

APRIL - 2001

[KD 717]

Sub. Code : 4205

THIRD B.Pharmacy DEGREE EXAMINATION.

Paper V — PHARMACEUTICAL TECHNOLOGY

(Common to Third Year — Revised Regulations and
Re-revised Regulations)

Time : Three hours

Maximum : 75 marks

Answer Sections A and B in the same Answer Book.

Give diagrams wherever necessary.

SECTION A — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

1. Define "Capsulable mix" in soft gelatin capsule technology. Describe large scale filling of soft gelatin capsules.
2. Explain the Mier's Supersaturation theory of crystallisation. Give operational details of a vacuum crystallizer.
3. Give the principle and operational details of a freeze drier.

4. Explain about membrane filters, and their applications. What is the method of filtration using membrane filters?

5. Describe the operational details of a cyclone separator in size separation.

6. Explain how weight of a tablet and hardness are adjusted during compression.

7. Define "optimisation". How is it useful in operating efficiently a Ball mill?

8. Suggest a suitable mixer for mixing viscous liquids and their operation.

9. Define corrosion. Give the various preventive measures to prevent corrosion.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

All questions carry equal marks.

10. (a) Explain the theory behind fractional distillation. Explain the use of this technique to produce rectified spirit.

(b) Explain about "calendria" as a heat changer equipment. Give the operational details of an evaporator based on calendria.

(8 + 7)

APRIL - 2001

11. (a) Explain the design and principle of working of a liquid-liquid extractor and its applications.

(b) Explain how a horizontal driven centrifuge works by giving design, operational details and its applications. (8 + 7)

12. (a) Explain about "Homogenisers". Suggest a few machines and their operations to produce emulsions with uniform globule size.

(b) Explain how Refrigeration is carried out. Explain the design of a cold storage room and its applications. (8 + 7)

13. (a) Classify valves. Explain the design and applications of each valve.

(b) Give the operational details of a reciprocating pump and its advantages. (8 + 7)

14. (a) Explain about the design of a fermentor for submerged culture fermentation. Also explain how various process parameters are controlled.

(b) Give the operational details of an Edge filter and write about its advantages. (8 + 7)

NOVEMBER - 2001

[KE 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

Paper V — PHARMACEUTICAL TECHNOLOGY

**(Common to Third Year — Revised Regulations and
Re-revised Regulations)**

Time : Three hours

Maximum : 75 marks

Answer Sections A and B in same Answer Book.

Give diagrams wherever necessary.

SECTION A — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

1. Describe about parameters to be controlled during fermentation. Explain how air flow is controlled.
2. Explain about distillation technique to separate volatile oils from crude drugs such as clove.
3. Explain the operational details of a vacuum drier and its applications.

4. Explain how Soxhlet apparatus designed for solid-liquid extraction.

5. Explain about the use of filter aids in increasing rate of filtration.

6. Explain how a continuous type centrifuge work for solid-liquid separation.

7. Explain the operational details of a Tripple Roller mill and its applications.

8. Define mixing. What are factors influence power-powder mixing.

9. Explain about "Do's" and "Dont's" for safety operation of an autoclave.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

All questions carry equal marks.

10. (a) Describe large scale automatic filling of powders in hard gelatin capsules.

(b) Explain how large scale filtration is done with a filter press.

(8 + 7)

NOVEMBER - 2001

11. (a) Describe various factors influence size reduction. Explain mechanism by which size reduction can be done.

(b) Suggest and explain operational details of size reducer to produce micronised powder. Give its merits and demerits. (8 + 7)

12. (a) Discuss how flow rate of liquids are measured in pipes. Also explain how flow rate is controlled.

(b) Give the operational details of a rotary pump. Compare its functioning with centrifugal pumps. (8 + 7)

13. (a) Explain the operational details of Rotary Tablet machine – GMP model.

(b) Define “Humidity”. Explain about importance of humidity while filling hard gelatin capsules. Suggest its operational details of equipments to control humidity. (8 + 7)

14. (a) Describe various principles of crystallisation. Suggest and explain two large scale fermentors operation to get bigger crystals.

