

UKA TARSADIA UNIVERSITY

B.Pharm. (2nd Semester)
030020201 - Unit Operation

Duration: 3 Hours

Max. Marks: 70.

Instructions:

1. Attempt all questions.
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.
5. Draw diagrams/figures whenever necessary.

Section-1

Q-1 (A) Do as directed:

[07]

- I) Ball mill works on the principle of _____ and _____.
- II) Comment: Coated iron can be used to prepare wire woven sieves.
- III) How sieve number is allotted to sieves used for dry sieving method?
- IV) Comment: Suspension is example of negative mixture.
- V) Define: Automated process control system
- VI) Enlist mills which can not be used for crushing of abrasive materials.
- VII) Why planetary motion mixer is suitable for mixing of high viscous semi solid product?

Q-1 (B) Answer the following in brief: (Any 4)

[08]

- I) Explain the term: Process variable. Enumerate four different process variables.
- II) Explain three velocity components acting on liquid by impeller in liquid mixing process.
- III) Write principle, construction and working of roller mill.
- IV) Write a short note on propeller mixer.
- V) Comment: When vegetable drug is crushed, nothing must be rejected.
- VI) Write working and applications of belt conveyor.

Q-2 Answer the following:

[10]

- A) Write a note on standards of powder.

OR

- A) Write applications of size reduction process in pharmaceutical industry.
B) What are the basic elements of automated process control system? Explain each of them in detail.

OR

- B) Explain the theory of solid and semi solid mixing process.

Q-3 Answer the following in detail. (Any 2)

[10]

- A) Classify temperature measuring elements based on their principle of working.
- B) Classify equipments used in wet sieving method based on working principle. Write in detail about construction and working of cyclone separator.
- C) Write principle, construction, working, advantages and disadvantages of fluid energy mill.

Section-2

Q-4 (A) Do as directed:

[07]

- I) Differentiate between Wet bulb temperature (WBT) and Dry bulb temperature (DBT).
- II) Enlist injuries occur by mechanical hazards.
- III) Explain the term: wet corrosion.
- IV) Define percentage relative humidity (% H_R)
- V) Angle of repose of sample X was found to be 27. Comment on flow property of the sample X.

VI) Swenson walker crystalliser works on principle of _____.

VII) Enlist types of glass material used in Pharma industry.

Q-4 (B) Answer the following in brief: (Any 4)

[08]

- I) Define refrigerant. Classify refrigerants with suitable examples.
- II) Enlist methods used to measure powder flow property.
- III) Write the limitations of Mier's supersaturation theory.
- IV) Classify the materials of pharmaceutical plant construction.
- V) Write measures to prevent caking of crystals.
- VI) Explain the solubility curve.

Q-5 Answer the following:

[10]

A) Write sequential steps involved in formation of crystals.

OR

A) Classify fire fighting system. Explain Carbon dioxide extinguisher in detail with suitable diagram.

B) Write a note on factors affecting powder flow property.

OR

B) Write various methods used for determination of humidity.

Q-6 Answer the following in detail. (Any 2)

[10]

- A) Explain various methods used for dehumidification process.
- B) How to prevent mechanical hazard in pharmaceutical industry?
- C) Write principle, construction, working, advantages and disadvantages of agitated batch crystalliser.