UG Even Semester (CBCS) Exam., May—2017

PHARMACEUTICAL SCIENCES

(4th Semester)

Course No. : BPH–403 (C)

[Pharmaceutical Engineering—II
(Unit Operations—II)]

Full Marks : 75
Pass Marks : 30

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Derive Bernoulli's equation stating the assumptions. 10

(b) Discuss the types of flow patterns exhibited by liquid in motion. 5

2. *(a)* Write the applications of humidification and dehumidification processes in pharmacy. 7

(b) With a neat diagram, explain the working and principle of refrigerator. 8

UNIT—II

3. *(a)* Classify and discuss the role of different types of valves used in transportation of fluids. 10

(b) Compare the characteristics of centrifugal pumps and reciprocating pumps. 5

4. *(a)* Classify different types of conveyors used for solid transport. 5

(b) Discuss the principle, working and advantages of pneumatic conveyor. 10

UNIT—III

5. Discuss the principle and working of the following industrial centrifuges with labelled diagram : 7½×2=15

(a) Supercentrifuge

(b) Conical disc centrifuge

6. *(a)* Define centrifugation and write its application in pharmacy. 5

(b) Describe the working and construction of a centrifuge used for the separation of slurry containing high percentage of solids. 10

UNIT—IV

7. *(a)* Define crystallization and write its applications in pharmacy. 1+4=5

(b) Discuss Mier's supersaturation theory with conditions for obeying and limitations. 10

8. Discuss the principle and working of following crystallisers : 7½+7½=15

(a) Agitated batch crystalliser

(b) Vacuum crystalliser

UNIT—V

9. Discuss different sources of industrial hazards and safety precautions adopted to prevent them. 15

10. Discuss the factors affecting the selection of materials in detail for construction of plants. 15

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