

**FACULTY OF PHARMACY****B. Pharmacy II – Year****I – Semester (Supplementary) Examination, March 2014****Subject : Pharmaceutical Engineering - I****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Describe the important properties and uses of glass as a material of plant construction. 7  
b) Define corrosion. Classify corrosions. 7
- OR**
- c) Write about stainless steel as a material of plant construction along with its merits and demerits. 7  
d) Define unit operations and unit processes. Give one example for each. 2  
e) Explain any four methods to combat corrosion. 5
- 2 a) Write a short note on :  
i) Rotameter 4  
ii) Bernoulli's theorem 5  
iii) Steam traps 5
- OR**
- b) Derive an equation for the overall heat transfer coefficient. 7  
c) Describe the construction, working and advantages of multipass tubular heater. 7
- 3 a) Describe the design, working and pharmaceutical applications of screw conveyor. 7  
b) Compare centrifugal pumps with reciprocating pumps. 7
- OR**
- c) With a neat sketch describe the construction and working of belt conveyor. 7  
d) Write a note on any two equipment used to transport gases. 7
- 4 a) Describe a refrigeration system using a compressor with neat labeled diagram. 7
- 7 b) What is humidity chart? Explain its usage. 7
- OR**
- c) Discuss the various methods used to measure humidity. 7  
d) Write a note on : 3+2+2  
i) Dehumidifiers  
ii) Brine systems  
iv) Refrigerants
- 5 a) Suggest and describe a suitable filter for filtration of a penicillin fermentation broth. 7  
b) Describe the construction and working of DeLaval clarifier. Write its applications. 7
- OR**
- c) Write a detailed note on membrane filters. Give their applications and limitations 7  
d) Write Kozeny equation for filtration explaining the symbols used. 2  
e) Discuss the theoretical principles involved in the design of centrifuge. 5

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