

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	4 th
Subject	Physical Pharmaceutics-II
Subject Code	BP403T
Paper ID	75845
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section A (10 X 2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	What is degree of flocculation?
ii.	Define pharmaceutical suspension.
iii.	Give the name of physical instability markers.
iv.	What is Gibb's free energy?
v.	Define Schulze-hardy rule.
vi.	What is Rheopexy?
vii.	Define porosity.
viii.	Differentiate between stress and strain.
ix.	What is angle of repose?
x.	Define Bulk density and Granule density.

Section B (2 X 10 = 20)

2.	Explain in detail kinetic property of colloidal dispersions.
3.	Explain in detail optical microscopy.
4.	Describe in detail non Newtonian flow of liquids.

Section C (7 X 5 = 35)

5.	Describe crystal growth and polymorphism.
6.	Write about mechanism of action of emulsifying agents.
7.	Write a note on stability of lyophobic colloids.
8.	Describe sieving method for giving weight distribution.
9.	Write about cone and plate viscometer.
10.	Write about plug flow mechanism.
11.	Explain in detail Andreasen pipette method for determining particle size.
12.	Explain the methods for determining order of reaction.
13.	Describe in detail evaluation of physical stability.

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24/6/2022 -

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Section A**(10 X 2 = 20)**

1. Give very short answers to the followings (2 marks each):

i.	What do you mean by primary emulsion?
ii.	What are the advantages of pharmaceutical suspensions?
iii.	Define true density and fluff density.
iv.	Discuss in brief about the working of Coulter counter method.
v.	Write a short note on drug degradation by oxidation.
vi.	Discuss the objectives of accelerated stability studies.
vii.	Discuss application of colloids.
viii.	Write a short note on critical micelle concentration.
ix.	Differentiate between elastic and plastic deformation.
x.	What is negative thixotropy?

Section B**(2 X 10 = 20)**

2.	Explain in detail about particle size and its distribution.
3.	What do you mean by stability of emulsions? Explain various instabilities of emulsions.
4.	Differentiate Newtonian systems and non-Newtonian Systems with the help of rheogram and examples.

Section C**(7 X 5 = 35)**

5.	Explain in detail about purification of colloids.
6.	Explain Rule of Bancroft with different theories of emulsification.
7.	Calculate intraparticle and interparticle porosity of 10 g powder having bulk volume, granular volume and true volume 20 ml, 18 ml and 17 ml respectively.
8.	Write a note on physical factors influencing chemical degradation of products.
9.	Explain how stability studies are carried out in industries to give an expiry date.
10.	Derive expression used for zero order kinetics.
11.	What are the methods for identification of emulsion?
12.	Explain Principle and working of Falling sphere viscometer.
13.	Explain DLVO theory in detail.

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200123

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Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	What is angle of repose?
ii.	What is meant by Nernst equation?
iii.	What is pseudo zero order reaction?
iv.	What do you mean by term porosity?
v.	Write down the Arrhenious equation.
vi.	Explain the concept of surface tension.
vii.	What is plastic viscosity? Give one example.
viii.	What is meant by solubilization. Give two examples.
ix.	Give two examples of wetting agents.
x.	Explain the term of degree of flocculation

Section- B (2X10=20)

2.	Discuss accelerated stability analysis.
3.	What is thixotropy and anti-thixotropy? Give examples and explain the use of these properties of polymers in dosage form design.
4.	Explain the concept of DLVO theory along with the energy curve. How is the theory applied in stabilizing the colloidal dispersions?

Section- C (7X5=35)

5.	Enumerate the optical properties of colloids.
6.	Enumerate and explain the methods used for determining particle volume.
7.	Discuss the stability of pharmaceutical products against oxidation.
8.	Define different types of densities and explain the differences between them.
9.	Give the role of buffers in pharmaceutical system.
10.	What is sedimentation volume and degree of flocculation? explain the utility of determine degree of flocculation
11.	Explain the determination of viscosities by Ostwald viscometer.
12.	What is meant by flow of powders? How it measured and what is its importance?
13.	Write a note on stability of lyophobic colloids.

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240023 (morning)

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Section- A

(10 X 2 = 20)

1.	Give very short answers to the followings:
i.	What is degree of flocculation?
ii.	Define Pharmaceutical suspension.
iii.	Give the name of physical instability markers.
iv.	What is Gibb's free energy?
v.	Define Schulze-hardy rule.
vi.	What is Rheopexy?
vii.	Define porosity.
viii.	Differentiate between stress and strain.
ix.	What is angle of repose?
x.	Define Bulk density and Granule density.

