

AL-AZHAR Univ.
Faculty of Pharmacy
Depart. of Pharmaceutics & Ind. Pharm.

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Time: 120min.



Industrial pharmacy I
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Final Exam.

Industrial Pharmacy (I)

Q1	Q2	Q3	Q4	Q5	Total Mark

Student name: _____

Student No.: _____

Part I:

Answer all the following questions:

Q.1

What are the differences between the following terms with drawing?

1- Impact wheel blender and Diosna mixer

2- Simple and Screw water separator

3- Fixed and Float-head heat exchanger

The following diagram

shows the arrangement of the various parts of the tower.

4- Baffle and Packed tower

The diagram shows the arrangement of the various parts of the tower.

The diagram shows the arrangement of the various parts of the tower.

Q.2

a- Define the following terms:

- Efflorescence

- Exsiccation

- Deliquescence

- Isomorphism

- Caking of crystals

b- Explain "Mier's theory" for producing crystals from a supersaturation solution with drawing?

c- Write the principle of action, uses and provide a drawing for Oslo evaporative crystallizer according to create a supersaturated solution?

Q.3

a- Describe how drying process can occurs in the static-bed dryer with drawing?

b- Discuss the theory of actions with operations of both, Drum dryer and Freeze dryer, provide a drawing for them. Mention advantages, disadvantages and applications?

[Faint handwritten text, possibly a title or header]

[Faint handwritten text, likely the beginning of an answer]

[Faint handwritten text, continuing the answer]

c- Calculate the quantity of heat transfer (Q) through a heat transfer medium, employing the data given in the following table?

θ (Hours)	K	X (inch)	A (ft^2)	T_1 ($^{\circ}\text{F}$)	T_2 ($^{\circ}\text{F}$)
0.3	17	0.25	2	190	85

Part II

Make True or False with correction: -

- 1- A perfect mixing is rarely achievable and a random mixing is sufficient.
- 2- Axial flow predominates in vertical turbine agitator.
- 3- Beaters, kneaders, extruders and mixing rolls are suitable for semi-solid mixing.
- 4- Curved blade turbines are not useful for mixing viscous liquid.
- 5- Diffusive mixing is predominates in the ribbon mixer.
- 6- Good powder mixing requires optimum space, suitable shear and prolonged time.
- 7- Hobart's mixer is a good device for powder mixing.
- 8- Impeller flow pattern is axial, tangential and radial.

- 9- Mixing secures uniformity but retards chemical reaction.
- 10- Paste and ointments are examples of positive mixtures.
- 11- Propellers are used to suspend heavy solid particles in liquid
- 12- The ribbon blender is suitable for fragile powders.
- 13- Nautamixer provides only diffusive and connective mechanism.
- 14- In very large tank we can suppress vortex by tilting the mixer.
- 15- The thermal conductivity is the driving force in heat transfer.
- 16- Steam is a direct heating transfer agent (HTA).
- 17- The thicker the lagging, the more the saving in operating cost.
- 18- Unsaturated steam has higher pressure than saturated.
- 19- Evaporators are designed to give maximum heat transfer to liquid by decreasing the surface area and to reduce boundary layers.
- 20- In evaporating still if we add turbine agitator in the middle it becomes forced circulation evaporator.
- 21- An advantage of natural circulation that all the liquid heated all the time.
- 22- Vertical tube evaporator is forced circulation evaporator.
- 23- Vacuum pump is responsible for the ascending of the liquid in climbing film evaporator.
- 24- Bound moisture and free moisture together comprise the EMC.
- 25- Normal charge in tumbling dryers should not exceed 70% of total volume.
- 26- Tray dryers require large floor space, long drying time and low labor cost.

- 27- The products obtained after extractions are pure and intended for oral and external use.
- 28- In extraction process, the residue left after extracting the desired constituents is known as menstruum.
- 29- Digestion is a modified form of maceration in which the extraction of drugs is carried out by applying gentle heat to substances being extracted.
- 30- Forced convection of heat transfer is caused by difference in density arising from temperature gradient.

Good Luck
Dr. Riad El-Qidra