

# UKA TARSADIA UNIVERSITY

B.Pharm. (2nd Semester)

Subject :030020201-Unit Operation

Time : 10 am to 1 pm

Duration : 3 Hours

Date : 16/05/2014

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 allocated to that question.
5. Draw diagrams/figures whenever necessary.

## SECTION - 1

### Q-1 (A) Do as directed.

[07]

- I) Define: Size separation.
- II) Name the principle behind the operation of hammer mill and cutter mill.
- III) State Kick's law for size reduction.
- IV) What is the meaning of colour code red for piping system?
- V) Define: Mixing.
- VI) Comment: Mixing affects content uniformity of dosage forms.
- VII) Define: Size reduction.

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

[08]

- I) What is significance of size separation in pharmacy?
- II) Differentiate: Compression and attrition in size reduction.
- III) Enlist the factors affecting size reduction process.
- IV) Write objectives of mixing in pharmacy.
- V) Explain the term: Negative mixtures
- VI) Explain the term: Mixing index.

### Q-2 Answer the following.

[10]

- A) Write a note on principle, construction, working, advantages, disadvantages and applications of Ball Mill.

**OR**

- A) Write a detail note on: Turbine-Mixer.  
B) Discuss the problems associated with size reduction process.

**OR**

- B) Write down principle, construction, working, advantages and disadvantages of Triple Roller Mill.

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

[10]

- A) Write a detail note on any equipment which works on the principle of sedimentation.
- B) Classify impellers on the basis of types of flow pattern.
- C) Describe basic elements of automated process control system.

## **SECTION - 2**

**Q-4 (A) Do as directed.**

**[07]**

- I) Enlist powder flow problems.
- II) Write the formula to calculate: Carr's index.
- III) Explain the term: Lubricant.
- IV) Define: Humidity.
- V) Explain: Adiabatic conditions.
- VI) Write the formula to calculate: Hausner's ratio.
- VII) Explain the term: Polymorphs.

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

**[08]**

- I) Define: Dry and Wet bulb temperature
- II) Give four examples of Glidant.
- III) Define and classify refrigerant.
- IV) Write significance of psychrometric chart in Pharma industry.
- V) Enumerate measures to prevent caking of crystals.
- VI) Write significance of crystallization process in pharmacy.

**Q-5 Answer the following.**

**[10]**

- A) Discuss methods to alter the flow property of powder.

**OR**

- A) Show diagrammatically different characteristics of air by psychrometric chart.
- B) Discuss different methods for determination of angle of repose.

**OR**

- B) Enlist methods for determination of humidity. Explain gravimetric method.

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

**[10]**

- A) Describe factors affecting powder flow.
- B) Write construction, working, advantages and disadvantages of Swenson walker crystallizer.
- C) Write a note on components of HVAC system.