

HALDIA INSTITUTE OF PHARMACY

ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Instrumental Methods of Analysis	Subject Code:	BP701T

Type of Questions

UNIT I: UV Visible spectroscopy and Fluorimetry

2 Marks: Very Short Answer Type Questions

1. Definition
 - i. Chromophore
 - ii. Auxochrome
 - iii. Bathochromic shift
 - iv. Hypsochromic shift
 - v. Isobestic point
 - vi. Hyperchromic effect
 - vii. Hypochromic effect
 - viii. Wavelength
2. What do you mean by solvent effect on absorption spectra
3. State Beer's- Lambert's law
4. What is quenching? Give examples.

05 Marks: Short Answer Type Questions

1. Explain the theory of U.V absorption/ Beer and Lambert's law, Derivation and deviations
2. With a neat diagram explain the construction and working of Hollow cathode lamp and Photomultiplier tube
3. Give an account of qualitative and quantitative analysis using UV spectroscopy
4. Applications - Spectrophotometric titrations, Single component and multi component analysis
5. Give an account on Derivative spectroscopy.
6. Describe the theory of fluorescence with Jablonski diagram
7. Write the factors affecting fluorescence, quenching
8. With examples, explain the relationship of chemical structure to fluorescence spectra.

10 Marks: Long Answer Type Questions

1. With a neat diagram, explain the construction and working of double beam UV-Visible Spectrophotometer.
2. Instrumentation - Sources of radiation, wavelength selectors, sample cells, detectors-Photo tube, Photomultiplier tube, Photo voltaic cell, Silicon Photodiode
3. With a neat diagram describe the instrumentation and applications of Spectrofluorimeter.

UNIT II: IR spectroscopy, Flame Photometry, AAS and Nepheloturbidometry

2 Marks: Very Short Answer Type Questions

1. Enumerate any two factors influencing the followings:
 - i) Vibrational frequencies
 - ii) Fluorescence
 - iii) Band broadening in Chromatographic column
 - iv) Resolution
2. What are the factor effecting the vibration frequency
3. Define function group region and finger print region
4. Write the vibrational frequency of alcohol, carboxyl group, ketone, aldehyde and amide.
5. In which condition Nephelometry and Turbidimetry is the choice of analysis
6. Write the wavenumber of OH group and NH₂ groups in IR spectrum
7. What is the functional group for wavenumber 3400 cm⁻¹ and 1715 cm⁻¹
8. Name the molecular vibrations in IR spectroscopy

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ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Instrumental Methods of Analysis	Subject Code:	BP701T

9. Give any two applications of Nepheloturbidometry

05 Marks: Short Answer Type Questions

1. Write the differences between nephelometry and turbidimetry.
2. Explain the fundamental vibrations of the molecules in IR spectrophotometry.
3. Differences between flame emission and atomic absorption spectroscopy.
4. Explain the instrumentation and working of atomic absorption spectroscopy.
5. Explain the instrumentation and working of flame emission spectrometry

10 Marks: Long Answer Type Questions

1. Explain the finger print region and functional group regions in an IR spectrum. Describe how an Infrared spectra is systematically interpreted?
2. What is difference between flame emission and atomic absorption spectrophotometer? Discuss the principle and application of FES & atomic absorption spectroscopy.
3. Write a note on interferences of AAS and FES, and how to remove it.
4. Give the construction, principle and operation of Total consumption burner and Hollow Cathode Lamp
5. In which condition Nephelometry and Turbidimetry is the choice of analysis. Discuss principle and instrumentation of Nephelometry and Turbidimetry
6. Define and distinguish between fluorescence and phosphorescence. Write the various factors affecting the phenomenon of fluorescence.
7. Write a note on theory and applications of IR spectrophotometry. Explain different sampling techniques employed in IR spectroscopy.
8. What are the different vibrational modes of polyatomic molecules upon IR absorption? Write in brief on the various detectors used in IR Spectroscopy.
9. Explain the principle, instrumentation, sampling techniques and applications of IR spectroscopy