(b) Give the operational details of spray drier, its advantages and disadvantages. (8 + 7)

MARCH - 2002

[KG 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

Paper V — PHARMACEUTICAL TECHNOLOGY

(Common to Third Year Revised Regulations and
Re-Revised Regulations)

Time : Three hours

Maximum : 75 marks

Answer Sections A and B in same Answer Books.

Give diagrams and equations wherever necessary.

SECTION A — ($6 \times 5 = 30$ marks)

Answer any SIX questions.

All questions carry equal marks.

1. Explain the different mechanisms of corrosion.
2. Derive the equation for the measurement of pressure (ΔP) using a U tube manometer.
3. Give the advantages and disadvantages of iron as a material of plant construction.
4. With a schematic diagram, explain different parts and working principle of a vapour compression type refrigerator.
5. Give the construction and working of a fluid energy mill.
6. Write a note on the effect of different compressional forces seen during tablet punching.

7. Give the advantages, disadvantages and applications of different types of glass used for packaging.

8. Explain the different methods of measuring humidity.

9. Classify the different types of turbines and propellers employed in liquid-liquid mixing with their advantages and disadvantages.

SECTION B — ($3 \times 15 = 45$ marks)

Answer any THREE questions.

All questions carry equal marks.

Give diagrams wherever necessary.

10. (a) Give the construction, working and applications of a rotameter.

(b) Write a note on the principle, working, advantages and disadvantages of reciprocating pumps.

11. (a) Discuss the engineering principles with equations involved in the process of size reduction.

(b) Describe the construction and working of an equipment for size reduction which works on the principle of both attrition and impact.

12. (a) Explain the different theories of drying.

(b) With a neat diagram explain the principle of a spray dryer.

MARCH - 2002

13. (a) Explain the Mier's theory of super saturation.
(b) Describe in detail the construction and working principle of a continuous crystallizer.
14. (a) Describe the rotary die process of filling employed in soft gels.
(b) Explain the process of Azeotropic distillation.
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SEPTEMBER - 2002

[KH 717]

Sub. Code : 4205

THIRD B.Pharmacy DEGREE EXAMINATION.
Paper V — PHARMACEUTICAL TECHNOLOGY
(Common to Third Year Revised Regulations and
Re-Revised Regulations)

Time : Three hours

Maximum : 75 marks

Answer Sections A and B in the same Answer Book.

Give diagrams wherever necessary.

SECTION A — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

1. Explain the working of a ball mill.
2. Discuss briefly the role of stainless steel in plant construction.
3. What is the influence of temperature on corrosion?
4. Write a note on handling of inflammable chemicals.
5. Explain the importance of finned tubes in heat transfer.
6. Show how Reynold's number is dimensionless.
7. What is dew point and how is it determined?

8. Giving examples and explain the importance of refrigeration in pharmacy.

9. What are the ideal qualities of a good pharmaceutical package?

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

All questions carry equal marks.

10. Explain briefly the design and operation of different types of fractionating columns employed for large scale distillation work. (15)
11. (a) Discuss the factors that influence the efficiency of solid-liquid extraction process. (10)
(b) Briefly explain the working of a colloid mill. (5)
12. (a) Discuss the working of machinery used in the filling of medicaments in Hard Gelatin capsules. (8)
(b) Write a note on importance of freeze drying in pharmaceutical industry. (7)
13. (a) Discuss the design and operation of an antibiotic fermentor. (10)
(b) Write on the application of membrane filters in pharmacy. (5)

SEPTEMBER - 2002

14. (a) Explain the working of a rotary tablet punching machine. (9)

(b) Briefly explain the functioning of reciprocating pumps. (6)

APRIL - 2003

[KI 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

Answer Sections A and B in SAME Answer Book.

Give diagrams and equations wherever necessary.

