

Roll No. ....

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Total No. of Questions : 10]

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**B. Pharmacy (Sem. - 4<sup>th</sup>)**  
**PHARMACEUTICS - III**  
**(Unit Operations - II)**  
**SUBJECT CODE : PHM-2.4.1**  
**Paper ID : [D0117]**

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 80

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Three** questions from Section - C.

**Section - A**

**Q1)**

**(15 x 2 = 30)**

- a) What is Lagging?
- b) Define "Grey Body" and "Black Body".
- c) Define Viscosity.
- d) Write the various Heat transfer mechanism with suitable examples.
- e) Define 'Unit operation' and 'Unit processes'.
- f) What is HETP (height equivalent to theoretical plate)?
- g) Give characteristics of Dropwise and Film type condensations.
- h) Differentiate between a Heat exchanger and Heat interchanger.
- i) Classify the Evaporators?
- j) Distinguish between Drying and Distillation? Explain differential distillation.
- k) Explain the term "Rectification".
- l) Define Critical moisture content and Equilibrium moisture content.
- m) What are Trommels?
- n) Define Comminution. Give the laws governed in the size reduction.
- o) What is Elutriation?

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P.T.O.

**Section - B**

**(4 x 5 = 20)**

- Q2)** Explain the construction & working of Shell & Tube exchanger.
- Q3)** Discuss the factors affecting evaporation process. What are Single effect and Multiple effect evaporators?
- Q4)** Explain construction and working of a Forced circulation evaporator.
- Q5)** Describe the principles and applications of Steam distillation?
- Q6)** Explain with the help of diagram the construction and working of a Hammer mill.

**Section - C**

**(3 x 10 = 30)**

- Q7)** Classify evaporators. What are film evaporators? Describe construction and working of a Climbing film evaporator.
- Q8)** Describe with a neat sketch the construction and working of Fluidised Bed Dryer?
- Q9)** Describe the construction, working, advantages and disadvantages of Fluid energy mill.
- Q10)** Describe the construction, working, advantages and disadvantages of Ball mill.