TKN/KS/16–6981

Third Semester Examination for the Degree of Bachelor of Pharmacy

PHARMACEUTICS – III (Unit Operations)

3-T-1

Time : Three Hours] [Max. Marks : 80

N. B. : (1) Question No.1 is Compulsory.
(2) Solve any **Four** questions from the remaining.
(3) Draw neat labeled diagram wherever necessary.
(4) Discuss the reaction, mechanism wherever necessary.
(5) Use of electronic calculator is permitted.
(6) Assume suitable data wherever necessary.

1. Solve any **Five** of the following :—
   (a) Explain mechanisms of size reduction giving examples.
   (b) Write short note on mechanisms of liquid mixing.
   (c) Draw well labeled diagram of belt conveyor. Give its principle.
   (d) State Kozeny-Carman equation. Give its limitations.
   (e) Explain theory of centrifugation in brief.
   (f) Give an account on various grades of powder as per I.P.
   (g) Define Reynolds' number. State its significance. 4x5=20

2. Explain factors affecting size reduction. Describe principle, construction, working and uses of ball mill. Focus on effect of speed of rotation of ball mill efficiency.

3. (a) What is mass transfer ? Comment on "Molecular diffusion in liquids and mass transfer, in turbulent and laminar flow." 8
   (b) Give detailed account on pneumatic conveyor. 7

4. What is cake filtration and clarification? Describe the factors affecting rate of filtration. Write detailed account on rotary drum filter and leaf filter. 15

5. Give classification of equipments based on centrifugation. Elaborate on perforated basket centrifuge and supercentrifuge. 15

6. (a) What is vortex formation ? What are the causes of vortex formation ? How vortex formation can be prevented ? 8
   (b) Write a note on air jet mixer and jet mixer. 7

7. Write short notes (Any **Three**) :—
   (a) Orifice meter.
   (b) Silverson mixer homogenizer.
   (c) Cyclone separator.
   (d) Fluid energy mill. 15