UNIT III: Introduction to chromatography

2 Marks: Very Short Answer Type Questions

1. **Define**
Partition chromatography, Retardation factor, Retention time, Retention volume, Column capacity, Zone spreading, HETP, Van Demeter Equation, edge effect
2. What is the Guard column? Write its significance.
3. Give the example for anion and cation exchange resins.
4. Name the natural and synthetic gels used in gel chromatography
5. Write the difference of silica gel, Silica gel G, silica gel GF.
6. What is two dimensional paper chromatography
7. What is edge effect? How to minimize it
8. What is Normal phase & Reverse phase Chromatography

05 Marks: Short Answer Type Questions

1. Classify chromatographic methods based on mechanism of separation and add a note on column chromatography.
2. Give a brief note on elution development, gradient elution development, displacement development and frontal analysis.
3. Discuss the principle and factors affecting separation of paper electrophoresis
4. What is theoretical plate theory of chromatography?

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ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
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5. Factors effecting the column efficiency
6. What is activation of plates? Write its importance.
7. Write the difference between gel chromatography and gel electrophoresis

10 Marks: Long Answer Type Questions

1. Discuss the principle, Methodology, Rf values, advantages, disadvantages and applications of thin layer chromatography
2. Discuss methodology, development techniques, advantages, disadvantages and applications paper chromatography
3. Write down the factors affecting electrophoretic mobility, Techniques of paper, gel, capillary electrophoresis, applications.

UNIT IV: Gas chromatography and HPLC

2 Marks: Very Short Answer Type Questions

1. What is programmed temperature gas chromatography? Write its importance
2. What is gas chromatography?
3. What is resolution?

05 Marks: Short Answer Type Questions

1. Write the applications of affinity chromatography
2. With neat labeled diagram, explain the principle and instrumentation of Gas liquid Chromatography.
3. Explain any one derivatisation technique in GC
4. Write on principles of separation and detection methods in HPLC.
5. Write a note on detectors used in HPLC. Give the factors affecting resolution and peak shapes of compounds in HPLC
6. Write in detail on various principles of separation and chromatographic parameters of HPLC.
7. What is gas chromatography? Illustrate a gas chromatographic instrument and describe components. What are the important advantages of gas chromatography?

10 Marks: Long Answer Type Questions

1. Explain the principle, instrumentation and pharmaceutical applications of Gas Chromatography. Write about Electron Capture Detector
2. Describe the principle and working of HPLC with a neat labeled diagram.
3. Describe the principle and application of zone electrophoresis. a) With a neat diagram, explain the principle and instrumentation of GLC
4. Write in detail on various principles of separation and chromatographic parameters of HPLC

UNIT V: Ion exchange, Gel and Affinity chromatography

2 Marks: Very Short Answer Type Questions

1. What is capillary electrophoresis
2. Define electrophoresis, affinity chromatography.

05 Marks: Short Answer Type Questions

1. Briefly explain on affinity chromatography
2. Explain briefly about Gel Electrophoresis.
3. Classify Ion exchange, Ion exchangers used in Ion exchange chromatography.
4. Enumerate the mechanism and factors affecting Ion exchange process.
5. What is the principle of gel permeation and ion exchange chromatography?

