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** : 5×4=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.

(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. 8

(b) Define the term size separation giving significance. Mention various grades of powders and sieve number as per. I.P. 7

3. (a) Explain various factors influencing mixing. Classify mixers for solid mixing. 7

(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. 8

5. (a) Mention various conveyors used in pharmaceutical Industry. Give construction principle and working of a Pneumatic conveyor. 7

(b) Draw a well labelled diagram of an Alpine airjet sieve. Give its principle, construction and working along with advantages and disadvantages. 8

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. 8

7. Write short notes on (any **three**) : 5×3=15

(a) Planetary mixer

(b) Rotary drum filter

(c) Sieve Analysis

(d) Factors affecting size Reduction.