

22nd April, 13

Pharmaceutical Engineering - I

22/4/13

125 : 1ST HALF-13 (m)-JP

Sem - I A.T.K.T (Rev)

Sem. I (Rev) ATK.T. Ph. Engg. I

Con. 3580-13.

DC-1994

(2 Hours)

[Total Marks : 40

- N.B.** (1) Question No. 1 is **compulsory**.
(2) Attempt any **three** questions from Question Nos. 2 to 5.
(3) Draw well neat labelled **diagrams** wherever **necessary**.

1. (a) Define/state the following (any **four**) :— 4
(i) Pressure head
(ii) Stefan Boltzmann's Law of Heat Radiation
(iii) Dew point
(iv) Dry corrosion
(v) Pump.
- (b) With the help of a neat labelled sketches, explain the principle of operation of the following (any **three**) :— 6
(i) Pneumatic conveyor
(ii) Centrifugal pump
(iii) Piston pump
(iv) Screw conveyor.
2. (a) Answer the following (any **two**) :— 6
(i) Derive Bernoulli's equation
(ii) Explain measurement of flow of fluid using on Orifice meter
(iii) Write a note on Simple Manometer.
- (b) Answer the following :— 2
(i) What is Reynold's Number ? Give its significance.
(ii) State and explain Fourier's Law of Heat Transmission with equation. 2
3. (a) Answer the following (any **two**) :— 6
(i) With a neat labelled sketch explain the advantages of Turbine pump over Volute pump.
(ii) With a neat labelled sketch explain the principle of operation of shell and tube heat exchanger.
(iii) Discuss in brief the basic construction of Refrigeration cycle.
- (b) Answer the following :—
(i) Explain the principle of dehumidification 2
(ii) Discuss the types of glass used in Pharmaceutical industry. 2

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4. (a) Answer the following (any **two**) :— 6
- (i) Enlist and discuss the importance of various components of a Belt conveyor.
 - (ii) Discuss the Electrochemical theory of Corrosion
 - (iii) Discuss in brief the Reverse Osmosis method of purification of water.
- (b) Answer the following :—
- (i) Write a note on Interfacial Mass Transfer 2
 - (ii) Explain the terms 'Fretting Corrosion' and 'Hydrogen embrittlement'. 2
5. (a) Answer the following (any **two**) :— 6
- (i) What are Basket Centrifuges ? Describe the principle and their applications.
 - (ii) Explain measurement of humidity using a Humidity chart
 - (iii) Write a note on Aluminium as a material of plant construction.
- (b) Answer the following :—
- (i) Enlist the methods of Combating Corrosion. Detail on any one of them 2
 - (ii) State the types of Plastics. Give two examples of each type. 2
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