Total No. of Pages : 02	36) (Sem1)
В	(Pharmaceutic
II No.	M.Pharmacy

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES M.Code: 74657

Date of Examination: 10-01-2023

Time: 3 Hrs.

Max. Marks: 75

a) Write a detailed account on various types of ionization techniques used in mass

spectnometry.

ø

b) Define a crystal. Give a detailed classification of crystals.

b) Define an isotope peak. Give its significance with an example.

a) What is the principle of electrophoretic separations? Write an account on backacus Write a note on various detectives used in IGTLC with their specific applications.

focusing method.

vi

INSTRUCTIONS TO CANDIDATES :

- Attempt any FIVE questions out of SIX questions.

.

- a) What is Boer-Lambert law? Derive its equation. Describe various factors responsible for its deviation.
- b) Arrange the following compounds in increasing orders of their C=0 stretching frequency. Support your answer with relevant explanations.







- a) Define the terms Processional frequency, Magnetic shielding, Magnetic anisotropy, and Chemical shift,
- b) Predict the chemical shifts and multiplicities of various signals possible in H-NMR spectrum of serr-butyl propyl ether.
- 4. s) Describe principles of separation by the following techniques:
- i) Paper chromatography
- Ion-exchange cheematography

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CONTRACTOR

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Each question carries EQUAL marks.

A What are the structural gre-requisites for an organic molecule to be fluorescent? Describe various factors affecting fluorescence.

What is the principle of RLA? Describe its working with the help of an example.

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iii) Affairy chromatography.

Roll No. of Questions : 0

Total No. of Pages : 01

M.Pharmacy (Pharmaceutics) (Sem.-1) DRUG DELIVERY SYSTEM Subject Code : MPH-1027

M.Code: 74658 Date of Examination: 14-01-2023

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

Max. Marks : 75

- Attempt any FIVE questions out of SIX questions. Attempt of Six Each question carries FIFTEEN marks.
- 2-
- Explain the physicochemical and biological approaches for sustained release 1.
 - b. What are the factors effecting controlled release formulations?
- Explain the properties and application of polymers.
 - b. What is the contribution of personalized medicine in pharmacogenetics?
- Explain 3D printing of personalized medicine? 3.
- 4. Write short note on :
 - Rate controlled drug delivery system
 - b. GRDDS
- 5. Give formulation and evaluation of:
 - a. Transdermal drug delivery system
 - b. Macromolecules
- 6. Write short note on :
 - a. Trandermal delivery of Vaccine
 - b. Ocular delivery.

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Total No. of Questions . 08 Roll No.

Total No of Pages MODERN PHARMACEUTICS M.Pharmacy (Pharmaceutics) (Sem. Subject Code MPH-1037

Date of Examination: 12-61-2023 M.Code 74659

INSTRUCTIONS TO CANDIDATES

Max. Marks: 75

Attempt any FIVE questions out of SIX questions. Each question carries FIFTEEN marks. Discuss

emulsions.

in detail the pre-formulation studies conducted for pharmaceutical account on different statistical design involved in optimization pharmaceutical dosage forms.

 a) Discuss similarity factors and its role in drug release kinetics. ei

Write a short note on ANOVA test,

Discuss different forces involved in tablet compression. ri.

9

Explain different types of pharmaceutical validation along with the specific situations

Explain sterilization process of LVPs and mention the limit of particulate quatter in 8

What are flocculated and deflocculated suspensions? Discuss the parameters for suspensions. Give an account on cGMP requirements for building layout of a coated tablets manufacturing unit.

Discuss the role response surface methodology in formulation optimization

Write a short note on stability testing of SMEDDS. 3

What do you mean by dissolution? Discuss different parameters of dissolution which should be considered in dosage form development.

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student

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Total No. of Questions : 06

Total No. of Pages: 02

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES M.Pharmacy (Pharmaceutics) (Sem.-1)

What is the principle of electrophoretic separations? Write an account on backering

Write a note on various detectors used in HPLC with their specific applications.

a) Write a detailed account on various types of unusation techniques seed a mass

spectrometry.

9

b) Define a crystal. Give a detailed classification of crystals.

b) Define an isotope peak. Give its nguificance with an example.

