

# UKA TARSADIA UNIVERSITY

B.Pharm. (2nd Semester)

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

## SECTION - 1

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

[07]

- I) Name the suitable mixer for the preparation of emulsions.
- II) Name the disadvantages associated with size reduction.
- III) Name the materials used for making sieves.
- IV) Define size separation.
- V) What is the meaning of colour code-red in piping system.
- VI) What is vortex formation.
- VII) Name the principle behind the operation of ball mill and cutter mill.

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

[08]

- I) Enlist the factors affecting size reduction process.
- II) Differentiate between impact and attrition.
- III) Mention the basic elements of pneumatic conveyor.
- IV) Enlist the methods of sieve analysis used for testing of powders.
- V) Define the objectives behind automated process control.
- VI) Write the steps involved in solid-solid mixing operation.

### Q-2 Answer the following.

[10]

- A) Explain with the help of neatly labeled diagram, the construction and working of Fluid energy mill

OR

- A) Explain the principle and construction of cyclone separator with neat labeled diagram.
- B) Differentiate between reciprocating and centrifugal pump.

OR

- B) Discuss the role of propellers in mixing operation.

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

[10]

- A) Classify the equipments used for solid mixing and explain the principle, working and advantages of colloid mill.
- B) Name the devices used for solid transportation and discuss the bucket conveyor system.
- C) Explain the factors related to selection of suitable mill for size reduction operation.

## **SECTION - 2**

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

**[07]**

- I) Define crystal hydrates.
- II) Define the term adiabatic condition.
- III) Define fire hazard.
- IV) What is dew point.
- V) Foam extinguisher is used to control which type of fire.
- VI) What kind of powder property is related to Carr's index.
- VII) Define angle of repose.

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

**[08]**

- I) Name the various types of corrosion.
- II) List any two characteristics each of crystalline and amorphous solid.
- III) Enlist any four advantages of using glass as material of construction.
- IV) Name the different types of crystal habits.
- V) Differentiate between dry bulb and wet bulb temperature.
- VI) Enlist any two application of crystallization in pharmacy.

**Q-5 Answer the following.**

**[10]**

- A) Write a note on components of HVAC system.

**OR**

- A) Discuss the safety precautions to be taken for prevention of chemical hazard.  
B) Discuss the factors governing the selection of material for plant construction.

**OR**

- B) What are the factors which affects the flow property of powders.

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

**[10]**

- A) Write a note on prevention and control of corrosion.
- B) Write a detail note on fire hazard explaining the causes and preventive actions.
- C) Discuss the concept of Mier's supersaturation theory and explain its limitations.