

# HALDIA INSTITUTE OF PHARMACY

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

Programme:	B. Pharm	Semester:	VIII
Subject:	Biostatistics and Research Methodology	Subject Code:	BP801T

## Type of Questions

### UNIT I: Introduction, Measures of central tendency, Measures of dispersion, Correlation

#### 05 Marks: Short Answer Type Questions

1. Explain types of correlation and correlation coefficient. Give suitable examples
2. What are measures of central tendency
3. What are measures of dispersion? Explain
4. Explain correlation, types of correlation and its applications
5. Discuss with examples measures of central tendency.

#### 10 Marks: Long Answer Type Questions

1. Explain the measures of central tendency with problems
2. What are measures of dispersion? Explain their significance with suitable examples..
3. Explain the measures of dispersion. Calculate mean, variance and standard deviation
4. Write short note on karl pearson's coefficient of correlation.
5. Find out mean deviation ,standard deviation and variance from following data
6. Find out correlation of coefficient of following data by karl pearsons method

### UNIT II: Regression, Probability, Parametric test

#### 05 Marks: Short Answer Type Questions

1. Explain the pharmacokinetic applications of regression analysis
2. Explain linear regression? How is it applied for pharmaceutical sciences
3. What do you mean by multiple regression and explain with pharmaceutical examples
4. Define probability and explain its significance in statistical inference with examples.
5. What are non-parametric tests? Explain chi square test-Goodness of fit test.
6. Explain null hypothesis, type I and type II errors.
7. Explain the hypothesis testing using one way of ANOVA.
8. Explain ANOVA and its significance
9. Explain student 't' test and its applications
10. Classify and list the tests used for hypothesis testing of parametric data
11. Classify and explain different types of t- tests.
12. Distinguish between parametric and non-parametric tests. For what type of data is Chi Square test performed
13. Describe properties of binomial distribution

#### 10 Marks: Long Answer Type Questions

1. Explain regression analysis and its application in stability testing of pharmaceuticals.
2. Explain different types of hypothesis. Explain type I and type II errors, level of significance, P value
3. Explain with suitable examples regression analysis and standard error of regression
4. What is hypothesis? What are different types of hypothesis? Explain how you will formulate a hypothesis with a suitable example
5. Explain the hypothesis testing of non-parametric data
6. Explain the hypothesis testing of non-parametric data

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## UNIT III: Non Parametric tests, Introduction to Research, Graphs, Designing the methodology

### 05 Marks: Short Answer Type Questions

1. Explain techniques for presentation of data
2. Explain a typical experimental study design
3. Explain with examples- Histogram, Pie chart.
4. Describe the sampling techniques in research study
5. Discuss the methods of sample size calculation in comparative studies.
6. What characteristics of data can be represented by a) Histogram b) Pie chart c) Semi-logarithmic plots
7. Write in details the sampling error
8. Explain in detail about cross-over and parallel clinical study design
9. Write the importance of plagiarism in research

### 10 Marks: Long Answer Type Questions

1. How will you design a clinical study methodologically? Explain briefly.
2. Discuss Wilcoxon Rank Sum test and Mann Whitney U test
3. Explain types of observational study designs
4. Explain the different phases of clinical trials.

## UNIT IV: Regression modelling, Introduction to Practical components of Industrial and Clinical Trials Problems

### 05 Marks: Short Answer Type Questions

1. Explain the graphical methods of representing quantitative data.
2. Discuss the applications of EXCEL and SPSS programmes in statistical analysis
3. Discuss the applications of SPSS and MINITAB in data analysis.

### 10 Marks: Long Answer Type Questions

1. What do you mean by industrial and clinical trial approach and which software use use in industry.
2. Discuss about blocking and confounding system.

## UNIT V: Design and Analysis of experiments, Factorial Design, Response Surface methodology

### 05 Marks: Short Answer Type Questions

1. Explain advantages of factorial Design
2. Explain the concept of Central Composite Design
3. Explain detail optimization techniques
4. What is importance of factorial design.
5. Describe about box behken design

### 10 Marks: Long Answer Type Questions

1. What DOE? Explain.
2. Explain factorial design with examples
3. How will you use response surface methodology in optimisation of product.

