

UG Odd Semester (CBCS) Exam., December—2016

## PHARMACEUTICAL SCIENCE

( 3rd Semester )

Course No. : BPH-303 (C)

[ **Pharmaceutical Engineering—I**  
( **Unit Operations—I** ) ]Full Marks : 75Pass 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) Write a note on the basic mechanisms of heat transfer. 5
- (b) State and derive the equation for Fourier's law of conduction. 10
2. Write the principle and working of the following driers :  $7\frac{1}{2} \times 2 = 15$
- (a) FBD
- (b) Spray drier

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( Turn Over )

## UNIT—II

3. (a) Discuss different factors affecting size reduction process. 9
- (b) Write the working of electromagnetic sieve shaker. 6
4. Write the principle and working of the—
- (a) hammer mill;
- (b) cyclone separator.  $7\frac{1}{2} \times 2 = 15$

## UNIT—III

5. (a) Write about the various mechanisms of liquid-liquid mixing. 8
- (b) Write the construction and working of Silverson's emulsifier. 7
6. (a) Discuss the different statistical evaluation parameters in the case of solid-solid mixing. 10
- (b) Give few applications of solid-solid mixing. 5

## UNIT—IV

7. (a) Discuss the various factors influencing evaporation. 10
- (b) Write the working of steam jacketed kettle. 5

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( Continued )

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8. Discuss the working and principle of multiple-effect evaporator. 15

UNIT—V

9. (a) Write a note on the theories of filtration. 10  
(b) Classify the different types of filter media with suitable examples. 5
10. (a) Write the applications of distillation process. 7  
(b) Discuss azeotropic and extractive distillation. 8

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