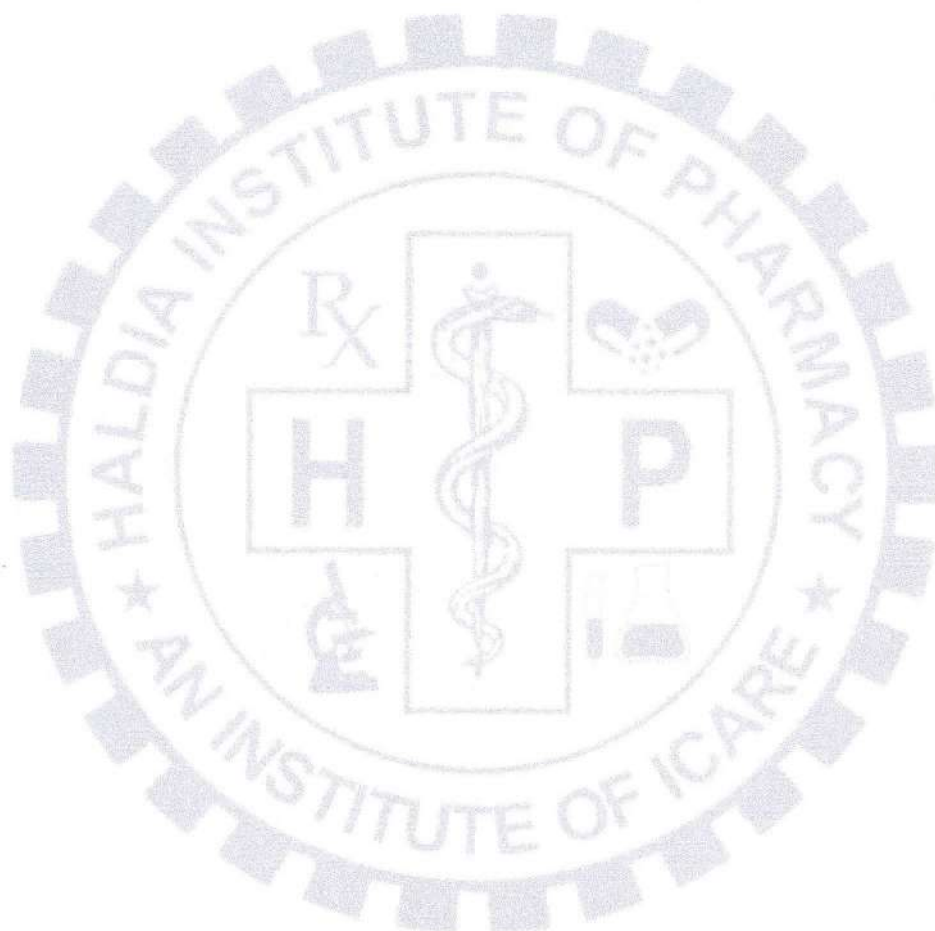
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ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Instrumental Methods of Analysis	Subject Code:	BP701T

10 Marks: Long Answer Type Questions

1. What is capillary electrophoresis? Give the details of the instrument and its applications to organic compounds.
2. Define electrophoresis, classify with examples and add a note on gel electrophoresis. Explain on capillary zone electrophoresis



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Page 4 of 4

Suman Pattanayak

HALDIA INSTITUTE OF PHARMACY

ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Industrial Pharmacy II	Subject Code:	BP702T

Type of Questions

UNIT I: Pilot plant scale up techniques

<p style="text-align: right;">2 Marks: Very Short Answer Type Questions</p> <ol style="list-style-type: none">1. Define pilot and scale up?2. Write benefits of pilot scale up studies?3. Write the significance of pilot plant?4. What is platform technology?
<p style="text-align: right;">05 Marks: Short Answer Type Questions</p> <ol style="list-style-type: none">1. What are the general requirements of Pilot Plant construction?2. Short note on SUPAC?3. Write the advantages and applications of Platform Technology?4. Write Pilot Plant scale up for liquid orals?5. What is pilot plant? Explain the factors to be considered in the organization of a pharmaceutical pilot plant?6. Write a short note of SUPAC guidelines?
<p style="text-align: right;">10 Marks: Long Answer Type Questions</p> <ol style="list-style-type: none">1. Discuss in detail about pilot plant scale up techniques and it's requirements in Pharmaceutical industry2. Give an outline of platform technology in drug discovery / medicinal chemistry3. Write a short note of SUPAC guidelines? Mention its significance and limitation4. What are the advantages and application of platform technology? Write Pilot Plant scale up for liquid orals?

UNIT II: Technology development and transfer

<p style="text-align: right;">2 Marks: Very Short Answer Type Questions</p> <ol style="list-style-type: none">1. Define quality risk management and write it's principle?2. Enumerate the objectives of TIFAC?3. What is master formula records?4. Name the technology transfer agencies in India?5. Define Qualification and Validation?6. What is validation and process validation?7. What is analytical method transfer?8. Define technology transfer.9. What is QRM?
<p style="text-align: right;">05 Marks: Short Answer Type Questions</p> <ol style="list-style-type: none">1. Explain the steps involved in technology transfer from R & D production as per WHO guidelines?2. Explain about MOUS and legal issues?3. Write about Technology transfer protocols?4. What is validation and process validation? What is analytical method transfer?5. Explain technology/sample protocol pharmaceutical?6. Discuss about premises and equipment pertaining to transfer of technology?7. Define technology transfer. What is sending unit and receiving Unit? Write the principles of technology transfer.