Subject Code: MPH-101T M.Code: 74657

Date of Examination : 10-01-2023

Time: 3 Hrs.

Max. Marks: 75

INSTRUCTIONS TO CANDIDATES:

- Attempt any FIVE questions out of SIX questions.
 Each question carries EQUAL marks.
- a) What is Beer-Lambert law? Derive its equation. Describe various factors responsible for its deviation.
- b) Arrange the following compounds in increasing orders of their C=0 stretching frequency. Support your answer with relevant explanations.









- a) What are the structural pre-requisites for an organic molecule to be fluorescent? Describe various factors affecting fluorescence..
- b) What is the principle of RIA? Describe its working with the help of an example.
- a) Define the terms Precessional frequency, Magnetic shielding, Magnetic anisotropy, and Chemical shift. ø.
- b) Prodict the chemical shifts and multiplicities of various signals possible in 'H-NMR spectrum of sert-basyl propyl ether.
- a) Describe principles of separation by the following techniques.
- Paper chromatography
- ii) lon-exchange chromonography
- ini Affanty chromatography

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Total No. of Pages: 01 M.Pharmacy (Pharmaceutics) (Sem.-1)
DRUG DELIVERY SYSTEM Date of Examination: 14-01-2023 Subject Code: MPH-1027 M.Code: 74658 CTIONS TO CANDIDATES : No. of Questions : 06

Max. Marks: 75

gaplain the physicochemical and biological approaches for sustained release What is the contribution of personalized medicine in pharmacogenetics? what are the factors effecting controlled release formulations? RUCTION FIVE questions out of SIX questions. ραίεια the properties and application of polymers. Equin 3D printing of personalized medicine? And question carries FIFTEEN marks. formulation.

6 GRDDS

1. Rate controlled drug delivery system

The short note on :

Introdemal drug delivery system

Gre formulation and evaluation of:

b. Macromolecules

Write short note on :

2. Transfermat delivery of Vaccine

b. Ocular delivery.

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No. of Questions : 06

Total No. of Pages: 01

M.Pharmacy (Pharmaceutics) (Sem.-1) DRUG DELIVERY SYSTEM

Subject Code : MPH-102T

M.Code: 74658

Date of Examination: 14-01-2023

me : 3 Hrs.

Max. Marks: 75

STRUCTIONS TO CANDIDATES :

Attempt any FIVE questions out of SIX questions. Each question carries FIFTEEN marks.

- a. Explain the physicochemical and biological approaches for sustained release formulation.
 - b. What are the factors effecting controlled release formulations?
- a. Explain the properties and application of polymers.
 - b. What is the contribution of personalized medicine in pharmacogenetics?
- Explain 3D printing of personalized medicine?
- 4. Write short note on :
 - a. Rate controlled drug delivery system
 - b. GRDDS
- Give formulation and evaluation of:
 - a. Transdermal drug delivery system .
 - b. Macromolecules
- Write short note on:
 - a. Trandermal delivery of Vaccine
 - b. Ocular delivery.

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Total No. of Pages: 01

M.Pharmacy (Pharmaceutics) (Sem.-1) MODERN PHARMACEUTICS

Subject Code : MPH-103T

M.Code: 74659

Date of Examination: 12-01-2023

Time : 3 Hrs.

Max. Marks: 75

INSTRUCTIONS TO CANDIDATES :

Attempt any FIVE questions out of SIX questions. Each question carries FIFTEEN marks.

- 2.
- a) Discuss in detail the pre-formulation studies conducted for pharmaceutical emulsions. 1.
 - b) Give an account on different statistical design involved in optimization of pharmaceutical dosage forms.
- a) Discuss similarity factors and its role in drug release kinetics. 2.
 - b) Write a short note on ANOVA test.
- a) Discuss different forces involved in tablet compression. b) Explain different types of pharmaceutical validation along with the specific situations 3.
- a) Explain sterilization process of LVPs and mention the limit of particulate matter in 4.
 - b) What are flocculated and deflocculated suspensions? Discuss the evaluation
- a) Give an account on cGMP requirements for building layout of a coated tablets 5.
 - b) Discuss the role response surface methodology in formulation optimization.
 - a) Write a short note on stability testing of SMEDDS.
- b) What do you mean by dissolution? Discuss different parameters of dissolution which

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M.Pharmacy (Pharmaceutics) (2017 & Onwards) (Sem.-1) MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Subject Code : MPH-101T M.Code: 74657

Time : 3 Hrs.

