

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, December 2020**

**Course: Pharmaceutical Engineering**

**Program: B. Pharm.**

**Course Code: BP304T**

**Instructions: All the sections are compulsory.**

**Semester: III**

**Time: 03 hrs.**

**Max. Marks: 75**

**SECTION A**

**1. Each Question will carry 1 Marks**

**2. Instruction: MCQ and True or False/ Select the correct answer(s), Answers all the 20 questions.**

S. No.	Questions	CO
Q 1	The main objective of Pharmaceutical engineering to understand. A) Unit operation B) Material handling technique C) Pharmaceutical manufacturing process D) All of the above	CO1
Q 2	The size reduction principle in the hammer mill is based upon. A. Impact B. Attrition and shear C. Both A and B D. None of the above	CO1
Q 3	The main principle involved in sieve shaker for particles size separation. A. Vibration and Oscillation B. Mixing C. Centrifugation D. None of the above	CO1
Q 4	In the fluid dynamics, manometers is used for. A. Absolute Temperature B. surface tension C. Absolute pressure D. viscosity	CO1
Q 5	When heat is transferred from hot body to cold body, in a straight line, without affecting the medium, this phenomenon is known as. A. Radiation B. Conduction C. Convection D. None of the above	CO2
Q 6	Heat transfer from one medium to another medium when they have different. A. Medium B. Atomic Structure C. Temperature D. Composition	CO2
Q 7	If surface area of evaporating equipment's is large and viscosity of the evaporating medium is lesser then rate of evaporation is. A. High B. low C. Neutral D. All the above	CO2
Q 8	Due to evaporation, what is the effect on medium A. Heating effect B. Cooling effect C. Weight increases D. All the above	CO2
Q 9	The technique which can not used help to separate liquid mixtures. A. Distillation B. Filtration C. Centrifugation D. All the above	CO4
Q 10	The technique which can help to separate solid mixtures. A. Distillation B. Filtration C. Centrifugation D. All the above	CO4

Q 11	Which mixers are used when the one of the component is very less in quantity. A. Double cone B. Planetary C. Ribbon D. All the above	<b>C03</b>
Q 12	The force used for mixing in the mixing equipments A. Impact B. Tumbling C. Centrifugal D. All the above	<b>C03</b>
Q 13	For drying of powder granules which dryers is used A. Tray B. Fluidized bed dryer C. Both A and B D. Freeze dryer	<b>C03</b>
Q 14	The drying by sublimation process occur in A. Spray dryer B. Freeze dryer C. Vacuum dryer D. Drum dryer	<b>C03</b>
Q 15	If the pore size of the filter paper is larger then rate of filtration is slower. True/ False	<b>C04</b>
Q 16	If the speed of centrifugation is high, then settling rate of solid component in the liquid medium is higher. True/ False	<b>C04</b>
Q 17	If the speed of centrifugation is high, then settling rate of solid component in the liquid medium is higher. True/ False	<b>C04</b>
Q 18	Nonferrous plant construction materials is preferred making for gelatinous capsules. True/ False	<b>C05</b>
Q 19	In a boiler the stainless steel (Grade SS 316) produces more corrosion than wrought iron. True/ False	<b>C05</b>
Q 20	For the transportation of pharmaceutical dosage form plastic material is more glass materials. True/ False	<b>C05</b>

### SECTION B

**1. Each question will carry 10 marks. Answer any two questions out of three questions.**

**2. Instruction: Long Answer type questions**

Q 1	a) Explain the Fourier's law and conduction, convection and radiation in heat transfer mechanism. b) Define and differentiate between heat exchangers heat interchangers with instruments construction, working principle and application.	<b>C02</b>
Q 2	a) Discuss each steps of drying curve with graph. b) Explain the working principle, construction, application, merits and demerits of fluidized bed dryer and freeze dryer.	<b>C03</b>
Q 3	a) Define evaporation, various factor affecting evaporation. Explain the working principle, construction and economy of multiple effect evaporator. b) Explain the working principle, construction, application, merits and demerits of fluidized bed dryer and freeze dryer.	<b>C03</b>

### SECTION C

**1. Each question will carry 5 marks. Answer any seven questions out of nine questions**

<b>2. Instruction: Short Answers type questions</b>		
		<b>35</b>
Q 1	Discuss working principle, construction, application, merits and demerits of plate and frame filter and rotary drum filter.	<b>C04</b>
Q 2	Discuss working principle, construction, application, merits and demerits of double cone blender and silverson emulsifier.	<b>C03</b>
Q 3	Define theories of filtration and various factor affecting filtration with suitable examples.	<b>C04</b>
Q 4	Explain the different application of centrifugation in industry with examples.	<b>C04</b>
Q 5	Explain the factors affecting for materials selection for pharmaceutical plant construction.	<b>C05</b>
Q 6	Discuss working principle, construction, application, merits and demerits of sieve shaker.	<b>C01</b>
Q 7	Discuss the application or significance of size reduction in pharmaceutical industry. Enlist the factors affecting size reduction.	<b>C01</b>
Q 8	Explain in brief theories of corrosion and their prevention in the industry.	<b>C05</b>
Q 9	Explain the Reynold number and Bernoulli's theorem by using suitable example of instrument.	<b>C01</b>