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ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Industrial Pharmacy II	Subject Code:	BP702T

8. What is the information required for technology transfer of starting materials from SU to RU?
9. Write briefly on the information required for process and finished product.
10. Write a note on analytical method transfer and basic responsibilities of SU and RU.
11. Which agencies are working for Technology Transfer in India? Write about any two agencies.
12. Describe the principle and process of QRM.
13. Write a short note on WHO guidelines for Transfer Technology (TT)
14. Write a note on granularity of technology transfer process
15. Write about documentation in TT
16. Briefly discuss about the approved regulatory bodies and agencies pertaining to transfer technology transfer around the globe
17. Write in detail about a few TT agencies in India
18. Write short notes on NRDC

10 arks: Long Answer Type Questions

1. What is validation and process validation? What is analytical method transfer? Explain technology/sample protocol pharmaceutical?
2. Define the following terms:
 - a. API
 - b. Excipients
 - c. DQ, IQ, OQ and PQ
 - d. Receiving Unit
 - e. Validation master plan
 - f. Validation report
3. Write briefly on the information required for process and finished product.
4. Write a note on analytical method transfer and basic responsibilities of SU and RU.
5. Define technology transfer. What is sending unit and receiving Unit? Write the principles of technology transfer.
6. Define quality risk management and write its principle? Enumerate the objectives of TIFAC? Explain about MOUS and legal issues?

UNIT III: Regulatory affairs and Regulatory requirements for drug approval

2 Marks: Very Short Answer Type Questions

1. Define Regulatory affairs
2. List out various Regulatory Authorities
3. Define clinical research protocol
4. What is NDA?
5. What is PCT?
6. Define drug master file.

05 Marks: Short Answer Type Questions

1. Types of IND Application
2. Write responsibilities of drug development team.
3. List the two key responsibilities of Regulatory Authorities.
4. Discuss about clinical research protocol.
5. Explain the responsibilities of regulatory affairs professional.
6. Write a note on investigator's brochure.

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Page 2 of 4

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HALDIA INSTITUTE OF PHARMACY

ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Industrial Pharmacy II	Subject Code:	BP702T

7. Describe in details the process of Investigation New Drug Application.
8. Discuss the Role of Regulatory affairs department in pharma industry
9. 13. Comment on the bioequivalence requirements according to ICH guidelines.
10. Discuss the Intellectual Property protection laws in India in brief.
11. What is PCT? Discuss the content of PCT and its applications.
12. Write a note on Drug Master Files.
13. Briefly discuss Master Formula Record and its importance.
14. Write a short note on regulatory affairs
15. Summarize the general information regarding IND
16. Write about review process in IND
17. Write short notes on Pharmacovigilance.
18. What do you understand by the term bio-statics? Add notes on sampling methods and stages in research
19. Write about management of clinical studies.

10 Marks: Long Answer Type Questions

1. What do you understand by the term bio-statics? Add notes on sampling methods and stages in research
2. Define IND. Write types of IND. Write about review process of IND.

UNIT IV: Quality management systems

2 Marks: Very Short Answer Type Questions

1. Fullform of- NABL, GLP, TQM, OOS
2. Define Quality

05 Marks: Short Answer Type Questions

1. Explain QbD in details
2. Explain in detail about out of specification (OOS)/ Describe the reason for out of specification (OOS)
3. Discuss about Change control
4. Explain various type of changes included in change control
5. What are the barriers in the way of effective change control
6. Explain origin, scope and fundamental of GLP
7. What is NABL? What are the benefits of NABL accreditation? Write the principles and procedural steps on NABL accreditation.
8. Discuss barriers in implementing efficient ISO 9000 guideline organization
9. Define Quality. What is necessary in Pharmaceutical industry? Explain tools to maintain the quality of Pharmaceutical Product
10. How Quality control and Quality assurance is related to each other
11. Discuss the concept of TQM with respect to it's origin, principal, main objective advantages and disadvantages
12. What are the steps in quality by design approach? Discuss its importance in pharmaceuticals
13. What details of ISO guidelines in protection of environment
14. Discuss the details about ISO 9000 series issued by ISO
15. Write briefly on quality management
16. Write about roles and responsibilities of the quality control unit
17. Explain briefly about the key elements of TQM