Max. Marks: 75

INSTRUCTIONS TO CANDIDATES :

- Attempt any FIVE questions out of SIX questions.
- Each question carries EQUAL marks.
- Q1. a. Describe the principle, instrumentation and applications of atomic absorption spectrescopy. 5
 - Describe the principle and applications of IR spectroscopy. 10
- Q2. a. Write a detailed account on ¹³C NMR.
 - 5 b. How to differentiate between 1H NMR peak of OH and CH? 15
- Q3. Describe the principle, theory and instrumentation of Mass spectrometer.
- 15 Q4. Write a detailed account on HPLC.
- 15 Q5. Write a detailed account on X-Ray crystallography. 15
- Q6. Write a detailed account on RIA.



NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student. (531)274

Elaborate on the role and responsibilities of institutional review boards / independent Give detailed account on documentation in pharmaceutical industries with suitable NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any Mr. 100 Total No. of Pages: 01 Max. Marks: 75 M.Pharmacy (Pharmaceutics) (2017 & Onwards) (Sem -1) page of Answer Sheet will lead to UMC against the Student Discuss various aspects of CRO in detail with susable examples. REGULATORY AFFAIRS Write clinical trial protocol for new anti-cancer drug. Subject Code: MPH-104T Attempt any FIVE questions out of SIX questions, M.Code: 74660 Hatch-Waxman act and amendments Each question carries FIFTEEN marks. ethics committee in clinical trials Regulatory requirements of EU Scale up process after approval In-vitra product performance Briefly discuss the following: INSTRUCTIONS TO CANDIDATES: Total No. of Questions - 96 Write short notes on: Write short notes on: Generic drugs ANDA Time: 3 Hrs. NDA Roll No. i ö ø e-i -

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Roll No. Rotal No. of Questions 06 Total No. of Pages 01 M.Pharmacy (Pharmaceutics) (2017 & Onwards) (Sem -1) MODERN PHARMACEUTICS) (2017 & Onwards) (Sem -) Subject Code MPH-1011 M.Code : 74657 _{Time} : 3 Hrs. Max. Marks 75 INSTRUCTIONS TO CANDIDATES : Attempt any FIVE questions out of SIX questions. Each question carries EQUAL marks. 2-What is the Principle, instrumentation and applications of U.V visible spectroscopy 1. (15)Write a note on Proton NMR. How it is different from the usual NMR process? (15) a) What is Mass fragmentation? Discuss its rules. (10)3. b) Discuss the isotropic peaks in mass spectroscopy. (5)a) Explain the principle, apparatus and instrumentation of HPLC. (10)4. (5) Discuss the major applications of column chromatography. (10)a) Write a note on X-Ray diffraction methods.

Write a note on the following:

a) ELISA

b) Discuss Bragg's Law.

(7)

(5)

b) Isoelectric focusing electrophoresis

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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May-2019

Total No. of Questions : 06

M. Pharmacy (Pharmaceutics) (2017 & Onwards) (Sem.-1) MODERN PHARMACEUTICS

Subject Code: MPH-103T

M.Code: 74659

Max. Marks: 75

Time: 3 Hrs.

INSTRUCTIONS TO CANDIDATES:

1. Attempt any FIVE questions out of SIX questions. 2. Each question carries FIFTEEN marks.

(a) What is cOMP? Piscuss briefly its significance.

(b) Discuss in detail the effect of friction and distribution of forces during tablet S compression

(c) Denail the WHO guidelines for calibration and validation of equipments.

(a) Differentiate between suspensions and emulsions. Discuss the stability problems of

(2.5) (5.5) (b) Write is note on VQ and DQ

" SMEDDS

(25)

(7.5) (7.5) (a) Ductos in dotal the velidation and calibration of matter plant, III. ANOVA

(b) Discuss the verticus Dissolution and Diffusion parameters (a) Discuss unportunes and types of contour place.