SECTION A — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

1. Discuss in brief the methods for prevention of corrosion.
2. Give an account of different valves used in flow control.
3. Enumerate the different types of equipments used for extraction and explain Podbielniak extractor in detail.
4. Give the construction of a venturimeter with a diagram and explain how it is used for measuring fluid flow.
5. Discuss the design of a fermentor.

6. Write a note on the theory of wet bulb temperature.

7. What are the pre-requisite qualities for a good packaging material?

8. Write a note on the different factors affecting the strength of tablets.

9. Explain the working of a filter press.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

All questions carry equal marks.

Give diagrams wherever necessary.

10. (a) Define drying and mention the different types of drying apparatus.

(b) Describe the construction and working of a fluidized bed dryer.

11. (a) Explain the principle and working of multiple effect evaporator.

(b) Discuss in detail the mechanisms of liquid mixing.

12. (a) Write a note on solubility curves.

(b) Describe the construction and working of an agitated batch crystallizer.

APRIL - 2003

13. (a) Describe the different types of rectifying columns.

(b) Explain the process of steam distillation.

14. (a) Explain the construction and working of a colloid mill.

(b) With a neat schematic diagram, explain the operation of a rotary tablet press.

OCTOBER - 2003

[KJ 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

Two hours and

Sec. A & Sec. B : 60 marks

forty five minutes

Section C : 15 marks

for Sec. A and Sec. B

Fifteen minutes for Section C

Answer Sections A and B in the SAME Answer Book.

Give diagrams and equations wherever necessary.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO.

1. Describe the operational principle, design and method of using the venturimeter. How does it differ from a 'Pitot tube' and a 'Rotameter'?
2. With the aid of a very neat and labelled diagram discuss the operation, applications, merits and demerits of "Freeze Drying" (or) "Spray Drying" system.

3. (a) Explain the construction and working of a colloid mill.

(b) With a neat schematic diagram explain the operation of a rotary tablet press.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX.

Write short notes on :

4. Refrigeration cycle.
5. Soft Gelatin Capsule filling (neat & labelled diagram of machine only).
6. Tablet compression cycle in a single punch machine.
7. Stainless steel as material of plant construction.
8. Automation of a fermenter.
9. Discuss in brief the methods for prevention of corrosion.
10. What are the ideal qualities of a good pharmaceutical package?

APRIL - 2004

[KK 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

Sec. A & B : Two hours and
forty-five minutes

Sec. A & B : 60 marks

M.C.Q : Fifteen minutes

M.C.Q : 15 marks

Answer Sections A and B in the SAME Answer Book.

Give diagrams and equations wherever necessary.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO.

1. Explain in detail factors affecting corrosion and types of corrosion.
2. (a) Explain the principle, construction and working of a ball mill.
(b) Give the principle, design and operation of Planetary mixer.
3. Explain the principle, design and working of Swenson Walker Crystallizer.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX.

4. Write short note on Spray drying.
5. Explain briefly Humidity charts and its utility.
6. Explain filling of hard gelatin capsules.
7. Explain the different parts of a fermentor.
8. Write a note on packaging materials used in the pharmaceutical industry.
9. Write a note on Tablet Compression machine.
10. Compare and contrast Reciprocating pumps and centrifugal pumps.
11. Write a note on Refrigeration cycle.

AUGUST - 2004

[KL 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

**Sec. A & B : Two hours and
forty five minutes**

Sec. A & B : 60 marks

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Answer Sections A and B in the SAME Answer Book.

Give diagrams and equations wherever necessary.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Discuss about the operation of multiple effect evaporators. Discuss their merits and limitations.
2. Explain the design of a fermentor and automation involved in it.
3. (a) Give the construction, working and applications of a rotameter. (7)
(b) Write a note on the principle, working, advantages and disadvantages of reciprocating pumps. (8)

SECTION B — (6 × 5 = 30 marks)

Write short notes on any SIX.

