UPES
UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: B.Pharmacy
Program: Pharmaceutical Engineering
Course Code: BP304T

Semester: 3rd
Duration: 03 Hours
Max. Marks: 75

Instructions:

SECTION A
(20Qx1M=20 Marks)

S. No.		Marks	Cos
Q 1	**Statement of question**		
1.	**Bacterial cells are separated from bacterial culture via:** a. Centrifugation b. Drying c. Size reduction d. Crystallization	**1**	**CO1**
2.	**Enumerate the types of flow patterns exhibited by liquid in motion**	**1**	**CO1**
3.	**Which of the following is not a mechanism of heat transfer** a) Conduction b) Centrifugation c) Radiation **d)** Convection	**1**	**CO4**
4.	**Which one is called moderately fine powder?** a. It is powder in which all the particles must pass through the sieve no. 10 b. It is powder in which all the particles must pass through the sieve no. 22 c. It is powder in which all the particles must pass through the sieve no. 44 d. It is powder in which all the particles must pass through the sieve no. 85	**1**	**CO1**
5.	**Which of the following is Mode of Size Separation?** A. Cutting B. Compression C. Elutriation D. Attrition	**1**	**CO1**
6.	**State true/false. Reynold's number is unitless quantity.** a) **True** b) **False**	**1**	**CO1**
7.	Differentiate between Fluid Statics & Fluid Dynamics.	**1**	**CO1**
8.	**The efficiency of a ball mill is maximum at** (a) High speed (b) Low speed (c) 2/3 rd speed	**1**	**CO1**

	(d) Very high speed		
9.	**Reynold's number (Re) for turbulent flow of a fluid is** (a) <2000 (b) >2000 (c) 2000-4000 (d) >4000	**1**	**CO1**
10.	**Distillation under reduced pressure…….** **a)** It increases boiling point of liquid b) It decreases boiling point of liquid	**1**	**CO2**
11.	**Define Black body.**	**1**	**CO2**
12.	**What is distillate in distillation.** A. Feed liquid B. Dilute solution C. Concentrated solution D. Distilled liquid collected after condensation	**1**	**CO2**
13.	State and express Fourier's Law of heat transmission with equation.	**1**	**CO2**
14.	**This mixer/blender is suitable for emulsions:** A. Ribbon blender B. V cone blender C. Silverson mixer D. Planetary mixer	**1**	**CO3**
15.	Mention the equipment used for solid-solid mixing.	**1**	**CO3**
16.	**Following is not a filter aid:** (a) Diatomite (b) Carbon (c) Gelatin (d) Asbestos	**1**	**CO4**
17.	What is effect of porosity of cake on rate of filtration?	**1**	**CO4**

18.	**Is it false that as per fick's law of diffusion, rate of mass transfer is directly proportional to surface area exposed to solvent.**
	    a. Yes
	    b. No
		1	**CO4**

19.	How does viscosity affect rate of filtration.	**1**	**CO4**
20.	Which of the following is not the theory of corrosion (a) Acid theory of corrosion (b) Chemical theory of corrosion (c) Bronsted theory of corrosion	**1**	**CO5**
SECTION B (20 Marks) **(2Qx10M=20 Marks)**		
Attempt 2 Question out of 3			
Q 1	**Statement of question**		
1.	Discuss in brief the principle, construction, and working of fractional distillation assembly.	**2+4+4**	**CO2**

2.	Describe the construction and working of planetary mixer and ribbon blender.	5+5	CO3
3.	Classify materials of pharmaceutical plant construction. Discuss about use of stainless steel in pharmaceutical industries.	5+5	CO5

SECTION-C (35 Marks)
(7Qx5M=35 Marks)

Attempt 7 Question out of 9

Q 1	Statement of question		
1.	Explain effect of density on velocity of sedimentation via stokes law	5	CO4
2.	What is significance of critical speed of ball mill. Explain with the help of diagram	5	CO1
3.	Explain conduction and convection mechanisms of heat transfer.	2.5+2.5	CO2
4.	Describe fractional distillation assembly in brief.	5	CO2
5.	Can a planetary mixer be used for mixing semisolids. Justify your answer	5	CO3
6.	Discuss principle and working of fluid energy mill.	5	CO3
7.	How would you increase rate of filtration if pores of filter medium are choked by sticky sample?	5	CO4
8.	Draw a neat and labelled diagram of perforated centrifuge.	5	CO4
9.	Write a note on inhibition of corrosion.	5	CO5