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Programme:	B. Pharm	Semester:	VIII
Subject:	Social and Preventive Pharmacy	Subject Code:	BP802T

## Type of Questions

### UNIT I: Concept of health and disease, Social and health education, Sociology and health and Hygiene and health

#### 2 Marks: Very Short Answer Type Questions

1. Define Health and Family wellness.
2. Write down the measures for prevention of Malnutrition.
3. What are Dimensions of good health?
4. Define Public Health.
5. Define nutrition.
6. What is Balance Diet?
7. Explain benefits of Balance Diet.
8. Write down the symptoms of Nutritional Deficiencies.
9. Write down the deficiency disease of Vitamins?
10. Explain the types of Malnutrition.

#### 05 Marks: Short Answer Type Questions

1. Explain the Determinants of Health?
2. Explain concept of Health.
3. Enumerate the public Health Function in brief.
4. Explain Evaluation of Public Health System.
5. What are the 10 essential Public health Services?
6. Describe the standards used in Program evaluation.
7. Explain Various Disease Control Methods.
8. Write a note on social causes of disease.

#### 10 Marks: Long Answer Type Questions

1. Explain Public Health System.
2. Describe Various steps of program evaluation in brief.
3. Explain the level of prevention for Prevention and Control of Disease.
4. Describe the Socio Cultural Factors Related To Health And Disease.
5. Elaborate the impact of Urbanization on Environmental Health.
6. Describe ersonal Hygiene in brief.
7. Explain different vitamin deficiency disorders and their prevention.
8. Write general principles of prevention and control of respiratory infections.

### UNIT II: Preventive medicine

#### 2 Marks: Very Short Answer Type Questions

1. What are basic principles of Preventive Pharmacy?
2. What is basic differences between drug abuse and drug dependent?
3. Discuss Preventive measures of cancer.
4. List out diagnostic treatment for Chikungunya.
5. What is the treatment for malaria?
6. What are basic types of Acute Respiratory Infection?
7. Write Signs and Symptoms of Malaria

#### 05 Marks: Short Answer Type Questions

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Programme:	B. Pharm	Semester:	VIII
Subject:	Social and Preventive Pharmacy	Subject Code:	BP802T

1. Explain signs and symptoms and treatment of Cholera.
2. Diagnostic test of SARS.
3. What is Influenza? Explain its types and severity.
4. Write preventive measures of Ebola.
5. What is Lymphatic Filariasis? How does it transmit?
6. What is preventive pharmacy? Explain types of prevention.
7. Write general principles, prevention and control of cholera.
8. Write general principles, prevention and control Of SARS,
9. Write general principles, prevention and control Of Ebola virus,
10. Write general principles, prevention and control Of influenza,
11. Write general principles, prevention and control Of acute respiratory infections,
12. Write general principles, prevention and control Of malaria,
13. Write general principles, prevention and control Of chicken guinea,
14. Write general principles, prevention and control Of dengue,
15. Write general principles, prevention and control Of lymphatic filariasis,
16. Write general principles, prevention and control Of pneumonia,
17. Write general principles, prevention and control Of hypertension, d
18. Write general principles, prevention and control Of diabetes mellitus,
19. Write general principles, prevention and control Of cancer.
20. Write a note on drug addiction-drug substance abuse

## 10 Marks: Long Answer Type Questions

1. What is cancer? Explain its risk factors, diagnosis and preventive measures.
2. Explain detailed note on drug abuse and drug dependent.
3. Preventive measures of Dengue and Malaria.
4. Write detailed note on Ebola with its risk factors.
5. Write general principles, prevention and control of cholera.
6. Write general principles, prevention and control Of SARS,
7. Write general principles, prevention and control Of Ebola virus,
8. Write general principles, prevention and control Of influenza.
9. Write general principles, prevention and control Of acute respiratory infections.
10. Write general principles, prevention and control Of malaria.
11. Write general principles, prevention and control Of chicken guinea.
12. Write general principles, prevention and control Of dengue.
13. Write general principles, prevention and control Of lymphatic filariasis.
14. Write general principles, prevention and control Of pneumonia.
15. Write general principles, prevention and control Of hypertension.
16. Write general principles, prevention and control Of diabetes mellitus.
17. Write general principles, prevention and control Of cancer.

## UNIT III: National health programs, its objectives, functioning and outcome

### 2 Marks: Very Short Answer Type Questions

1. What are objectives of NACP-I?
2. Objectives of national Tuberculosis health programme.
3. Objectives of leprosy programme.
4. Objectives of Tuberculosis health programme.

