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## NTK/KW/15/6981

**Faculty of Pharmacy** 

B.Pharm. Third Semester (C.B.S.) Examination

PHARMACEUTICAL—III

## (UNIT OPERATIONS)

#### Paper—I (3T1)

Time : Three Hours]

[Full 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) Use of electronic calculator is permitted.
- 1. Solve any **FIVE** :  $5 \times 4 = 20$ 
  - (a) Define filter aid, giving examples. Give methods of using filter aids.
  - (b) Give types of mixtures. Mention various mixers used for liquid and semisolid mixing.
  - (c) Draw a well labelled diagram of a Bag filter.
  - (d) Give Fick's law of diffusion. Mention the factors affecting mass transfer.



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- (e) Give construction and working of ball mill. What is the optimum speed of a ball mill ? Why ?
- (f) Define centrifugation. What do you understand by centrifugal effect ?
- (g) Explain various factors affecting rate of filtration.
- 2. (a) Give objectives and theories of size reduction. Draw a well labelled diagram of a fluid energy mill.
  - (b) Define the term size separation giving significance. Mention various grades of powders and sieve number as per. I.P.
     7
- (a) Explain various factors influencing mixing. Classify mixers for solid mixing.
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  - (b) Give various mechanisms of filtration. Differentiate between Surface filtration and Depth filtration. 8
- 4. (a) Give applications of centrifugation. Discuss principle, construction and working of supercentrifuge. 7
  - (b) Define Turbulent and Laminar flow. Explain Fick's law of diffusion, mentioning factors affecting rate of mass transfer.
- (a) Mention various conveyors used in pharmaceutical Industry. Give construction principle and working of a Pneumatic conveyor.

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- (b) Draw a well labelled diagram of an Alpine airjet sieve. Give its principle, construction and working along with advantages and disadvantages.
- 6. (a) Describe in detail Bernoulli's theorem. Add a note on flowmeters.7
  - (b) Draw a well labelled diagram of a perforated basket centrifuge giving principle, construction and working.

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- 7. Write short notes on (any **three**) :  $5 \times 3 = 15$ 
  - (a) Planetary mixer
  - (b) Rotary drum filter
  - (c) Sieve Analysis
  - (d) Factors affecting size Reduction.

(Contd.)