4. Containers and closure types for pharmaceutical preparations.
5. Operation of rotary continuous filters and its merits and demerits.
6. Operation of a continuous centrifuge for separation process.
7. Operational details of a freeze drier (Lyophilisation).
8. Explain the different mechanism of corrosion.
9. Compare operational details of Agitated Batch crystallizer and Swanson Walker crystallizer.
10. Give the construction and working of a fluid energy mill.
11. Explain the different methods of measuring humidity.

[KL 717]

FEBRUARY - 2005

[KM 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours Maximum : 75 marks

**Sec. A & B : Two hours and Sec. A & B : 60 marks
forty-five minutes**

M.C.Q. : Fifteen minutes M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

All questions carry equal marks.

1. (a) What is wet bulb temperature? Discuss the theory involved.

(b) How do you determine humidity? Mention the importance of humidity control in pharmaceutical industry. (8 + 7)

2. (a) Describe various principles of crystallisation. Suggest and explain 2 large scale crystallisers to get bigger crystals.

(b) Give the operational details of spray drier and its applications. (8 + 7)

3. (a) Give the operational details of Rotary Tablet Machine.

(b) Write about filling equipments for liquids and hard gelatin capsules. (7 + 8)

4. (a) Define Bernoulli's theorem and explain.

(b) Describe the construction and working of a differential manometer. (7 + 8)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

5. What is evaporator capacity? Discuss the significance of evaporation in Pharmacy.

6. Discuss Molecular Distillation.

7. What are filter aids? Write about Disc filters.

8. Discuss the principle involved in cyclone separators.

9. Classify centrifuges and discuss any one.

FEBRUARY - 2005

10. What is liquid, liquid extraction and brief about Podbielniak extractor?
 11. What is the importance of mixing in Pharmacy? Brief about Double cone blender.
 12. Discuss the construction and working of Air-conditioner.
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AUGUST - 2005

[KN 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

**Theory : Two hours and
forty five minutes**

Theory : 60 marks

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. (a) Define relative humidity, dew point, humid volume and humid heat.

(b) Discuss Humidity chart. How do you determine Humidity by Psychrometric method? (6 + 9)

2. (a) Discuss the factors influencing size reduction. Brief about the mechanisms of size reduction.

(b) Discuss the working of a Ball Mill. (8 + 7)

3. (a) Discuss how flow of fluids is measured in pipes. Write about control of flow rate.

(b) Write about

(i) Gate valve and

(ii) Ball valve. (7 + 8)

4. (a) Explain about nucleation in crystallisation. Write about the significance of crystallisation in pharmacy.

(b) Discuss the construction and working of Oslo crystallisers. (8 + 7)

II. Short notes on : (6 × 5 = 30)

Answer any SIX questions.

All questions carry equal marks.

1. Discuss the design of a fermentor. How do you control air flow in a fermentor.

2. Explain the principle of steam distillation in the extraction of volatile oils from crude drugs.

3. Write about rotary pumps and their applications.

4. Explain the principle of refrigeration and mention the importance of refrigeration in pharmacy.

5. Discuss the principle and working of vacuum drier.

AUGUST - 2005

- 6. What are filter aids. Write about their role in filtration.**
 - 7. Discuss the principle and working of Soxhlet apparatus.**
 - 8. Discuss the factors involved in the selection of Materials for plant construction.**
 - 9. Give the mechanisms involved in solid-solid mixing, add a note on factors influencing solids mixing.**
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FEBRUARY - 2006

[KO 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

**Theory : Two hours and
forty five minutes**

Theory : 60 marks

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

All questions carry equal marks.

1. (a) Describe the construction, working, merits and demerits of a centrifugal pump. How do you compare it with a reciprocating pump.

(b) Deduce relevant equations for calculation of flow rates using orifice meter. (8 + 7)

2. (a) Discuss Mier's supersaturation theory of crystallisation. What are its limitations?

(b) With the help of a neat diagram describe the construction and working of a plate and frame filter press. (8 + 7)

3. (a) Explain the construction and operational details of a freeze dryer. Describe its pharmaceutical applications.

