5. (a) Explain the chemical properties of aluminium and its alloys. Give their industrial applications. 6

(b) Discuss the various methods for preventing corrosion. 5

(c) Define composite materials. Give their industrial applications. 5

OR

(p) Explain the mechanical and chemical properties of titanium and its alloy. Give their industrial applications. 6

(q) What is corrosion ? Describe the mechanism of corrosion. 5

(r) Explain chemical and physical properties of industrial polymer. Give its industrial applications. 5

AQ – 1005

Third Semester M.Sc. (Part– II) (CBCS Pattern) Examination

CHEMISTRY

Paper – XI Special Paper – I

Industrial Chemistry

(Heat Transfer, Unit Operations and Material Balance)

P. Pages : 4

Time : Three Hours] [Max. Marks : 80

Note : All questions are compulsory and carry equal marks.

1. (a) Explain heat transfer by conduction. 5

(b) Describe construction and working of shell type heat exchanger. 6

(c) State and explain Bernoulli's equation. 5

OR

(p) Discuss various types of pumps. 6

(q) Give an account of Reynolds number. 5

(r) Explain heat transfer by radiation. 5

2. (a) Describe construction and working of drum dryer with diagram. 5

(b) What is crystallization ? Discuss.

(i) Solubility and

(ii) Supersaturation. 6

(c) Describe construction and working of rotary drum filter. 5

OR

(p) Explain contineous distillation with rectification. 6

(q) Describe construction and working of agitated contactor for gas absorption. 5

(r) Give the construction and working of short tube evaporator with diagram. 5

3. (a) Discuss distillation operation and give the material balance equation with diagram. 5

(b) Give an account of purge operation. 5

(c) Discuss :—

(i) Limiting reactant.

(ii) Conversion. 6

OR

(p) Give an account of material balance for the process involving chemical reaction. 6

(q) Discuss filtration operation and give the material balance equations with block diagram. 5

(r) Discuss evaporation operation and give the material balance equation with block diagram. 5

4. (a) Discuss homogeneous and heterogeneous catalyst with suitable example. 6

(b) Give the industrial applications and properties of copper chromate. 5

(c) Give an account of palladium base catalyst. 5

OR

(p) Explain the mechanism of catalysis. 5

(q) Explain the properties and catalytic applications of aluminium alkoxide. 5

(r) Discuss the factors affecting activity of catalyst. 6