

OR

5. (p) Explain manufacturing process of silicon carbide. 4

(q) Give all chemical reactions in manufacture of soda ash by Solvay process with raw materials. 4

(r) Draw and explain manufacturing process of sulfuric Acid. 4

UNIT III

6. (a) Draw and explain manufacture of soyabean oil by solvent extraction. 6

(b) Draw and explain manufacture of soap. 6

OR

7. (p) Discuss the following :—

(i) Saponification value.

(ii) Acid value.

(iii) Ester value. 6

Fifth Semester B. Sc. (Part – III) Examination

5S : INDUSTRIAL CHEMISTRY (R/V)

(Chemical Process Economics, Heavy and Fine Chemicals)

P. Pages : 6

Time : Three Hours] [Max. Marks : 80

Note : (1) Question No.**One** is compulsory and carries **Eight** marks.
(2) Remaining all **Six** questions carry **Twelve** marks each.
(3) Give chemical equations and diagrams wherever necessary.
(4) Use of calculator is allowed.

1. (a) Fill in the blanks :—

(i) Manufacture of isopropanol by hydration of propylene via salfation and ——.

(ii) Caustic soda (NaOH) prepared by electrolysis of ——.

(iii) —— is fats splitting catalyst used in soap manufacture.

(iv) The compensation paid for the use of borrowed capital is called as ——. 2

(b) Choose correct alternatives.

(i) —— is the measure of decrease in value of a property with time.

(a) Profit (b) Depreciation

(c) Interest (d) None of these

(ii) Edible oil is chemically bleached by ———.

(a) Fuller earth (b) China clays

(c) Bentonite (d) Chlorine

(iii) For the production of sulfuric acid the cheap catalyst is used is ——.

(a) V_2O_5 ; (b) Fe ;

(c) Z_nO ; (d) CO_2

(iv) NaCl (salt) is produced by ——.

(a) Solar evaporation of sea water.

(b) Mining of rock salt.

(c) Well brines.

(d) All of these. 2

(c) Answer in **one** sentence.

(i) Why ammonium nitrate is coated with clay ?

(ii) Define saponification value.

(iii) Give the sources of CO_2.

(iv) Define rate of interest. 4

UNIT I

2. (a) Explain the manufacturing process of ammonia with flow chart. 4

(b) Draw and explain manufacturing process of superphosphate. 4

(c) Explain manufacturing process of chlorine. 4

OR

3. (p) Draw and explain manufacture of ammonium nitrate. 4

(q) Explain manufacturing process of triple super-phosphate. 4

(r) Give major engineering problems of caustic soda and chlorine production. 4

UNIT II

4. (a) Discuss the manufacturing process of calcium carbide with diagram. 4

(q) Explain the refining of crude vegetable oil. 6

UNIT IV

8. (a) Draw and explain manufacture of ethanolamine. 4

(b) Discuss the manufacturing process of vinyl acetate. 4

(c) Describe Fisher–Tropsch synthesis with flow chart. 4

OR

9. (p) Discuss the chlorination of methane with major engineering problems. 4

(q) Describe the manufacturing process of isopropanol with flow chart. 4

(r) Draw and explain manufacturing process of acetylene with its uses. 4

UNIT V

10. (a) Explain the manufacturing process of carbon dioxide and liquification of CO_2 with diagram. 6

(b) Give an account of chemical safety and hazards in petro chemical industries. 6

OR

11. (p) Explain the manufacturing process of nitrogen and oxygen with its uses. 6

(q) Give an account of hazards in storage and handling of chemicals. 6

UNIT VI

12. (a) Discuss simple and compound interest. 4

(b) Describe factors attaching investment and production cost. 4

(c) Explain rate of return method of profitability evaluation. 4

OR

(p) Explain cumulative cash position. 4

(q) Discuss the following terms :—

(i) Service life.

(ii) Salvage value. 4

(r) Discuss the straight line method for depreciation. 4