(b) What is corrosion? Name the various types of corrosion. How can corrosion be prevented? (7 + 8)

4. (a) Write about the operational details of a Rotary tablet machine.

(b) Describe the construction and working of a simple manometer. (7 + 8)

II. Short notes : (6 × 5 = 30)

Answer any SIX questions.

1. Describe the important feature of humidity charts.

2. Explain the principle and procedure of molecular distillation.

3. Compare and contrast the advantages and disadvantages of pitot tube and rotameter.

4. Discuss the theory involved in the wet bulb theory.

5. Explain the working of a cyclone separator and give it applications.

FEBRUARY - 2006

6. Describe the construction and working of any one equipment used for mixing of paster and plastic masses.
 7. Explain the construction and working of a fluid energy mill.
 8. Describe any one equipment used for the large scale filling of hard gelatin capsules.
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AUGUST - 2006

[KP 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

**Theory : Two hours and
forty five minutes**

Theory : 60 marks

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. (a) Define evaporation. Explain the various factors affecting evaporation.

(b) Explain the construction and working of a film evaporator. Give its applications.

2. (a) Describe the manufacture of soft gelatin capsules.

(b) Explain Base Adsorption and minim per gram factor.

3. (a) Define filtration. Write a note on filter aids and filter media.

(b) Describe the construction and working of filter leaf.

4. (a) Give the construction, working and applications of a rotameter.

(b) Write a note on the principle, working, advantages and disadvantages of reciprocating pumps.

II. Write short notes on any FOUR : (4 × 5 = 20)

1. Brine system.

2. Construction and working of reciprocating pump.

3. Ideal properties of container and closure.

4. Steam distillation and its applications in pharmacy.

5. Construction and working of ball mill.

6. Types of corrosion.

FEBRUARY - 2007

[KQ 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

Theory : Two hours and

Theory : 60 marks

forty five minutes

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. Discuss about the operation of falling film evaporator. Discuss their merits, limitations and its applications.

2. Explain the principle, construction and working of refrigeration cycle.

3. (a) Give the construction, working and applications of a venturimeter.

(b) Explain the principle, construction, working, advantages and disadvantages of single stage, single suction, open impeller volute pump.

4. (a) Give the principle, construction and working of a cycle separator.

(b) Compare the operational details of krystal crystallizer and vaccum crystallizers.

II. Write short notes on any FOUR : (4 × 5 = 20)

1. Explain the factors influencing the selection of materials for pharma plant construction.

2. Explain the different types of corrosion.

3. Operational details of a fluid bed dryer.

4. Describe the Mier's supersaturation theory of crystallization. What are the limitations of the Mier's theory?

5. Operation of a semi continuous centrifuge for seperation process.

6. Write a note on different types of distillations.

August-2007

[KR 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Time : Three hours

Maximum : 75 marks

**Theory : Two hours and
forty five minutes**

Theory : 60 marks

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

1. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. (a) Define relative humidity, dew point, humid volume and humid heat.

(b) Discuss humidity chart. How do you determine humidity by psychrometric method?

2. (a) Discuss the factors influencing size reduction. Brief about the mechanisms of size reduction.

(b) Discuss the working of a Ball Mill.

3. (a) Discuss how flow of fluids is measured in pipes. Write about control of flow rate.

(b) Write about :

(i) Gate valve and

(ii) Ball valve.

4. (a) Explain about nucleation in crystallization. Write about the significance of crystallization in pharmacy.

(b) Discuss the construction and working of Oslo crystallisers.

II. Short notes on : (6 × 5 = 30)

Answer any SIX questions.

1. Discuss the design of a fermentor. How do you control air flow in a fermentor.

2. Explain the principle steam distillation in the extraction of volatile oils from Crude drugs.

3. Write about rotary pumps and their applications.

4. Explain the principle of refrigeration and mention the importance of refrigeration in pharmacy.

5. Discuss the principle and working of vacuum drier.

6. What are filter aids? Write about their role in filtration.

7. Discuss the principle and working of soxhlet apparatus.

8. Discuss the factor involved in the selection of materials for Plant construction.

February-2008

[KS 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

**Theory : Two hours and
forty five minutes**

Theory : 60 marks

M.C.Q. : Fifteen minutes

M.C.Q. : 15 marks

Give diagrams and equations wherever necessary.

