Roll No. ☐☐☐☐☐☐☐☐☐☐☐　　　　**Total No. of Pages : 02**

Total No. of Questions : 10

B.Pharma (2011 to 2016)　(Sem.–4)

PHARMACEUTICS IV
(Unit Operation–II)
Subject Code : BPHM-401
Paper ID : [D1140]

Time : 3 Hrs.　　　　　　　　　　　　　　　　　　**Max. Marks : 80**

INSTRUCTIONS TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of FIFTEEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains FOUR questions carrying TEN marks each and students have to attempt any THREE questions.**

SECTION-A

Q1.　Define :

　　a.　Mole fraction

　　b.　Size reduction

　　c.　Unit operations

　　d.　Viscosity

　　e.　Raoult's law

　　f.　Distillation

　　g.　Distillation

　　h.　CMC

　　i.　Heat transfer

　　j.　Volatility

Distinguish between :

k. Freeze drying and vacuum drying

l. positive deviation vs negative deviation from Raoult's law

m. Ball mill and Hammer mill

n. Single and multiple effect evaporators

o. Colloidal mill and fluid energy mill.

SECTION-B

Q2. A tube 0.09 in. OD is lagged with 0.02 in. layer of asbestose with a conductivity of 0.10 Btu/hr. ft^2 °F followed 0.06 in. layer of cork whose conductivity is 0.06 Btu/hr. ft^2 °F. If the temperature difference between inner and outer surface is 1400 °F, Calculate heat loss.

Q3. Classify evaporators? What are the factors effecting evaporation.

Q4. Explain the deviations from Raoult's law with examples.

Q5. Highlight the mechanisms of drying. Brief principle of vacuum drying.

Q6. Explain the principles of size Reduction.

SECTION-C

Q7. Discuss the role of size separation in a size reduction process. Give principle and working of fluid energy mill.

Q8. Explain the principle, construction and working of hammer mill.

Q9. How could you calculate the number of theoretical plates needed for a distillation process?

Q10. Comment on the following :

a. In spray drying, the temperature at which the sprayed droplet dries is much lower than the temperature of the gas used for drying.

b. Size reduction in ball mill is by impact only

c. Steam distillation occurs at 100°C.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.