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Page 3 of 4

Pattanayak

HALDIA INSTITUTE OF PHARMACY

ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Industrial Pharmacy II	Subject Code:	BP702T

18. Write in detail on the concept and methodology of six sigma

19. Write notes on ISO 9000 series. Write in detail on ISO 9001

10 Marks: Long Answer Type Questions

1. What is NABL? What are the benefits of NABL accreditation? Write the principles and procedural steps on NABL accreditation
2. Define Quality? Discuss it's importance in Pharmaceutical. Write details of ISO guidelines in protection of in protection of environment.
3. Define Quality? Discuss it's importance in Pharmaceutical. Write details of ISO guidelines in protection of in protection of environment.

UNIT V: Indian Regulatory Requirements

2 Marks: Very Short Answer Type Questions

1. Fullform of- CDSCO, COPP, CTD, DCC, SLA

05 Marks: Short Answer Type Questions

1. Write a short note on CDSCO.
2. Short note on State Drugs Control Organisations
3. Organisations and function of DTAB.
4. Functions of Central Drugs testing Laboratory.
5. Write in detail about Certificate of Pharmaceutical Product (COPP).
6. Discuss on common technical document (CTD).
7. Write various department and their role in new drug approval.
8. Discuss on DCC.
9. Functions of port offices of CDSCO.
10. Discuss on State drug control organisations
11. What is drug regulatory authority? Functions of drug regulatory authority.
12. Describe organisation of CDSCO.
13. What is CTD? Draw CTD triangle. Explain new drug process in India.
14. What is State Licensing authorities (SLA). Functions of CDSCO.
15. What is COPP and its importance?
16. What are general requirements for submission of application for issue of COPP?
17. What is the procedure for accepting the application for issue of COPP?
18. What are the documents required for applying grating on revalidation of COPP?
19. What are the regulatory requirements and approval procedures for new drugs?

10 Marks: Long Answer Type Questions

1. What is CTD? Draw CTD Triangle. Write various department and their role in new drug approval.
2. What is drug regulatory authority? Functions of drug regulatory authority. Describe organisation of CDSCO.

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ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Pharmacy Practice	Subject Code:	BP703T

Type of Questions

UNIT I: Hospital and it's organization, Hospital pharmacy and its organization, Adverse drug reaction and Community Pharmacy

<ol style="list-style-type: none">1. What is hospital?2. Secondary hospital3. Tertiary hospital?4. ADR	2 Marks: Very Short Answer Type Questions
<ol style="list-style-type: none">1. Write down the classification of hospital?2. Write down the organization of hospital?3. Write about the medical staff in hospital?4. What is hospital pharmacy? Write down the Functions of hospital pharmacy?5. Write down the location & requirements of hospital pharmacy?6. Write down the responsibilities & function of hospital pharmacist?7. Write down the DOSE-RELATED, idiosyncratic, allergic reaction?8. Write down about the hypersensitivity reaction?9. Write down the about drug interaction?10. What is community pharmacy? Write down the structure of retail and wholesale drug store?11. Write down about the maintenance of retail and wholesale drug store?	05 Marks: Short Answer Type Questions
<ol style="list-style-type: none">1. Write down the classification of hospital?2. Write down the organization of hospital?3. Write about the medical staff in hospital?4. What is hospital pharmacy? Write down the Functions of hospital pharmacy?5. Write down the location & requirements of hospital pharmacy?6. Write down the responsibilities & function of hospital pharmacist?7. Write down the DOSE-RELATED, idiosyncratic, allergic reaction?8. Write down about the hypersensitivity reaction?9. Write down about the drug interaction?10. Write down about the ADR reporting?11. What is community pharmacy? Write down the structure of retail and wholesale drug store?12. Write down about the maintenance of retail and wholesale drug store?	10 Marks: Long Answer Type Questions