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. (a) Describe the manufacture of soft gelatin capsules.

(b) Discuss the theory behind heat transfer. How will you design an efficient heat transfer equipment?

2. (a) Explain the principle, construction and working of a venturimeter.

(b) Explain the operational details of Rotary Tablet machine.

3. (a) Give the principle, design and operation of planetary mixer.

(b) Discuss in detail about the safety methods to be adopted in a Pharmaceutical industry.

4. (a) Describe the parameters to be controlled during fermentation. Explain how air flow is controlled.

(b) Suggest a suitable crystallizer for getting larger crystals. How is it designed and operated?

II. Short notes on : (6 × 5 = 30)

Answer any SIX questions.

1. Explain the basic qualities for a good package.
2. Explain the process of Soxhlet extraction and mention the advantages.
3. Discuss the details of cyclone separator and its application.
4. Explain how filter press is operated.
5. Types of corrosion.
6. Explain and derive an expression for centrifugal effect. Explain how an efficient centrifuge designed.

7. Classify valves. Explain the design and applications of each valve.

8. Explain how refrigeration is carried out. Explain the design of a cold storage room and its applications.

August 2008

[KT 717]

Sub. Code : 4205

THIRD B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper V — PHARMACEUTICAL TECHNOLOGY

Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

Give diagrams and equations wherever necessary.

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

(1) Explain the operational details of Filter Press.

(2) (a) Discuss about falling film and climbing film evaporators. (15)

(b) Write about Mier's super saturation theory and its limitations. (5)

(3) Give a detailed account on principle construction and working of

(a) Ball mill. (10)

(b) Rotary Dryer. (10)

II. Short notes on : (5 × 5 = 25)

Answer any FIVE questions.

- (1) Double Pipe heat interchangers.
- (2) Spray dryer.
- (3) Bernoulli's theorem.
- (4) Uses of Humidity chart.
- (5) Applications of Refrigeration.
- (6) Cyclone Seperator.
- (7) Silverson mixer emulsifier.

III. Short answers : (5 × 2 = 10)

Answer any FIVE questions.

- (1) Name the types of glass.
- (2) Vena contracta.
- (3) Crystal Habit.
- (4) Centrifugal effect.
- (5) Calendria.
- (6) Filter aids.
- (7) Classify corrosion.

February 2009

[KU 717]

Sub. Code: 4205

THIRD B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper V – PHARMACEUTICAL TECHNOLOGY
Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. Explain the principle, construction and working of Swenson walker crystallizer with neat diagram and uses.
2. Explain in detail factors affecting corrosion and types of corrosion.
3. **a)** Explain the principle, construction and working of a venturimeter.
b) Give the principle, design and operation of planetary mixer.

II. Write Short Notes : Answer any FIVE questions (5 x 5 = 25)

1. Explain the construction and working of a hammer mill, with a neat diagram.
2. Explain the construction and working of plate and frame filter press.
3. Glass.
4. Miers supersaturation theory of crystallization.
5. Explain the construction and working of falling film evaporator and its uses.
6. Explain the construction and working of filter leaf.
7. Chemical hazards.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. How does the presence of moisture interfere with the process of size reduction.
2. Explain the principle behind centrifugal separation.
3. What are filter aids? Give two examples.
4. Give the application of protective linings and coatings with respect to corrosion control with suitable examples.
5. Give Reynold's number. Describe its importance.
6. Suggest suitable mixing equipments for semisolids.
7. Name a suitable Crystallizer for the following:
i) To get large sized crystals.
ii) To crystallize thermolabile substances.

