Seat No.:---------- *Enrolment No.:----------*

UKA TARSADIA UNIVERSITY

Maliba Pharmacy College

B. Pharm 1st Semester Internal Examination 2013 (*Mid-Sem 2*)

030020103- Pharmaceutical engineering

Time: 10:00 a.m. To 1:00 p.m. Max. Marks: **70**

Date: 30/11/2013

Instructions:

- Question no. **1 is compulsory.**
- From Q.2 to Q.7 attempt any **four** questions.
- Make suitable assumption whenever necessary.
- Figures to the right indicate full marks.

Q.1 **(a)** **Answer the following: (any six)** **06**

1. Differentiate unit operation and unit process.
2. Explain : Vena contracta
3. Define: Sublimation
4. Specify the pore size of membrane filter used for sterilisation process.
5. Define : Filter cake
6. What is the function of valve placed in pipeline fittings?
7. Comment: Type of solids in slurry affects selection of filter medium in filtration process.
8. Comment on type of flow of the fluid having Reynold's number 6799.

(b) **Describe in brief: (any four)** **08**

1. Convert 70 lb/ft3 to gm/cm3.
2. Enlist types of manometers used to measure pressure.
3. Explain the term with suitable example : Dimensionless equation
4. Differentiate between evaporation and distillation.
5. Discuss principle of fluid/fluid mass transfer process.
6. Write classification of steam traps with suitable examples.

Q.2 (a) Write principle, construction, working, advantages and disadvantages of orifice meter. **04**

(b) Derive Bernoulli's energy equation for steady flow of fluid in a pipe. **05**

(c) Write principle, construction, working, advantages and disadvantages of rota meter. **05**

Q.3 (a) A salt solution originally contains 4 % w/v sodium chloride in water. It is evaporated to 5% w/v solution. Calculate % of water evaporated during evaporation process. **04**

(b) Describe the types of pressure existing when fluid is flowing through a pipe. **05**

(c) Explain types of graphical representations utilized for data interpretation in pharmacy. **05**

Q.4 (a) Write principle, construction, working and modifications of rotary drum filter. **04**

(b) Discuss about factors affecting rate of filtration. **05**

(c) Discuss principle, construction, working, advantages and disadvantages of Plate and Frame filter press. **05**

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Q.5	(a)	Write short note on vacuum distillation.	**04**
	(b)	Explain McCabe Thiele method for calculation of number of theoretical plates in distillation.	**05**
	(c)	Discuss the principle and applications of Azeotropic distillation and Steam distillation.	**05**
Q. 6	(a)	What is fractionating column? Give classification and explain Bubble cap column.	**04**
	(b)	Explain factors affecting Evaporation.	**05**
	(c)	Write principle, construction, working, merits and demerits of climbing film evaporator.	**05**
Q.7	(a)	What is black body? Write a note on Stefan- Boltzman's law.	**04**
	(b)	Explain concept of film in process of convection.	**05**
	(c)	Write Fourier's law. Derive an equation for rate of heat transfer when the resistances are in parallel.	**05**