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Programme:	B. Pharm	Semester:	VIII
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5. Objectives of National mental health program
6. Objectives of National programme for prevention and control of deafness
7. Objectives of Universal immunization programme
8. Objectives of National programme for control of blindness.
9. Objectives of Pulse polio programme.
10. What are functions of Integrated counseling and testing centers (ICTC)?
11. What are four Strategic pillar of TB control Program?
12. Give the objectives of Integrated Disease Surveillance Project(IDSP).
13. What are key messages of leprosy program?

## 05 Marks: Short Answer Type Questions

1. What is treatment of TB ?
2. Describe the function of different surveillance unit of IDSP.
3. What are components of leprosy programme?
4. Explain about national Tuberculosis health programme.
5. Explain about National mental health program.
6. Explain about National programme for prevention and control of deafness.
7. Explain about Universal immunization programme.
8. Explain about National programme for control of blindness.
9. Explain about Pulse polio programme.
10. What are strategies to achieve the objectives of NPCB?
11. What are steps taken by the government to maintain polio free status in India?
12. Write strategy and policy of vaccination programme.

## 10 Marks: Long Answer Type Questions

1. Write a note on Pulse Polio Programme.
2. Write a note on working of Integrated Disease Surveillance Project (IDSP).
3. Explain Integrated disease surveillance programme ( IDSP).
4. Explain in brief components of NLEP.
5. Give a note on National mental health programme. Discuss the objective , principles and implementation of immunization programme.
6. Write a note on national health programme and national AIDS control programme.
7. What are national health programs, write in detail about national AIDS control program.

## UNIT IV:

## 2 Marks: Very Short Answer Type Questions

1. What is mother and child protection card?
2. What is benefit of Mamta card?
3. How can a pregnant woman get 6000?
4. Write the goal of the Family Welfare Programme?
5. Explain briefly the expected outcome of Programme.
6. Write the aims of National Tobacco programme.
7. Explain briefly the role of Cigarette and other Tobacco Products (COPTA)
8. Write the vision of National Programme for Health Care of Elderly.
9. Write the objectives of Integration with National Health Mission (NRHM).
10. Explain briefly the expected outcome of programme.
11. Define the term Health.

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## 05 Marks: Short Answer Type Questions

1. Explain the Mother and Child Protection Card(MCPC)
2. Write a note on Village Health Nutrition Day (VHND)
3. Write the objective Family Welfare Programme.
4. Describe the strategies of Family Welfare Programme(FWP).
5. Explain the role of Community Health Department in Family Welfare Services.
6. Describe the achievements by National Tobacco Control in India.
7. Describe Malaria control strategies.
8. Explain the strategies to achieve the objectives of the NPHCE.
9. Describe the some major health achievements in India in recent years.
10. Describe briefly the various role of government within the health sector.
11. Discuss the WHO's support to the Government of India with their strategic priorities.
12. Explain National health intervention programme for mother and child.
13. Explain National family welfare programme,
14. Explain National tobacco control programme,
15. Explain National Malaria Prevention Program,
16. Explain National programme for the health care for the elderly,
17. Explain Social health programme

## 10 Marks: Long Answer Type Questions

1. Discuss in detail Pradhan Mantri Matri Vandana Yojana (PMMVY)
2. Discuss roles and functions of National Vector Borne Disease Control Programme.
3. Discuss in detail the constitution of District Health Society (DHS).
4. Explain in detail the role of Government in enabling intersectoral condition toward public health issues.
5. Describe the government of India's major new health initiatives and programmes.
6. Discuss the contribution of WHO to recent advances in health in India.

## UNIT V:

## 2 Marks: Very Short Answer Type Questions

1. Give the objectives of community health.
2. Define the community service.
3. What is the basic meaning of sanitization?
4. Describe basic hindrance which causes poor sanitization conditions in rural areas of India.
5. What is Nirmal Gram Purakar? Explain in brief.
6. Write the objectives of National Urban Health Mission(NUHM).
7. Write the role of NGOs in strengthening health services for the poor.
8. Give the objectives of School Health Program.
9. Write Principles of school health program.