August 2009

[KV 717]

Sub. Code: 4205

THIRD B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper V – PHARMACEUTICAL TECHNOLOGY
Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. Define filtration and theory of filtration. Discuss operational details of sterile filters.
2. Explain working principle of rotary pump and centrifugal pump.
3. Discuss construction and working principle of
 - a) Fluid energy mill.
 - b) Triple roller mill.

II. Write Short Notes : Answer any FIVE questions (5 x 5 = 25)

1. Air separator.
2. Tray dryer.
3. Climbing film evaporator.
4. Double cone blender.
5. Short tube evaporator.
6. Rotary die process (Soft Gelatin Capsule).
7. Steam distillation.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define Reynolds number.
2. Classify metals.
3. Use of gate valve.
4. Types of liquid mixing.
5. Advantage of cyclone separator.
6. Examples of filter aids.
7. Define solubility curve.

February 2010

[KW 717]

Sub. Code: 4205

THIRD B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper V – PHARMACEUTICAL TECHNOLOGY
Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. a) Define Crystallization. Discuss about the theory of crystallization.
b) Write construction and working principle of Swenson walker crystallization.
2. Explain the working principle of fractional distillation. Describe the different types of fractionating columns.
3. Write principle, design and operational details of flow meters.

II. Write Short Notes : Answer any FIVE questions (5 x 5 = 25)

1. Humidity chart.
2. Spray dryer.
3. Ball mill.
4. Bernoullis theorem.
5. Rotary tablet machine.
6. Continuous centrifugation.
7. Design of fermentor.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Classify valves.
2. Calendria.
3. Use of stainless steel.
4. Different types of corrosion.
5. Wet bulb temperature.
6. Application of refrigeration.
7. Chemical hazards.

September 2010

[KX 717]

Sub. Code: 4205

THIRD B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations) Candidates Admitted upto 2003-04

Paper V – PHARMACEUTICAL TECHNOLOGY

Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

I. Essay Questions :

(2 X 20 = 40)

Answer any TWO questions.

1. Define drying and theory of drying. Discuss operation details of fluidized bed dryer.
2. Explain working principles of displacement pumps and reciprocating pumps.
3. Discuss construction and working principles of a) Ball mill b) Hammer mill

II. Write Short Notes :

(5X 5 = 25)

Answer any FIVE questions.

1. Meta filter
2. Drum dryer
3. Theory of crystallization
4. Multiple effect evaporator
5. Planetary mixer
6. Filling of hard gelatin capsules
7. Fractional distillation.

III. Short Answers:

(5X2 = 10)

Answer any FIVE questions.

1. Define Raoult's law
2. Classify glasses
3. Use of ball valve
4. Types of solid-solid mixing
5. Advantage of membrane filter
6. Examples of closures
7. Define fermentor.

FEBRUARY 2011

[KY 717]

Sub. Code: 4205

THIRD B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations)Candidates Admitted upto 2003-04

Paper V – PHARMACEUTICAL TECHNOLOGY

Q.P. Code : 564205

Time : Three hours

Maximum : 75 marks

I. Essay Questions : **Answer any TWO questions.** **(2 x 20 = 40)**

1. Define Relative Humidity. What are the utilities of a Humidity chart? Design a Dehumidifier.
2. Explain the theory of Drying. Write the operational detail of Freeze Drier and its applications.
3. Explain the theory behind fractional distillation. Design a Rectification unit with proper labeling.

II. Write Short Notes : Answer any FIVE questions. (5 x 5 = 25)

1. Various methods of Heat transfer.
2. Steam distillation and its applications.
3. Operational principles of powder mixer.
4. Swanson-walker crystallizer.
5. Centrifugal effect and its calculation.
6. Design of a Tablet Machine.
7. Principle involved in soft gelatin capsule filling.

III. Short Answers: **Answer any FIVE questions.** **(5 x 2 = 10)**

1. Reynold's Number.
2. Advantages of Stainless steel.
3. Pitot Tube.
4. Unit of Refrigeration.
5. Types of Glasses.
6. Use of Meta filters.
7. Utility of a fermentor.
