

Seat No.:-----

Enrolment No.:-----

UKA TARSADIA UNIVERSITY

Maliba Pharmacy College

B. Pharm 1st Semester Mid-Semester Examination Nov 2012

030020101- Pharmaceutical Engineering

Time: 01:30 p.m. To 4:30 p.m.

103

Max. Marks: 70

Date: 26/11/2012

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 Define material balance.
 - 2 Define key substance.
 - 3 Define filter medium.
 - 4 Explain the term of magnetron.
 - 5 Explain the term of sublimation.
 - 6 Define: Coefficient of thermal conductivity
 - 7 Enlist three types of heat possessed by steam.
 - 8 Enlist different units of heat.
- (b) Describe in brief: (any four) 08
- 1 Define filter aid and write the ideal properties of filter aid
 - 2 Convert the unit 140 gm/cm^3 to lb/ft^3
 - 3 A centrifuge with a diameter of 2 m rotates at a frequency of 30 s^{-1} Calculate centrifugal effect
 - 4 Enlist the factor affecting on rate of drying.
 - 5 Write advantages of steam as heating medium.
 - 6 Differentiate distillation and drying.
- Q.2** (a) Write the difference between unite operation and unite process. 04
- (b) Explain the Amagat's law of additive volumes. 05
- (c) Derive the $PV=n R T$. 05
- Q.3** (a) Discuss the factors affecting of rate of filtration. 04
- (b) Write the principal, construction, working, advantage, disadvantage and applications of rotary drum filter. 05
- (c) Write the pharmaceutical applications of filtrations. 05
- Q.4** (a) Define centrifuge and Write the applications centrifuge. 04
- (b) Drive the centrifugal effect equation. 05
- (c) Write the principal, construction, working, advantage, disadvantage and applications of perforate basket centrifuge. 05
- Q.5** (a) Write the applications of drying in pharmaceutical industries. 04
- (b) Describe the freeze dryer. 05
- (c) Write the difference between tray dryer and spray dryer. 05
- Q. 6** (a) Write the difference between centrifugation and filtrations. 04
- (b) Write the principal, construction, working, advantage, disadvantage and applications of conical disc centrifuge. 05
- (c) Write the principal, construction, working, advantage, disadvantage and applications of vacuum dryer. 05

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- Q.7 (a) Explain Stefan Boltzmann Law along with its derivation. What is black body? 04
- (b) Derive an equation for Log Mean Temperature Difference. 05
- (c) Explain briefly various modes of heat transfer. 05

Max. Marks: 20

103

Time: 01:30 p.m. To 4:30 p.m.

Date: 28/11/2012

Instructions:

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

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

1. Define material balance.
2. Define key substance.
3. Define filter medium.
4. Explain the term of magnetron.
5. Explain the term of sublimation.
6. Define Coefficient of thermal conductivity.
7. List three types of heat possessed by steam.
8. List different units of heat.

(b) Describe in brief: (any four)

1. Define filter aid and write the ideal properties of filter aid.
2. Convert the unit 140 g/cm^3 to lb/ft^3 .
3. A centrifuge with a diameter of 1 m rotates at a frequency of 30 s. Calculate centrifugal effect.
4. List the factor affecting on rate of drying.
5. Write advantages of steam as heating medium.
6. Distinguish distillation and drying.

Q.2 (a) Write the difference between units operation and unit process. 04

(b) Explain the Amagat's law of additive volumes. 02

(c) Derive the PV=nRT. 02

Q.3 (a) Discuss the factors affecting of rate of filtration. 04

(b) Write the principal construction, working, advantage, disadvantage and applications of rotary drum filter. 02

(c) Write the pharmaceutical applications of filtration. 02

Q.4 (a) Define centrifuge and write the applications centrifuge. 04

(b) Give the centrifugal effect equation. 02

(c) Write the principal construction, working, advantage, disadvantage and applications of perforate basket centrifuge. 02

Q.5 (a) Write the applications of drying in pharmaceutical industries. 04

(b) Describe the freeze dryer. 02

(c) Write the difference between tray dryer and spray dryer. 02

Q.6 (a) Write the difference between centrifugation and filtration. 04

(b) Write the principal construction, working, advantage, disadvantage and applications of conical disc centrifuge. 02

(c) Write the principal construction, working, advantage, disadvantage and applications of vacuum dryer. 02