JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester III) Examination Dec 2024

Programme: B. Pharm
Course: Pharmaceutical Engineering **Full Marks: 75**
Course Code: BP304T **Time: 3 Hrs.**
Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Objective Type Questions**			
	i. The fluid flows through the filter medium by virtue of – a) The potential difference across the filter b) Pressure difference across the filter c) Temperature difference across the filter d) Volume difference across the filter ii. Which one of the following is not a mechanism of filtration? – a) Entanglement b) Impact c) Impingement d) Straining iii. The efficiency of filtration increases if, - a) The compressibility of solids is high b) Filter aid is added to the slurry c) Filter medium is used d) Size distribution of solids is wide in slurry iv. Which is the principle difference (in the properties) that influences centrifugation – a) Densities b) Interfacial tension c)Particle size d)Viscosities v. A centrifugal method is used for one of the following forces – a) Mixing b) Purification c) Separation d) Sizing vi. What is the process of separating components or substances from a liquid mixture by using vaporization and condensation called? - a) Filtration b) Distillation c) Sublimation d) Evaporation vii. What are the two main steps involved in the distillation process? - a) Mixing and cooling b) Filtering and evaporation c) Converting liquid into vapor and transferring vapor for condensation d) Freezing and heating viii. In the distillation process, what is the term used for the feed liquid? - a) Distillate b) Distilland c) Solvent d) Residue ix. What do you call the liquid that is recovered after condensation in the distillation process? - a) Residue b) Distilland c) Solvent d) Distillate or condensate x. What is another name for the simple distillation process, based on differences in volatilities and vapor pressure? - a) Fractional distillation b) Differential distillation c) Azeotropic distillation d) Vacuum distillation xi. Which product is not dried by a spray dryer? a) bacterial & viral cultures b) fruit juices c) lactose d) serum xii. At a given temperature and humidity, if the moisture content of a material is greater than EMC, then the following process takes place a) absorption b) adsorption c) desorption d) sorption xiii. Fluidized bed dryer has one of the following advantages? a) attrition is not observed b) entire material is continuously exposed to a heat source c) fluffy mass is formed d) humidity can be increased xiv. Which is the factor that does not influence the rate of evaporation – a) Difference in vapour pressure b) Melting points of solids c) The surface area of the evaporator d) The viscosity of the solution xv. Which operation is subsequent to evaporation? - a) Crystallization b) Distillation c) Drying d) Extraction xvi. Fourier's law is applicable to one of the following types of heat flow. – a) Conduction b) Convection c) Radiation d) Emission xvii. In the microwave oven, the heat flows in one of the following mechanisms. – a) Conduction b) Convection c) Diffusion d) Radiation xviii. Which of the following dryer is known as Lyophiliser? a) fluidised bed dryer b) freeze dryer c) spray dryer d) vacuum dryer xix. What is a use of Propeller Mixer? - a) viscous emulsions and liquids b) Wet granulation process c) Particle size reduction d) Gas mixing xx. What is a merit of Turbine Mixer compared to a Propeller Mixer? - a) Higher pumping rate b) Greater shearing force c) Lower power consumption d) Effective for vortex formation	CO1	Remember	**1 x 20 = 20**
	Section II			
2. Short Answer type questions.				**7 x 5 = 35**

a	Elaborate with detailed labelled diagram, the construction and working of cyclone separator with its application.	CO1	Remember	
b	Explain the modes of heat flow.	CO2	Understand	
c	With neat labelled diagram, elaborate the construction and working of Freeze Dryer.	CO3	Remember	
d	Describe the Working principle and construction of Rotary Drum filter.	CO4	Remember	
e	Enumerate the types of glass.	CO5	Understand	
f	Explain how Kick's Theory governing the process of Size Reduction.	CO1	Understand	
	or			
	Which milling equipment is used for Antibiotics and Vitamins? Explain.	CO1	Understand	
g	Explain the principle and procedure of molecular distillation.	CO2	Remember	
	or			
	How is multiple effect evaporator advantageous over single effect Evaporator?	CO2	Understand	
Section III				
Long Answer Type questions				
3	Discuss with neat labelled diagram with a neat diagram, the construction and working of Silverson emulsifier.	CO3	Analyze	**2 x 10 = 20**
	or			
	Discuss with neat labelled diagram the construction and working of Fluidized Bed Dryer with its Advantages and disadvantages.	CO3	Analyze	
4	Comment on the construction and working of Cartridge filter with a neat labelled diagram. Explain its uses, advantages and disadvantages.	CO4	Analyze	
	or			
	Comment on the construction and working of supercentrifuge with a neat labelled diagram. Elaborate its uses, advantages and disadvantages.	CO4	Analyze	

Course Outcomes (CO):

CO1: To know various unit operations used in pharmaceutical industries. To understand the material handling techniques.
CO2: To perform various processes involved in pharmaceutical manufacturing process.
CO3: To carry out various test to prevent environmental pollution.
CO4: To appreciate and comprehend significance of plant lay out design for optimum use of resources.
CO5: To appreciate the various preventive methods used for corrosion control in pharmaceutical industries.