UNIT II: Drug distribution system in a hospital, Hospital formulary, Therapeutic drug monitoring, Medication adherence, Patient medication history interview and Community pharmacy management

<ol style="list-style-type: none">1. Write down about the charging policy of a hospital?2. Write down about the labelling of the drug formulation3. Describe about the contents of hospital formulary?4. Describe about the preparation of hospital formulary?5. What is TDM? What are the need for TDM?	05 Marks: Short Answer Type Questions
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Page 1 of 3

Pattanayak

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ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Pharmacy Practice	Subject Code:	BP703T

6. Describe about the factors affecting the TDM?
7. What is CPMM? How to maintain various financial registers?

10 Marks: Long Answer Type Questions

1. Write down about the drug distribution system in hospital?
2. What are the causes of nonadherence?
3. Discuss about the role of pharmacist in medical nonadherence?
4. Importance & goals of PMHI?
5. 1. Discuss about the materials, staff requirements, site, infrastructure requirement of CPMM?

UNIT III: Pharmacy and therapeutic committee, Information services, counselling, Education and training program in the hospital and Prescribed medication order and communication skills

05 Marks: Short Answer Type Questions

1. What is drug information service? Write down the objective of DIS?
2. Write down the qualification of pharmacist to run a DIC?
3. Write down the sources of DI?
4. What is patient counseling? Write down the steps involved in patient counseling?
5. What is hospital pharmacy? Role of pharmacist in education and training?
6. Write about the code of ethics?
7. What is community pharmacy? Role of pharmacist in community pharmacy?
8. 1. Write down about the medication orders and communication skills?

10 Marks: Long Answer Type Questions

1. Briefly describe about the organization & function of PTC?
2. Briefly describe about the policies of PTC?

UNIT IV: Preparation and implementation, Clinical Pharmacy and Over the counter (OTC) sales

05 Marks: Short Answer Type Questions

1. What is clinical pharmacy? Discuss the Roles & responsibilities of clinical pharmacist in health care system?
2. Discuss about the DTM?
3. What is OTC drugs? Discuss the types of OTC drugs?

10 Marks: Long Answer Type Questions

1. Discuss in detail about the budget preparation & implementation?
2. Discuss about the rational use of OTC drugs?

UNIT V: Drug store management and inventory control, Investigational use of drugs and Interpretation of Clinical Laboratory Tests