## 05 Marks: Short Answer Type Questions

1. Give a note on health care system on India.
2. Explain different schemes and programs which helps to improve sanitization in rural India.
3. What do you mean by Sanitization? Explain in detail along with its focusing areas.
4. Explain Core Strategies adapted by National Urban Health Mission (NUHM).
5. Write a note on Mahila Arogya Samiti (MAS)
6. Explain the institutional framework of National Urban Health Mission (NUHM)

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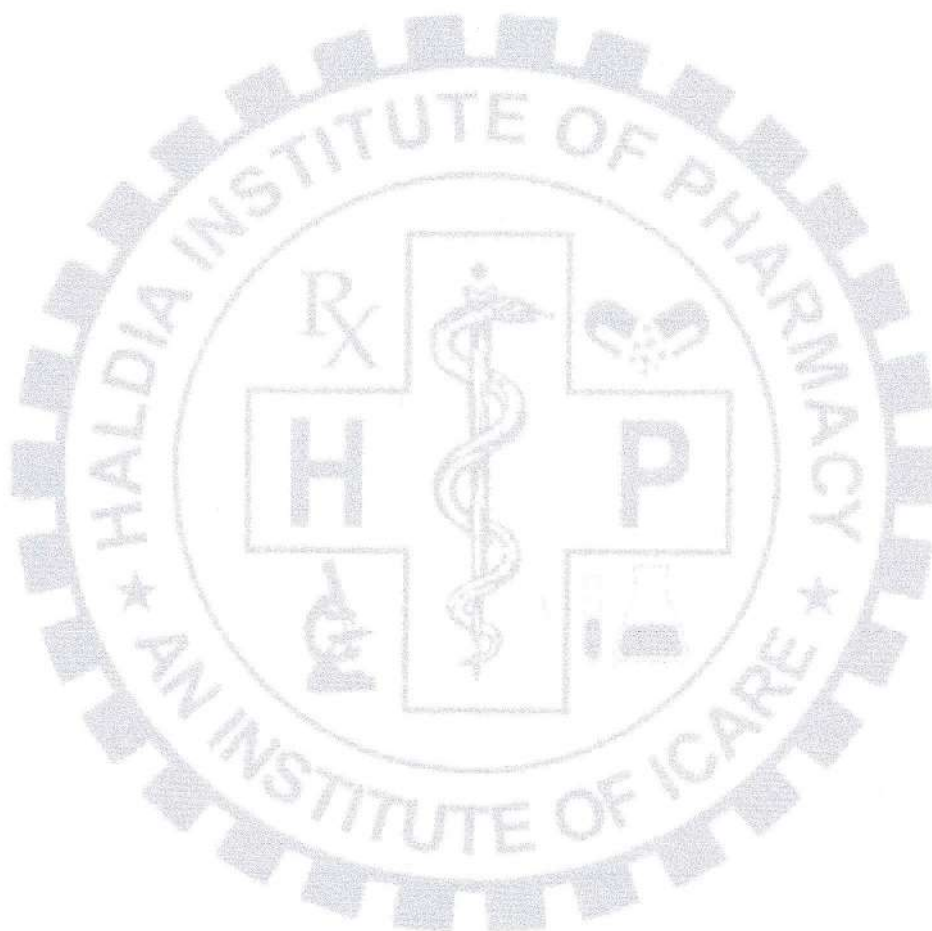
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7. Describe the concepts of health education and health promotion in relation to schools.

**10 Marks: Long Answer Type Questions**

1. Write the establishment, objective and function of Primary Health Centers (PHC)
2. How can you improve sanitization in rural India? Explain.
3. Discuss in detail outcome of National Urban Health Mission (NUHM).
4. Explain the components of school health services in brief.



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Programme:	B. Pharm	Semester:	VIII
Subject:	Cosmetic Science	Subject Code:	BP809ET

## Type of Questions

### UNIT I: Cosmetic excipients

#### 2 Marks: Very Short Answer Type Questions

1. Define cosmetics?
2. Define cosmetics as per EU regulations.
3. What are cosmeceuticals?
4. Define emollients?
5. Define humectants?
6. Enlist the common problems associated with teeth and gum?
7. Define cosmetics as per Indian regulations.
8. Enlist the preservatives used in cosmetics preparation.
9. Write the advantages and disadvantages of vanishing creams
10. Give four examples of emollients used in cosmetics.
11. Define cosmetics as per EU regulations
12. Define Anagen and Catagen.
13. Define dental caries and Toothache phase.

