



M.Sc. III Semester Degree Examination, April/May - 2024

INDUSTRIAL CHEMISTRY

DSC - 10 : Unit Operations

(NEP)

Time : 3 Hours

Maximum Marks : 70

Note : (i) Answer **any five** questions including **Q.No 1**.
(ii) **Q.No 1** is **compulsory**.

1. (a) Explain the choice of system and basis of molecular process. **4+3+3+4=14**
(b) Discuss the liquid level indicators.
(c) Explain the energy changes in physical process.
(d) Describe the various types of measurements of temperature
2. (a) Explain the various methods of extraction. **5+5+4=14**
(b) Discuss the jacketed and horizontal tube evaporators.
(c) Describe the general principle of drying.
3. (a) Explain the classification of filters. **5+5+4=14**
(b) Discuss the following
(i) Relative volatility
(ii) Azeotropic mixture
(iii) Flash distillation
(c) Describe the following in crystallisation
(i) Growth of Crystals
(ii) Nucleation
4. (a) Discuss the mechanical properties of construction of materials. **5+4+5=14**
(b) Explain the construction of corrosion resistant materials.
(c) Describe the classification of chemical reactors.
5. (a) Explain the flow of heat by conduction. **5+4+5=14**
(b) Discuss the U tube heat exchangers.
(c) Explain the concept of black body using Kirchoff's law.



6. (a) Discuss the following : **5+5+4=14**
(i) Counter current extraction.
(ii) Packed spray extraction.
(b) Explain the rate of drying.
(c) Discuss the leaf fillers.
7. (a) Explain the classification of crystallisers. **5+4+5=14**
(b) Discuss the following :
(i) Vacuum distillation.
(ii) Fractional distillation.
(c) Explain the surface treatment to metals for corrosion resistance.
8. (a) Explain the storage of vessels for liquids. **5+4+5=14**
(b) Discuss the reactor used in chemical addition.
(c) Describe the flow of heat through radiation.

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