2 Marks: Very Short Answer Type Questions

1. What is complete blood count?
2. What is urinalysis?

05 Marks: Short Answer Type Questions

1. Write down the organization of drug store?

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Page 2 of 3

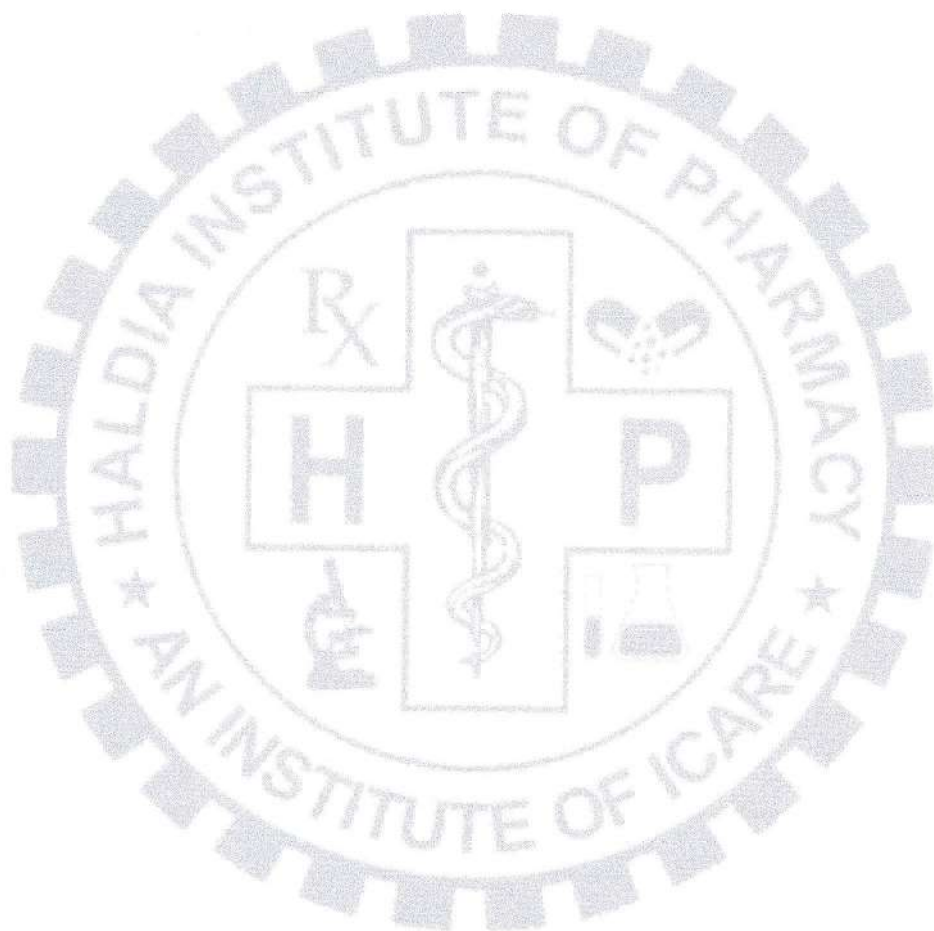
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Programme:	B. Pharm	Semester:	VII
Subject:	Pharmacy Practice	Subject Code:	BP703T

2. Write down about the inventory control?
3. What is economic order quality?
4. What is investigational drugs? Classification of drugs?
5. Write down about the role of pharmacist in the clinical evaluation of a drug?



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Programme:	B. Pharm	Semester:	VII
Subject:	Novel Drug Delivery System	Subject Code:	BP704T

Type of Questions

UNIT I: Control Drug Delivery System, Polymers

	2 Marks: Very Short Answer Type Questions
1.	
	05 Marks: Short Answer Type Questions
1.	Define controlled drug delivery systems with examples.
2.	What are the advantages and disadvantages of controlled drug delivery systems?
3.	Define dissolution and diffusion.
4.	Name any two polymers used in the reservoir type of controlled drug delivery formulations.
5.	Name any two polymers used in the matrix type of controlled drug delivery formulations.
6.	Name any two ion exchange resins used in controlled drug delivery formulations.
7.	Define half life and protein binding.
8.	How the half life influence the design of controlled drug delivery systems.
9.	How the protein binding influence the design of controlled drug delivery systems.
10.	Explain ion exchange controlled drug delivery system
11.	Classify polymer with example.
12.	Explain application polymer in design of CRDDS.
	10 Marks: Long Answer Type Questions
1.	Explain the various requirements of drug candidate to be selected for formulation into controlled drug delivery system.
2.	Explain the principle involved in the design of controlled drug delivery systems.
3.	Describe the various physicochemical and pharmaceutical factors to be considered in selection of a drug candidate for controlled delivery formulations.
4.	Write the concept of controlled drug delivery systems. Explain the approaches for the Controlled release formulations based on diffusion.
5.	Write the concept of controlled drug delivery systems. Explain the approaches for the Controlled release formulations based on dissolution.
6.	Write the concept of controlled drug delivery systems. Explain the approaches for the Controlled release formulations based on ion exchange technique.

UNIT II: Microencapsulation, Buccal Drug Delivery Systems and Implants

	2 Marks: Very Short Answer Type Questions
1.	Define core and coat materials with respect to microencapsulation.
2.	Define microencapsulation technique.
3.	Write the applications of microencapsulation.
4.	Name the techniques of microencapsulation.
5.	Define buccal drug delivery systems.
6.	What are implants?
7.	Give examples for implant drug delivery systems.
	05 Marks: Short Answer Type Questions
1.	Write a note on the formulation of buccal drug delivery systems.
2.	Explain concept, advantages and disadvantages of implants.
	10 Marks: Long Answer Type Questions
1.	Define microencapsulation. Write the applications of microencapsulation. Explain phase

HALDIA INSTITUTE OF PHARMACY

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separation-Coacervation technique.