#### 05 Marks: Short Answer Type Questions

1. Define and classify cosmetics?
2. Define and classify surfactant?
3. Write in short about cosmetics as quasi drugs.
4. What do you know about preservatives? Write in brief about it's application.
5. Write in brief about functions of skin
6. Write in brief about bad breath
7. Define humectants? Write applications of humectants.
14. Enlist the common problems associated with teeth and gum?
15. Write a short note on hair growth cycle
16. Differentiate cosmetics and cosmeceuticals.
17. Explain cosmetics as OTC drugs.

#### 10 Marks: Long Answer Type Questions

1. List out various cosmetic excipients. Discuss emollients and preservatives.
2. Discuss the role of humectants and emollients in cosmetics along with their applications.
3. Define and classify surfactant used in cosmetics and cosmeceuticals. Write its applications?
4. Explain cosmetics as quasi and OTC drugs
5. Write basic structure and function of skin
6. Define classify and applications of rheological modifiers
7. Write basic structure and function of skin with labeled diagram

### UNIT II: Principles of formulation and building blocks of skin care products and Principles of formulation and building blocks of Hair care products

#### 2 Marks: Very Short Answer Type Questions

1. What is face wash?
2. Define moisturizing cream?
3. What is cold cream
4. What is Vanishing cream

# HALDIA INSTITUTE OF PHARMACY

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Programme:	B. Pharm	Semester:	VIII
Subject:	Cosmetic Science	Subject Code:	BP809ET

5. Define shampoo
6. Write formulation of conditioning shampoo
7. Enlist the active ingredients used in mouth wash
8. What is exfoliants
9. What is ceramide?
10. Enlist the active ingredients used in anti dandruff shampoo

### 05 Marks: Short Answer Type Questions

1. What is face wash? Enlist the ingredients used in face wash?
2. Define moisturizing cream? Enlist ideal properties of moisturizing cream?
3. Write advantages and disadvantages of moisturizing cream?
4. Discuss about hair oil? What are the applications of hair oil?
5. Define cold cream? Discuss in detailed about advantages and disadvantages of cold cream?
6. Write a short note in emulsifier in moisturizing cream?
7. Describe chemistry and formulation of para-phylenediamine based in hair dye
8. Describe specification for tooth paste as per BIS.
9. Write two formulas for cold creams with their method of preparation.
10. Explain the cosmetic treatment for dandruff
11. What is face wash? Write its ideal properties and functions.
12. Give four analytical specifications for toothpaste as per BIS.

### 10 Marks: Long Answer Type Questions

1. Discuss various materials used in manufacturing moisturizing cream?
2. Explain formulation consideration of tooth paste? Differentiate between tooth paste and tooth powder
3. Explain formulation in various skin care products in details
4. Discuss in detail the formulation of vanishing cream and cold cream.
5. Compare and contrast vanishing cream, cold cream and moisturizing creams.
6. List out different skin care cosmetic products. Describe the moisturizing creams.

### UNIT III: Role of herbs in cosmetics, Analytical cosmetics

#### 2 Marks: Very Short Answer Type Questions

1. Define sunscreen?
2. Write various types of sunscreen used in market
3. Write ideal qualities of sunscreen products
4. Give examples of herbs used as vehicles in cosmetic preparations.
5. Give examples of herbs used as humectant in cosmetic preparations.
6. Give four examples of organic sunscreens.
7. Give one formula for sunscreen lotion

#### 05 Marks: Short Answer Type Questions

1. Discuss about sunscreen?
2. Write in detailed about aloe with skin care products?
3. Write in detailed about in different use of turmeric in skin care products
4. Write various benefits of amla and henna in hair care
5. Explain BIS specification for shampoo
6. Write analytical method for skin cream
7. Write various detailed application of neem

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8. What is SPF? Explain different methods of its measurement?
9. Classify shampoos. Write its applications in hair care.
10. Write the cosmetic and cosmeceutical applications of sunscreens.
11. Explain the principle involved in the formulation of hair conditioners.
12. What are the causes of dandruff? How it is treated?
13. Explain the principle involved in the formulation of hair conditioners.

### 10 Marks: Long Answer Type Questions

1. Write the source, active constituents and cosmetic applications of turmeric and clove.
2. Describe the principle building blocks used in the formulation of oral care products.
3. Discuss the role of Neem and Clove in oral care formulations.
4. Define herb. Discuss the role of herbs as cosmetic and cosmeceutical excipients.
5. Discuss the raw materials used in the formulation of oral care cosmetic products.
6. Discuss the raw materials used in the formulation of hair care cosmetic products.