Section- B

(2X10 = 20)

2.	Explain in detail kinetic property of colloidal dispersions.
3.	Explain in detail optical microscopy.
4.	Describe in detail non Newtonian flow of liquids.

Section- C

(7 X 5 = 35)

5.	Describe crystal growth and polymorphism.
6.	Write about mechanism of action of emulsifying agents.
7.	Write a note on stability of lyophobic colloids.
8.	Describe sieving method for giving weight distribution.
9.	Write about cone and plate viscometer.
10.	Write about plug flow mechanism.
11.	Explain in detail Andreasen pipette method for determining particle size.
12.	Explain the methods for determining order of reaction.
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16 JUN 2023

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Section- A

(10 X 2 = 20)

1.	Give very short answers to the followings:
i.	Define microemulsion.
ii.	What are protective colloids?
iii.	What is porosity?
iv.	Define peptization.
v.	Differentiate between flocculated and deflocculated suspension.
vi.	What is kinematic viscosity?
vii.	Define photolytic degradation.
viii.	Give Heckel's equation.
ix.	Define coacervation.
x.	Define angle of repose.

Section- B

(2 X 10 = 20)

2.	Describe principle and working of rotational viscometer.
3.	Explain methods used for determining particle size.
4.	Write a note on optical properties of colloids.

Section- C

(7 X 5 = 35)

5.	Write a note on theories of emulsification.
6.	Give detail note on counting and separation method.
7.	Classify colloids with their properties.
8.	Explain HLB.
9.	Explain role of thixotropy in formulation.
10.	Write a note on physical factors influencing chemical degradation of products.
11.	Explain method used for measuring surface area.
12.	Explain stability testing in pharmaceutical dosage form.
13.	Write a detail note on elastic deformation of solids.

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221123

(Morning)

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Section A

(10 X 2 = 20)

1.	Give very short answers to the followings
i.	What is gold number?
ii.	Discuss about electric double layer theory.
iii.	What are the pharmaceutical applications of thixotropy?
iv.	What do you mean by the term deformation?
v.	Explain rule of Bancroft.
vi.	What is the effect of Brownian movement in formulation of suspension?
vii.	Discuss in brief about flow properties of powder.
viii.	What do you mean by number and weight distribution?
ix.	Define photolytic reaction.
x.	Write a note on Arrhenius equation.

Section B

(2 X 10 = 20)

2.	Differentiate between flocculated and deflocculated suspension and describe DLVO theory for formulating stable suspension.
3.	What are the methods for determining the viscosity of a sample?
4.	Explain in detail the derived properties of powder.

Section C

(7 X 5 = 35)

5.	Explain in detail about thixotropy with its pharmaceutical applications.
6.	Explain the working and principle of Andreason pipette.
7.	Write a short note on peptization and coacervation.
8.	Calculate intraparticle and interparticle porosity of 50 g powder having bulk volume, granular volume and true volume 200 ml, 180 ml and 170 ml, respectively.
9.	Derive first order kinetics rate equation.
10.	How can we predict shelf life and expiry date using accelerated stability studies?
11.	Discuss in detail the sedimentation of suspended particles.
12.	Explain the theory of emulsification.
13.	Give electrical properties of colloidal systems.

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030624

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**Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any TWO.

***Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Write a brief note on protective colloids.
ii.	Explain the concept of Donnan membrane equilibrium with an equation briefly.
iii.	Differentiate between shear thinning and shear thickening systems.
iv.	Differentiate between elastic and plastic deformation.
v.	What are the reasons that cause phase inversion of an emulsion?
vi.	How is the phase volume ratio important in the stability of an emulsion?
vii.	Define the angle of repose.
viii.	Discuss Stokes' equation.
ix.	Define shelf life and order of reaction.
x.	What are the objectives of accelerated stability studies?

Section- B (2X10=20)

2.	Define stability studies. What are the various physical and chemical factors that influence the chemical degradation of pharmaceutical products?
3.	Define micromeritics. Explain in detail about particle size and its distribution.
4.	a) Compare different types of dispersion systems. b) Compare different types of colloidal dispersions.