2. What are buccal DDS? Explain the formulation of buccal drug delivery system.
3. What is an implant? Explain the formulation of implants with a suitable example.

UNIT III: Transdermal, Gastroretentive and Nasopulmonary drug delivery system

2 Marks: Very Short Answer Type Questions

1. What is transdermal drug delivery?
2. Name two marketed transdermal products.
3. Explain the advantages of nasal drug delivery systems.
4. What is nasal DDS?

05 Marks: Short Answer Type Questions

1. Explain any two formulation approaches for transdermal drug delivery systems.
2. Describe the components of transdermal DDS.
3. Discuss in detail about gastroretentive floating drug delivery systems
4. What are gastroretentive drug delivery systems? Explain various approaches of gastroretentive drug delivery system.
5. Discuss gastroadhesive drug delivery systems and its applications
6. Explain about microballoons as gastroadhesive drug delivery system
7. Short notes on Gastroretentive floating drug delivery system
8. Describe the non effervescent gastroadhesive drug delivery system.
9. What is nasal drug delivery system? Write about its advantages and disadvantages.
10. Describe in detail about formulations aspects of Nasal Spray
11. What is a pulmonary route of administration? Explain in detail about drug powder inhalers
12. Write short note on nebuliser
13. Write in details about Dry powder inhalers
14. Write note on pulmonary route as a promising route of drug administration
15. What are the excipients used for nasal spray formulation
16. Write briefly about metered dose inhalers

10 Marks: Long Answer Type Questions

1. What is transdermal DDS? Explain the different formulation approaches for transdermal DDS.
2. Describe all the criteria to be considered for the selection of drugs to be formulated into a transdermal DDS with examples.
3. What are the advantages and disadvantages of nasal DDS? With the help of a neat labeled diagram explain the physiology of the nasal cavity with reference to nasal drug absorption.

UNIT IV: Targeted drug Delivery

2 Marks: Very Short Answer Type Questions

1. Define liposomes?
2. Define niosomes.
3. Define nanoparticles.
4. How nanoparticles are used as target drug delivery systems.

05 Marks: Short Answer Type Questions

1. Explain concept, advantages and disadvantages of liposomes.
2. What are niosomes? Write its applications in target drug delivery system.
3. Explain concept, advantages and disadvantages of nanoparticles.

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Purba Medinipur, W.B., Pin-721657

Page 2 of 3

Pattanayak

HALDIA INSTITUTE OF PHARMACY

ICARE Complex, Hatiberia, Haldia, Purba Medinipur, W.B. – 721657

Programme:	B. Pharm	Semester:	VII
Subject:	Novel Drug Delivery System	Subject Code:	BP704T

4. Describe the monoclonal antibodies with its applications.
5. Write note on characters of monoclonal antibodies.
6. Explain preparation of monoclonal antibodies
7. Advantages and disadvantages of monoclonal antibodies

10 Marks: Long Answer Type Questions

1. Define liposome. Explain the different methods of preparation of liposomes.
2. What are vesicular DDS of niosomes? Explain the advantages, disadvantages and applications.
3. Define nanoparticle? Write the importance of nanoparticles in target drug delivery systems with suitable examples

UNIT V: Ocular and Intrauterine Drug Delivery Systems

2 Marks: Very Short Answer Type Questions

1. What are Progestasert?
2. Differentiate the medicated and non medicated IUD'S

05 Marks: Short Answer Type Questions

1. Enumerate the different types of ocular dosage forms.
2. What are the ideal requirements for ocular drug delivery systems
3. Define ocular drug delivery systems.
4. Explain the method to overcome barriers to Ocular drug delivery systems.
5. Explain the barriers to Ocular drug delivery systems.
6. Write a note on IUD'S
7. Define and classify the various IUD's
8. Advantages and disadvantages of IUD'S

10 Marks: Long Answer Type Questions

1. Explain the characteristics of ocular drug delivery systems.
2. What is ocular DDS? Explain its advantages, disadvantages and ideal requirements for ocular drug delivery systems.
3. Define ocular drug delivery system. Explain different types of ocular DDS.