### UNIT IV:

### 2 Marks: Very Short Answer Type Questions

1. What are Sebumeter?
2. What are Corneometer?
3. Write four applications of Sebumeter.
4. Write four applications of Corneometer.
5. Define tensile strength of hair
6. Enlist various ingredients used in the preparation of Syndent bars.

### 05 Marks: Short Answer Type Questions

1. Describe the steps involved in the manufacturing soaps.
2. What are hair dyes? Classify and write its ideal properties.
3. How do you select suitable moisturizer for different types of skin and face? Explain the guidelines for its selection.
4. What is TEWL? How it is measured.
5. Write the principle and applications of Corneometer.
6. Differentiate soaps and syndents
7. Write the principle and applications of Sebumeter.
8. With neat-labeled diagram, explain Sebumeter.
9. Describe the noninvasive techniques for the measurement of skin colour
10. Differentiate sebumeter and corneometer
11. What is hair tensile strength? How it is measured?
12. What are syndentbars? Enlist various ingredients used in the preparation of Syndent bars

### UNIT V:

### 2 Marks: Very Short Answer Type Questions

1. What is prickly heat
2. What is blemishes?
3. Classify skin types.
4. What are wrinkles.
5. What are hair dyes?

### 05 Marks: Short Answer Type Questions

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Programme:	B. Pharm	Semester:	VIII
Subject:	Cosmetic Science	Subject Code:	BP809ET

1. Write in brief about antiperspirant and deodorant
2. Write various types of product used in body odour
3. Write symptoms and treatment of dry skin
4. Write in detailed about various types of skin
5. Write various causes of oily skin
6. Write in detailed about significance of skin moisturizer
7. Write various causes of skin diseases
8. Give the causes of hair dandruff
9. What are the various causes of prickly heat
10. What are the various causes of hair loss
11. What are different types of blemishes? Give reasons
12. What are different types of wrinkles? Give reasons
13. Discuss the mechanism of action of actives used in antiperspirants.
14. Explain the formulation of oxidative hair dye system.
15. What are skin blemishes? How it is treated.
16. What is dry skin? What are the causes for dry skin?
17. Write a note on hair oils
18. Discuss the important causes for acne.
19. Explain the remedies to prevent and relieve dry skin

**10 Marks: Long Answer Type Questions**

1. Describe the structure and functions of the hair with neat labeled diagram.

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Programme:	B. Pharm	Semester:	VIII
Subject:	Advanced Instrumentation Techniques	Subject Code:	BP811ET

## Type of Questions

### UNIT I: Nuclear Magnetic Resonance spectroscopy and Mass Spectrometry

#### 2 Marks: Very Short Answer Type Questions

1. Explain the terms of Chemical shift and Spin-Spin coupling, Coupling constant
2. Enlist different ionizers used in MS.
3. Solvent used in NMR Spectroscopy
4. What is Shielding and De- shielding?
5. Define molecular ion and fragment ion.
6. Internal standard used in NMR

#### 05 Marks: Short Answer Type Questions

1. Write fragmentation process in Mass Spectroscopy.
2. Describe the theory of Mass spectrometry
3. Describe the rules for fragmentation of molecules in MS with suitable examples
4. What is Chemical Shift? Explain with examples different factors influencing Chemical Shift.
5. Discuss the principle of NMR Spectroscopy
6. Briefly outline the instrumentation of Mass Spectrometer
7. Explain the fragmentation pattern rules used in Mass spectroscopy.
8. Explain the principle and instrumentation of NMR Spectroscopy.

