Code: BP304T

R19

B.Pharm II Year I Semester (R19) Supplementary Examinations September 2022

PHARMACEUTICAL ENGINEERING

Time: 3 hours Max. Marks: 75

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What is Bernoulli's theorem?
(b) Write the objective of size reduction.
(c) Define Fourier's law.
(d) Define steam distillation.
(e) Name dryer used in pharmaceutical industries.
(f) Define mixing.
(g) Write a note on the filter aids.
(h) What is super centrifuge?
(i) Write grades of stainless steel.
(j) Give the advantages of glass in plant construction.

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 Explain various industrial hazards and explain methods to prevent it.

3 Enumerate the construction and working of freeze dryer.

4 Write in detail about principle, construction and working of rotary drum filter.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 Explain construction and working of hammer mill.

6 Explain rotameter with neat labelled diagram.

7 Describe the construction, working of film evaporator.

8 Write a note about fractional distillation.

9 Explain planetary mixer with neat diagram.

10 Explain advantages and disadvantages of fluidized bed dryer.

11 What are the factors affecting filtration?

12 Explain construction, working principle of perforated basket centrifuge.

13 Define corrosion. Explain types of corrosion.

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Code: BP304T

R19

B.Pharm II Year I Semester (R19) Regular & Supplementary Examinations April 2022

PHARMACEUTICAL ENGINEERING

Time: 3 hours Max. Marks: 75

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Define Reynolds number.
(b) Write objective of size separation.
(c) Give the mechanism of heat transfer.
(d) What are the factors influencing evaporation?
(e) Write short notes on spray dryers.
(f) Write merits and demerits of double cone blender.
(g) Define filter media.
(h) Give the applications of centrifugation.
(i) Define corrosion.
(j) Write the advantages of plastics.

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 Write in detail about construction, working, uses, merits and demerits of plate and frame filter.

3 Explain with neat diagram: (i) Orifice meter. (ii) Venturimeter.

4 Explain principle, construction, working, merits and demerits of cyclone separator with neat labelled diagram.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 Explain principle, working and application of bag filter.

6 Write in detail about twin shell blender.

7 Explain in detail about steam jacketed kettle.

8 Discuss the objectives and applications of heat transfer.

9 Explain in details about liquid mixing with neat labelled diagram.

10 Write in detail about filter aids.

11 Explain principle, construction, working of non-perforated basket centrifuge.

12 Explain the role of stainless steel in materials of plant construction.

13 Write in detail about material handling systems.

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Code: BP304T

R19

B.Pharm II Year I Semester (R19) Supplementary Examinations August 2021

PHARMACEUTICAL ENGINEERING

Time: 3 hours Max. Marks: 75

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What is Reynolds's number?
(b) What is the fundamental principle on which size separation is done?
(c) Which method of heating is best suited for volatile materials?
(d) How is simple distillation different from flash distillation?
(e) What are the pharmaceutical applications of drying?
(f) How density affects efficiency of mixing?
(g) What are filter aids? Name various filter aids.
(h) What are the various components of centrifugal force?
(i) What are the factors which affect corrosion?
(j) What are the properties of materials used in flooring?

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) What are the various theories and types of corrosion?
(b) Which type of metals are more prone to corrosion and why?

3 (a) What are the various stages of solid and liquid mixing?
(b) Explain with diagram one liquid mixer and one solid mixer.

4 (a) What are the various theories of heat transfer?
(b) What is the mechanism on which heat interchangers and heat exchangers function?

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 (a) How loss of energy can be minimized during flow?
(b) What are the applications of Bernoulli's theorem?

6 (a) How based on the properties of material to be filtered and the type of filters are selected for the filtration process?
(b) Explain the cartridge filter with suitable diagram.

7 (a) How are the powders characterized? What are the pharmacopoeial standards for the same?
(b) What is the principle on which a cyclone separator function?

8 (a) What are the factors which affect centrifugation?
(b) Compare the functioning of semi-continuous centrifuge and super centrifuge.

Contd. in page 2

9 (a) What are the factors which affect size reduction?
(b) Explain in detail with diagram any one mill used in size reduction.

10 (a) What is the difference in conduction and convection based drying?
(b) Explain the Fourier's law.

11 (a) What are the factors which determine the rate of evaporation? Explain
(b) What are the factors which are used for selection of a suitable evaporator type?

12 (a) Write a short note on distillation.
(b) How distillation is performed under reduced pressure?

13 (a) What is equilibrium moisture content? How is it determined?
(b) Explain the working of drug dryer with a suitable diagram.

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Code: BP304T

R19

B.Pharm II Year I Semester (R19) Regular Examinations March 2021

PHARMACEUTICAL ENGINEERING

Time: 3 hours Max. Marks: 75

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What is a venturimeter? What is its use?
(b) How size of particles affects formulation properties?
(c) In which kind of materials, is radiation based method of heat transfer used?
(d) What is a bone dry material?
(e) What is the difference between steam distillation and molecular distillation?
(f) What is the mechanistic difference between drying and evaporation?
(g) What is demixing and what factors trigger demixing?
(h) What are the rate limiting factors in the method of filtration?
(i) Which forces play a major role in centrifugation process?
(j) How can be corrosion prevented?

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) What are the factors which are considered during the construction of pharmaceutical plants?
(b) Briefly explain the basics of material handling systems.

3 (a) Write a note on mechanism of mixing of solids, liquids and semi-solids.
(b) Explain the working of sigma blade mixer and planetary mixer with a suitable diagram.

4 (a) Explain the mechanism of drying with a help of drying curve. Define vapour pressure.
(b) What is the principle and functioning of freeze drying process?

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 (a) What is the theory of filtration?
(b) Enlist various filter types and the basis of their selection based on material type.

6 (a) What are the instruments used to measure the flow of fluids?
(b) What is the theory and application of Reynolds number?

7 (a) What are the objectives and principle of size reduction?
(b) What are the merits and demerits of hammer mill and ball mill?

8 (a) How various sizes of powders can be used as an advantage in the preparation of dosage forms?
(b) Write a note on the air based method of size separation.

Contd. in page 2

9 (a) What are the various methods of heat transfer?
(b) Explain any one heat exchanger and heat interchanger each.

10 (a) Write a note on the filter aids and filter media used in the process of filtration.
(b) Explain the Membrane filter and Seitz filter.

11 (a) What are the properties of a spray dried material?
(b) Explain the vacuum dryer with a neatly labelled diagram.

12 (a) What is the theory and application of centrifugation process?
(b) Explain the principle and working of any one centrifuge.

13 (a) In which pharmaceutical processes is distillation used?
(b) In comparison to filtration, under which circumstances distillation will be preferred?

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