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2.4.1

PHARMACEUTICS–III
(UNIT OPERATIONS–II)

(B.Pharmacy, 4th Semester, 2123)

Time : 3 Hours Maximum Marks : 80

Note :– This paper consists of Three Sections. Section A is compulsory. Attempt any *Four* questions from Section B and any *Three* questions from Section C.

Section–A Marks : 2 Each

1. (a) Explain Fourier's law of conduction.
   (b) Write mathematical expression for OHTC.
   (c) What are multiple effect evaporators ?
   (d) What is enthalpy composition diagram ?
   (e) What is HETP ?
   (f) What is the difference between drying and evaporation ?

(g) What is flash drying ?

(h) What is the difference between free moisture and bound moisture.

(i) What is azeotropic distillations ?

(j) What are trommels ?

(k) What is the principle of fluidized bed dryer ?

(l) What is the principle of fluid energy mill ?

(m) What is uniformity index ?

(n) Define black body.

(o) What is the difference between wet steam and dry steam ?

Section–B Marks : 5 Each

2. Explain the construction and working of Planetary mixer.

3. Describe various laws governing energy and power requirements of size reduction mills.

4. Define steam economy and capacity of an evaporator.

5. What factors need to be considered while selecting chemical reactors ?

6. Describe the construction and working of self-regulating flow meter.

Section–C Marks : 10 Each

7. Derive material and energy balance around rectifying column.

8. Explain the construction and working of ball mill with the help of a diagram.

9. Describe the principle, construction, working and use of agitated film evaporator.

10. The rate of heat loss from a pipe to air by convection and conduction is given by :

$$q/A = 0.5\ (\Delta T)^{1.55}/(D_O)^{0.75}$$

where q = rate of heat loss, Btu/hr,

A = area of pipe surface, ft^2

ΔT = temperature difference, °F

Express the relation in CGS units.

(1 Btu = 252 cal and 1 ft. = 30.54 cm).