#### 10 Marks: Long Answer Type Questions

1. Write the principle involved in NMR spectrometer. Add a note on factors affecting on Shielding and de -shielding in NMR Spectra.
2. Explain the fundamental principles and instrumental arrangements of NMR. Write detail note on Octant rule
3. Explain instrumentation of Mass Spectrometer and its applications
4. Write a note on coupling and decoupling methods and its significance in NMR Spectroscopy.
5. Explain the principle involved in the Electron impact of MALDI ionization
6. Explain the principle involved in the Chemical ionization. Write the merit and demerits. Explain the working of Quadra pole and Ion trap mass analyzer

### UNIT II: Thermal Methods of Analysis and X-Ray Diffraction Methods

#### 2 Marks: Very Short Answer Type Questions

1. Define the Braggs law.
2. Applications of X Ray
3. Write the concept of Miller indices

#### 05 Marks: Short Answer Type Questions

1. Discuss the instrumentation and application of DSC
2. Write the various applications of X-ray diffraction methods
3. Discuss the identification powder diffraction pattern in X-ray diffraction spectroscopy
4. Enlist the different X-ray Diffraction techniques and explain the application of X-ray diffraction
5. How are X-ray produced? What are modification of X-ray tube?
6. Discuss the concept X-ray Crystallography

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Subject:	Advanced Instrumentation Techniques	Subject Code:	BP811ET

7. State and derive the an equation for Braggs law

**10 Marks: Long Answer Type Questions**

1. Explain the principle and working of TGA.
2. Discuss the principle and working of DTA.
3. Write the principle involved in crystallographic studies by X- ray diffraction. Give the importance of Braggs law in X-ray diffraction spectroscopy
4. Explain the production and detection of X-rays by Debye scherrer method
5. Define and derive the Braggs law and explain rotating crystal technique Chemical ionization.
6. Discuss the instrumentation and application of TGA

## UNIT III: Calibration and validation

**2 Marks: Very Short Answer Type Questions**

1. Define and classify validation
2. What is Flame photometer
3. Write the Important feature of qualification of UV-Visible
4. Mention validation methods with examples
5. Write its merits and demerits of HPLC
6. Write the Qualification of Fluorimeter.
7. Important feature of qualification of UV-Visible.
8. Define full validation and partial validation.
9. Qualification of IR Spectrophotometer

**05 Marks: Short Answer Type Questions**

1. Explain the methodology involved in the qualification of fluorimeter
2. Explain validation parameter for electronic balance
3. Discuss in detail cGmp guidelines according to CDER USFDA
4. Explain the methodology involved in the qualification of HPLC
5. Explain the methodology involved in the qualification of UV-VIS Spectrophotometer
6. Discuss about design a qualification and describe the qualification GC

**10 Marks: Long Answer Type Questions**

1. Discuss in detail the validation parameter for bio analytical methods as per ICH guidelines.
2. Discuss background and principles of Bio analytical method validation as per USFDA regulations
3. Discuss concept of TQM. Add a note on ICH-EG guidelines
4. Discuss in detail the validation parameter for bio-analytical methods as per USFDA guidelines
5. Explain validation of analytical method of LC as per ICH guideline
6. Define validation; explain the types of process validation

## UNIT IV: Radio immune assay and Extraction techniques

**2 Marks: Very Short Answer Type Questions**

1. Write the Limitations of Radio Immuno Assay.
2. Differentiate between ELISA and RIA.
3. Define Radio Immuno Assay,ELISA

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ICARE Complex, PO. Hatiberia, Haldia  
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*Pattanayak*

# HALDIA INSTITUTE OF PHARMACY

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

Programme:	B. Pharm	Semester:	VIII
Subject:	Advanced Instrumentation Techniques	Subject Code:	BP811ET

4. Classify different methods of Radio Immuno Assay

5. Enumerate the different types of ELISA methods.

### 05 Marks: Short Answer Type Questions

1. Classify different kinds of ELISA and explain each of them in details.

2. Describe the principle and procedure involved in the solid phase extraction

3. Describe the Radio Immunological assays and bioluminescence assay

4. Explain the utilization of ELISA technology in the measurement of biological activities

5. Write the various components, Limitations and application of Radio Immune Assay

6. Differentiate between ELISA and RIA

### 10 Marks: Long Answer Type Questions

1. Classify different kinds of ELISA and explain each of them in details.

2. Write the importance of Radio immune assay.

3. Limitations and application of Radio Immuno Assay.

## UNIT V: Hyphenated techniques

### 2 Marks: Very Short Answer Type Questions

1. What is HPTLC.?

2. Advantages of HPTL

### 05 Marks: Short Answer Type Questions

1. Discuss in detail about the HPTLC technique

2. Enlist different ionizers used in MS and explain any one in detail.

3. Explain the various derivatization techniques in GC

### 10 Marks: Long Answer Type Questions

1. Discuss in detail about the HPTLC technique. Enlist different ionizers used in MS and explain any one in detail.