(i)). One con the various parameters to be studied for validation of specific dosage form.

(c) Why do we need to conduct stability testing?

We've short mitter (any thresh)

(a) Response suches methods

(b) IQ, OQ and PQ.

(c) Large volume parental

(d) Sales forecasting in production management.

(c) Chi square test.

(a) What is validation protocoe? Describe contents of validation protocol

(b) Describe the formulation considerations of small volume parentinis

(c) Discuss in detail material management and landling in Plantes Industry

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Theorem the principle of earthmentally activised doug delivery system.

agents have extensed that alteriory will engages an antishermed no uses a surf. (a

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Subject Code: MPH-1027

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Rax, Marks : 75

6. With a note on any three

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чинтелен је Амијар риккаритиј. (и

C) Evaluation of Success drug delivery system.

Cowlish mistern of protein defination (b.

b) Euryme ectivated system.

a) Bioelectronic medicines.

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Total No. of Pages M. Pharmacy (Pharmaceutics) (2017 & Onwards) (Sem-1) of Questions : 06 Total No. Roll NO.

REGULATORY AFFAIRS Subject Code: MPH-104T Paper 10 : [74660]

Time: 3 Hrs.

Max. Marks: 75

Artempt any FIVE questions out of SIX questions. each question carries FIFTEEN marks. HSTRUCTIONS TO CANDIDATES :

y Write a note on Drug Master Files.

132

note, on (3.5) p) Distinguish between Generic drugs and Proprietary medicines. Write a development of generic versions of a drug

2 3) What is a CRO? Highlight the essential requirements for a CRO

b) What is the purpose of maintaining drug distribution records? Write a note on ICH requirements perfaining to drug distribution records. What are combination products? Give examples, Highlight the regulatory requirements

(2) b) Briefly discuss Master Formula Record and its importance. to be fulfilled for them.

al What is the constitution of Institutional Ethics Committee? Highlight the functions of Ethics Committee

-4

What is meant by HIPPA? Highlight its key features aimed at protecting sensitive

a) What are the elements of a clinical trial? Describe systematically the protocol of a (52)

w.

(\$1±£85) b) Mention the composition and functions of Institutional Review Board.

Write short notes on

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a) Pharmacovigilance

b) eCTD

c) investigator Brochure

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Folish No. of Questions : 06

Total No. of Pages 01

MODERN PHARMACE (Sem -1) MODERN PHARMACEUTICS Subject Code : MPH-1037 Paper ID : [74659]

fimi ; 3 Hrs.

METRUCTIONS TO CANDIDATES :

Max Marks 75

Attempt any FIVE questions out of SIX questions Altemptes carries FIFTEEN marks.

- What are SMEDDS? Mention the reasons for preparing them. Give a brief account of
 - b) Explain the response surface method used for formulation optimization.
 - What is validation and its necessity? Give an account of concurrent validation for tablet
 - b) Comment on the evaluation parameters for LVPs.
- (a) Comment on the cGMP requirements for building layout of a hard gelatin capsule
 - b) Mention the key considerations and write briefly about sales forecasting in
- a) Enumerate different approaches used for enhancing solubility of drugs. Briefly discuss any one method.
 - b) Differentiate between plastic and elastic deformation of solid particles. Giving examples of such materials, explain their compaction behavior.
- a) Enumerate dissolution variables and the parameters of dissolution. Explain f 1 and f 2 tests and their interpretation.
- b) What is the significance of Heckle Plot? Discuss the nature of Heckle Plot for substances of different nature.
- Write short notes on :
 - a) Stability testing of suspensions.
 - b) Chi square test.
 - c) Inventory control.

Dec 2018

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ROII NO Total No. of Questions 06

Total No of Pages 01

Pharma (Pharmaceutics) (2013 & Onwards) (Sem.-1) NOVEL DRUG DELIVERY SYSTEMS Subject Code PHCEU 138

Paper ID : [E1324]

Time : 3 Hrs.