Section- C (7X5=35)

5.	Describe the working of a cup and bob viscometer.
6.	Differentiate between bulges and spurs with suitable examples of rheograms.
7.	Write a detailed note on the evaluation of emulsion stability.
8.	Differentiate between flocculated and deflocculated suspensions.
9.	What are the various factors influencing the choice of an emulsifying agent?
10.	Define zeta potential and explain the determination method of zeta potential in detail.
11.	Calculate the intraparticle and interparticle porosity of a 50 g powder having bulk volume, granular volume, and true volume of 200 ml, 180 ml, and 170 ml, respectively.
12.	Write a note on ICH guidelines for stability studies.
13.	Explain the Rule of Bancroft with different theories of emulsification.

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(Morning)
251124

Roll Number -----(Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	4 th
Subject	Physical Pharmaceutics - II
Subject Code	BP403T
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Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

***Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Define peptization.
ii.	What is expiry date of drug?
iii.	Define sedimentation volume.
iv.	What is gold number?
v.	Enlist identification test for emulsion.
vi.	What is pseudo plastic flow?
vii.	Define angle of repose.
viii.	What is kinematic viscosity?
ix.	Define photolytic degradation of drugs.
x.	What is protective action of colloids?

Section- B (2X10=20)

2.	Write a detail note on optical and kinetic properties of colloids.
3.	Explain working and principle of rotational viscometer.
4.	Write a note on physical and chemical factors influencing degradation of products.

Section- C (7X5=35)

5.	Explain negative thixotropy.
6.	Explain methods used for determining surface area.
7.	Explain the techniques used for determination of particle size.
8.	Write a note on accelerated stability studies.
9.	Explain instabilities of emulsion.
10.	Give Heckel's equation.
11.	Describe DLVO theory.
12.	Write a note on methods used for determining order of reaction.
13.	Explain interfacial properties of suspended particles.

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(Morning)

160625

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*Section- A consists of ten questions, each carrying 2 marks (Very Short Answer Type); Attempt all.

**Section- B consists of three questions, each carrying 10 marks (Long Answer Type); Attempt any two.

***Section- C consists of nine questions, each carrying 5 marks (Short Answer Type); Attempt any seven.

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	What are protective colloids?
ii.	Define emulsion.
iii.	What is peptization?
iv.	Define thixotropy.
v.	What is dielectric constant?
vi.	Give the formula for angle of repose.
vii.	What is expiry date?
viii.	Enlist theories of emulsion.
ix.	What is photolytic degradation?
x.	Give Heckel equation.

Section- B (2X10=20)

2.	Explain the working and principle of a rotational viscometer.
3.	Write a detailed note on the methods used for the preparation of emulsions, along with their identification tests.
4.	Write a comparative account of the general properties of colloids.

Section- C (7X5=35)

5.	Write a note on the methods used for determining the order of a reaction.
6.	Give an account of the optical properties of colloids.
7.	What is the counting and separation method?
8.	Differentiate between flocculated and deflocculated suspensions.
9.	Write briefly on negative thixotropy.
10.	Mention the principle involved in Newton's law of viscosity.
11.	List the chemical factors responsible for degradation of products.
12.	Illustrate the working of a falling sphere viscometer with a diagram.
13.	Present any one method used for determining surface area.

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131225

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***Section -C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Classify dispersed systems as per particle size.
ii.	Define kinematic viscosity.
iii.	What is equivalent spherical diameter?
iv.	Enumerate methods for determining surface area.
v.	What is faraday tyndall effect?
vi.	What do you mean by shelf life and expiry date?
vii.	Enlist factors influencing the chemical degradation of pharmaceutical product.
viii.	What do you mean by newtonian systems?
ix.	Enlist theories of emulsification.
x.	What is sedimentation volume?

Section- B (2X10=20)

2.	Define particle size distribution. Describe optical microscopy for particle size analysis. Add its advantages and disadvantages.
3.	Explain the law of flow. Discuss non-newtonian systems with rheograms and suitable examples.
4.	Define reaction kinetics. Explain zero-order reaction kinetics, rate constant, half-life, and shelf-life with examples.

Section- C (7X5=35)

5.	Discuss the derived properties of powders with suitable examples.
6.	Describe the optical properties of colloidal systems with example.
7.	Explain settling in suspensions and briefly mention the factors affecting the rate of sedimentation.
8.	Elaborate the accelerated stability studies of pharmaceutical dosage forms.
9.	Discuss physical stability and preservation of emulsions in detail.
10.	Explain gold number and protective colloids with example.
11.	Differentiate plastic and elastic deformation of solids with example.
12.	Discuss the formulation of flocculated and deflocculated suspensions.
13.	Discuss the applications of thixotropy in pharmaceutical formulations with example.

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