

Total No. of Questions: 3

Total No. of Printed Pages: 2



Enrollment No.....

Faculty of Pharmacy

End Sem Examination Dec 2024

PY3CO12 Pharmaceutical Engineering

Programme: B. Pharm.

Branch/Specialisation: Pharmacy

Duration: 3 Hrs.

Maximum Marks: 75

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

	Marks	BL	PO	CO	PSO
Q.1 i.	Enlist factors affecting size reduction.	2	1	1,2	1
ii.	Explain the types of energy losses.	2	1	1,2	1
iii.	Define black body and grey body.	2	2	1,2	2
iv.	Merits and demerits of steam jacketed kettle.	2	2	1,2	2
v.	Define equilibrium moisture content and critical moisture content.	2	2	1,2	3
vi.	Describe mechanisms of drying.	2	2	1,2	3
vii.	Write any four factors affecting rate of filtration.	2	2	1,2	4
viii.	State the principle of centrifugation.	2	1	4	1,2
ix.	Enlist types of glass used in pharmaceutical industry.	2	2	1,2	5
x.	Enlist non-metals used as material of plant construction.	2	2	1,2	5

Q.2 Attempt any two:

i.	Explain the working, principle and construction of venturi meter with neat labelled diagram.	10	1	1,2	1
ii.	Classify evaporators. Describe construction, working and advantages of film evaporators.	10	2	1,2	2
iii.	(a) Derive the mathematical expression for simple manometer. (b) Describe principle and construction of distillation under reduced pressure with neat labelled diagram.	5	1	1,2	1
		5	2	1,2	2

[2]

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

- |      |   |   |   |     |   |
|------|---|---|---|-----|---|
| i.   | Describe the principle and construction of drum dryer with neat labelled diagram. | 5 | 2 | 1,2 | 3 |
| ii.  | Explain mechanisms of mixing with advantages and disadvantages of V cone blender. | 5 | 2 | 1,2 | 3 |
| iii. | Explain equilibrium moisture content and drying rate curve.                       | 5 | 2 | 1,2 | 3 |

Section - B

- |     |   |   |   |     |   |
|-----|---|---|---|-----|---|
| iv. | Explain principle, construction and advantages of plate and frame filter press. | 5 | 2 | 1,2 | 4 |
| v.  | Explain construction, working and uses of perforated basket centrifuge.         | 5 | 2 | 1,2 | 4 |
| vi. | Explain principle and working of super centrifuge with neat labelled diagram.   | 5 | 2 | 1,2 | 4 |

Section - C

- |       |   |   |   |       |   |
|-------|---|---|---|-------|---|
| vii.  | Explain factors influencing selection of materials for pharmaceutical plant construction. | 5 | 2 | 1,2,3 | 5 |
| viii. | Explain theories of corrosion.  | 5 | 2 | 1,2,3 | 5 |
| ix.   | Classify material for plant construction and describe ferrous metals.                     | 5 | 2 | 1,2,3 | 5 |

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## **Marking Scheme**

### **PY3CO12 (T) Pharmaceutical Engineering (T)**

Q.1	i)	Factors affecting size reduction	-Each 0.5 marks	<b>2</b>
	ii)	Types of energy losses any 2	-Each 1 marks	<b>2</b>
	iii)	Definition - black body and grey body	-Each 1 mark	<b>2</b>
	iv)	Merits and demerits of steam jacketed kettle	-Each 0.5 marks	<b>2</b>
	v)	Definition- equilibrium moisture content and critical moisture content	-Each 1 mark	<b>2</b>
	vi)	Mechanisms of drying	-2 marks	<b>2</b>
	vii)	Four factors affecting rate of filtration	-Each 0.5 marks	<b>2</b>
	viii)	Principle of centrifugation	-2 marks	<b>2</b>
	ix)	Types of glass used in pharmaceutical industry	-Each 0.5 marks	<b>2</b>
	x)	Types of non-metals	-Each 0.5 marks	<b>2</b>

Q.2	Attempt any two:		
	i.	About venturi meter, working, principle and construction with neat labelled diagram	<b>10</b>
		-Each 2 marks	
	ii.	Classification evaporators construction, working and advantages of film evaporators – -Each 2 marks	<b>10</b>

Q.3	Attempt any seven: Two questions from each section is compulsory.		
<b>Section - A</b>			
	i.	Principle (2 marks) and construction (2 marks) of drum dryer with neat labelled diagram (1 mark).	<b>5</b>
	ii.	Mechanisms(1marks) of mixing with advantages (2 marks) and disadvantages (2 marks) of V cone blender.	<b>5</b>
	iii.	equilibrium moisture content (2 marks) and drying rate curve (3 marks)	<b>5</b>
<b>Section - B</b>			
	iv.	Principle (2 marks), construction (2 marks) and advantages (1 mark) of plate and frame filter press.	<b>5</b>

v.	Construction (2 marks), working (2 marks) and uses (1 mark) of perforated basket centrifuge.	<b>5</b>
vi.	Principle (2 marks) and working (2 marks) of super centrifuge with neat labelled diagram (1 mark).	<b>5</b>

### **Section - C**

vii.	Factors influencing selection of materials for pharmaceutical plant construction	<b>5</b>
	-5 marks	
viii.	Theories of corrosion	<b>5</b>
ix.	Classification of material for plant construction Description of ferrous metals	<b>5</b>
	-2.5 marks	
	-2.5 marks	

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