Max Marks 80

INSTRUCTION TO CANDIDATES Attempt any FIVE questions out of SIX questions Each question carries SIXTEEN marks

What are the rate controlled drug delivery systems? Classify and discuss (16)

- Write notes on :
 - a) Difference between aquasomes and trasferosomes
- Magnetically induced targetting techniques
- c) Microemulsions
- d) Difference between liposomes and solid lipid nano particle

 $(4 \times 4 - 16)$

- a) What are the various approaches that can be utilized for enhancing transdermal drug delivery?
 - b) Write a note on osmotic drug delivery system.

(10+6=16)

- a) Define bioadhesion and discuss the mechanism of bioadhesion. How the characterization of mucoadhesive formulations is carried out?
 - b) Write a note on SEDDS.

(10+0=10)

- a) Discuss the role of isotonicity in the formulation of parenterals. 5
 - b) Write a note on compatibility of polymers with carrier.

(8+8=10)

- a) What is the importance of formulation considerations to improve ocular bioavailability?
 - b) Discuss in brief the application of zeta potential.

(8+8=16)

Rott No Rell No of Questions 06

Total No of Pages 01

M.Pharmacy (Pharmaceutics) (2017 & Onwards) (Sem. 1) DRUG DELIVERY SYSTEM Subject Code MPH-102T Paper ID [74658]

Time 3 Hrs.

Max Marks 75

INSTRUCTIONS TO CANDIDATES :

Attempt any FIVE questions out of SIX questions Each question carries FIFTEEN marks.

- g) Explain the mechanisms of drug release from controlled release dosage forms Enumerate the different types of oral controlled release formulations
- b) What is meant by personalized medication? Write a note on the different approached employed for this type of medication.
- a) Enumerate different types of drug release activation systems used for controlled drug. delivery. Explain mechanically activated systems.
 - b) Discuss the mechanisms of muco adhesion and give examples of polymers used in such dosage forms.
- a) Discuss the barriers for successful ocular drug delivery and the approaches used for overcoming them.
 - Distinguish between matrix and reservoir TDDS. Enumerate the barriers for successful transdermal drug delivery.
- a) Give an account of vaccine delivery systems.
 - b) Explain the mechanisms for uptake of antigens.
- a) What are the challenges for oral delivery of macromolecules. Briefly discuss the approaches employed for this purpose. 5.
 - b) Give a brief account of evaluation of TDDS.
- Write short notes on:
 - a) Hydrodynamically balanced drug delivery systems.
 - b) Single shot vaccines.
 - e) Evaluation of mucoadhesive systems.



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	M.Pharmacy (Pharmaceutics) (2017 & ODERN PHARMACEUTICAL ANAL Subject Code MPH Paper ID: [74657	Onwards: (Sem. 1)	
	Pan Code MAL	YTICAL TECHNIQUES	
		1017	
INSTRU	UCTIONS TO CANDIDATES :	Max Marks	75
1. At	tempt any FIVE questions		
2. Es	UCTIONS TO CANDIDATES: tempt any FIVE questions out of SIX questions. What are the limites:	ns	
1 00-	mitations of p		
b.	What are the factors affection		15)
bot	What are the factors affecting vibrational freque	ncy in IR? Comment on effect	of H-
c,	Explain the principle of Flame emission spectrosc		
	What are the factors	еру,	(5)
7	ractors affecting fluorescence		(5)
b. (Comment on solvents used in NMR.		(5)
c. f	Explain role of coupling constant in interpretation	of H NMP spectrum	(5)
3. a. (Give comparative statements of various ionization	work to the spectrum.	
Mar Decision	TO TO TO TO THE STATE OF THE ST	i methods used in MASS specifi	(9)
b. B	Briefly explain following in Mass spectrometry:		(6)
N	Meta stable ion, Mc Lafferty rearrangements and	Nitrogen rule	
4. a. W	What is the principle of Ion exchange chromatogr	raphy?	(5)
b. G	ive block diagram of typical HPLC apparatus.		(5)
	escribe the pharmaceutical applications of GLC		(5)
C. D	escribe the primitive and a chartenpharetic fi	natrices.	(5)
a. D	escribe polyacrylamide gel as electrophoretic m		(5)
h W	hat is isoelectric focusing?		(5)
c. W	that is operative equation in X-ray diffraction?	ious type of EUSAs used in es	timation (15)
	CTI IS A DESCRIBE		M
of en:	zyme activity and drugs in biological fluids.		87.

