



**H-014-003401**

Seat No. \_\_\_\_\_

**M. P. M. (Sem. IV) (CBCS) Examination**

**May / June - 2017**

**Unit Operation - II**

**Faculty Code : 014**

**Subject Code : 003401**

Time : 3 Hours]

[Total Marks : 80

**Instructions :**

- (1) Answer any **three** from each section except question 1 and 5 are compulsory.
- (2) Figure to the right indicates full marks.
- (3) Draw neat and clean diagram when required.

**SECTION - I**

1 Answer the following questions : (ANY SEVEN) **2×7=14**

- (1) Differentiate the mechanisms, attrition and impact in size reduction.
- (2) Define the following terms :
  - (a) Number of sieve
  - (b) Approximate percentage sieving area.
- (3) What do you mean by vortex ? How is it prevented ?
- (4) Define extraction and enlist its application.
- (5) Define crystal lattice and polymorph.
- (6) Define mixing and enlist the mechanism of liquid mixing.
- (7) Enlist the components of pneumatic operated controllers.
- (8) Differentiate liquid mixing and solid mixing.
- (9) Draw a neat and clean diagram of planetary mixer with mentioning different parts.
- (10) Enlist the different types of crystals.

- 2** Answer the following questions : **13**  
 (A) Describe principle, construction, working, advantages and disadvantages of Ball mill with labeled diagram. **7**  
 (B) Describe principle, construction, working and advantages of Triple Roller Mill with labeled diagram. **6**
- 3** Answer the following questions : **13**  
 (A) Describe supersaturation, how nucleation and crystal growth takes place during crystallization. **7**  
 (B) Describe principle, construction and working of Planetary Mixer. **6**
- 4** Answer the following questions : **13**  
 (A) Discuss the Mier's super-saturation theory of crystallization and its limitation. **7**  
 (B) Describe principle, working and uses of Cyclone separator. **6**

## SECTION – II

- 5** Answer any **TWO** questions from the following : **2×7=14**  
 (A) Describe the construction, working, advantages, and disadvantages of Swenson walker crystallizer.  
 (B) Explain the methods of Maceration and Percolation.  
 (C) Write a short note on Diffusion Battery.
- 6** Answer the following questions : **13**  
 (A) Explain industrial chemical and fire hazards and control it. **7**  
 (B) Write a note on prevention and control of electrical and mechanical hazards. **6**
- 7** Answer the following questions : **13**  
 (A) Write a detail note on turbine mixer with flow pattern and give its use and advantages. **7**  
 (B) Discuss in detail about methods of size separation. **6**
- 8** Answer the following questions : **13**  
 (A) Discuss in detail on different basic elements of automatic process control systems with labeled diagram. **7**  
 (B) Write a note on Pneumatic operated controllers in Automated process controls systems. **6**