Total No. of Questions : 6] **SEAT No. :**

P3160 **[Total No. of Pages : 2**

[5245]-406

S.Y. B. Pharmacy (Semester - IV)

PHARMACEUTICAL ENGINEERING

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Give theory of drying and explain in detail spray dryer. **[10]**

OR

Explain various modes of heat transfer in detail. Discuss convective heat transfer and explain tubular heat exchanger.

Q2) Solve any five **[15]**

a) Explain factors affecting evaporation.

b) Give Stefan Boltzmann law of heat transfer.

c) Explain wiped film evaporator.

d) Give applications of drying operation.

e) Define and explain heat exchangers with their different flow patterns.

f) Explain economy and capacity of Single Effect Evaporator.

g) Draw a neat labelled diagram of Fluidized bed dryer.

Q3) Answer the following (Any Two) **[10]**

a) Explain drum dryer.

b) Explain two film theory of interphase mass transfer.

c) Explain Fourier's law.

d) Give molecular diffusion in gases.

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SECTION - II

Q4) Describe steps in crystallization process and explain various theories of crystal growth. **[10]**

OR

Define and explain rectification. Explain various fractionating columns used in fractional distillation.

Q5) Solve any five **[15]**

a) Explain Reynold's number.

b) Define corrosion. What are the factors affecting corrosion.

c) Write a short note on separation of azeotropes.

d) Explain working of simple manometer.

e) Explain working of pitot tube.

f) Give working of a tank crystallizer.

g) Explain working of Rotameter.

Q6) Answer the following (Any Two) **[10]**

a) Mier's theory of supersaturation.

b) Bernoulli's theorem.

c) Molecular distillation.

d) Orifice meter.