VII/sem main

Code No.: H-8254/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Biostatistics and Research Methodology

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions **(10 x 2 = 20 Marks)**

1. Write the applications of P values in pharmaceutical research.
2. Define the research and biostatistics.
3. What are type-1 and type-II error. Give examples.
4. Define the term sample and population.
5. Explain significance iof Variance.
6. Name the types of non-parametric tests.
7. Write the advantages of mean.
8. What is pie chart. What are it's advantages.
9. Name the types sampling techniques.
10. Write the applications of R-software in drug discovery.

PART – B

Note: Answer any two questions **(2 x 10 = 20 Marks)**

11. Discuss about cohort studies.
12. Explain types of ANOVA test.
13. Write a note on measures of central tendency.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Find the mean, median and mode of following data.

X	10-20	20-30	30-40	40-50	50-60
f	4	5	6	5	4

15. Write a note on binomial distribution.
16. Describe about the H test.
17. Write a note on paired student-test.
18. Write a note on design of experiment.
19. Describe the hypothesis testing in multiple regression model.
20. Write a note on report writing.
21. Write the applications of central composite design.
22. Draw the histogram of following data.

Marks	10-20	20-30	30-40	40-50
Number of students	10	20	30	10

******End******

Code No.: H-8255/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII- Semester (Main & Backlog) Examination, July 2026

Subject: Social and Preventive Pharmacy

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What are the preventable causes of disease.
2. What is the importance of balanced diet.
3. What are the sources and deficiency of vitamin K.
4. What are the factors affecting health.
5. What is malnutrition. Give examples.
6. Mention the sources and deficiency diseases of B-complex vitamins.
7. What are the elements of school health services
8. Write a note on National Mental Health Program.
9. What are the socio-cultural factors related to health and disease.
10. What is substance abuse and how to prevent.

PART – B

Note: Answer any two questions. **(2 × 10 = 20 Marks)**

11. a) Explain the four levels of prevention.
    b) Discuss the impact of urbanization on health and disease.
12. Explain the control and prevention of the following diseases
    a) Cancer b) SARS c) Chikungunya d) Filariasis
13. a) Discuss objectives and service packages under National programme for the health care for the elderly.
    b) Discuss the components, major initiatives, and outcomes of National Leprosy Control Program

PART – C

Note: Answer any seven questions. **(7 × 5 = 35 Marks)**

14. Discuss the importance of personal hygiene in health care.
15. Explain the sources, functions and deficiency of different B-complex vitamins.
16. Explain important programs of National AIDS Control Organization
17. Explain objectives, functions and strategies of Integrated Disease Surveillance Programme.
18. Discuss mother and child health services under National Health Intervention Programme for mother and child.
19. Explain the ways to promote healthy lifestyle in school students.
20. Explain the pulse polio program in detail.
21. Explain the role of WHO in Indian national program.
22. Explain about the Universal Immunization programme.

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Code No.: H-8256/PCI

FACULTY OF PHARMACY

B. Pharmacy(PCI) VIII- Semester (Main & Backlog) Examination, July 2026

Subject: Pharmaceutical Marketing Management (Elective- I)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. List the stages of the product life cycle.
2. Classify the market based on demography.
3. What is product portfolio analysis?
4. Write about the need of global marketing.
5. Define pricing and mention its objectives.
6. Define advertisement.
7. Name different channels of distribution in pharmaceutical business.
8. Mention evaluation criteria for professional sales representatives.
9. What is the role of retailing in promotion?
10. What is vertical marketing?

PART – B

Note: Answer any two questions. **(2 × 10 = 20 Marks)**

11. Elaborate the pricing methods and strategies in price management in the pharmaceutical industry.
12. Explain online promotional techniques relevant to OTC products.
13. Describe the selection, training and future prospects of professional sales representatives.

PART – C

Note: Answer any seven questions. **(7 × 5 = 35 Marks)**

14. Describe the buying behaviours applicable to the pharmaceutical industry.
15. Write different methods of market segmentation and explain them.
16. Explain the method and purpose of detailing in professional selling.
17. Explain the role of marketing research on sales of pharmaceuticals.
18. Describe critical aspects of product management in the pharmaceutical industry.
19. Write in detail the steps involved in personal selling.
20. What is consumerism? Write the roles of pharmacist and physician in consumerism.
21. Describe the determinants for fixation of prices.
22. Discuss the roles & responsibilities of NPPA.

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Code No. H-8257/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Pharmaceutical Regulatory Science (Elective-I)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Name the regulatory authority of Japan, Canada, European Union, Australia.
2. Explain the types of IND.
3. Explain Investigational Product.
4. Explain generic drug product development.
5. Write a note on Code of federal regulation (CFR).
6. Differentiate between Common Technical Document (CTD) and ASEAN common technical documents (ACTD).
7. Write a note on constitution of Ethics Committee.
8. What is Phase 3 clinical trial?
9. Differentiate between brand and generic products.
10. Explain orange book.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the different modules of CTD in detail. Write a note on tools and technology involved in eCTD.
12. Discuss various stages of drug discovery and drug development process.
13. Explain in detail about generic drug product development process. Add a note on advantages of generic products.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Explain the organization, functions and different applications used for approval of regulatory bodies of Japan.
15. Define the importance and parts of DMF. Explain the types of DMF
16. What are the steps involved in application and approval of ANDA?
17. Write about organization and function of USFDA.
18. Explain general procedure for export of pharmaceutical products in Indian market.
19. Explain the GCP obligations of investigators and sponsors.
20. What is the constitution and purpose of Ethics Committee?
21. Describe Informed consent process and procedures in clinical trials.
22. Write the salient features of pharmacovigilance.

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Code No. H-8258/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Pharma co vigilance (Elective-I)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Mention the methods for assessment of ADR causality.
2. What is VigiBase and VigiAccess?
3. Enumerate various drug dictionaries.
4. What is Eudravigilance?
5. Describe cross sectional studies.
6. Differentiate between ADRs and ADEs.
7. What are the sources of ADR reporting?
8. Write a short note on Schedule "Y".
9. Define and write a short note on periodic safety update reports.
10. List out the genetically determined toxicities.

PART-B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Define ADR. Enumerate the different methods of causality and severity assessment of ADR.
12. a) Write a note on MedDRA.
    b) Write about the establishment and operation of Drug safety department in industry.
13. a) Write about comparative observational studies.
    b) Write a note on communication with Regulatory Agencies and Healthcare facilities.

PART-C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write the classification of ADRs.
15. Briefly explain International Non-Proprietary Names (INN) for drugs.
16. Write about effective communication in drug safety crisis management.
17. What are the steps for establishing immunization safety surveillance system?
18. Explain in detail the organization and objectives of ICH.
19. Explain the following (a) case control study (b) cohort study.
20. Write a note on post approval expedited reporting.
21. Write about drug safety evaluation in paediatrics.
22. Write a note on CIOMS working groups.

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Code No.: H-8259/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII-Semester (Main & Backlog) Examination, July 2026

Subject: Quality Control and Standardization of Herbals (Elective I)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write the WHO guidelines for safety monitoring of herbal medicine.
2. What is chromatography? Mention various chromatographic techniques used in the standardization of herbal drugs.
3. What is lycopodium spore method
4. What is secondary processing of medicinal plants?
5. Write the advantages and disadvantages of organic farming.
6. Write the significance of ICH guidelines.
7. What are extractive values and write their significance?
8. What is AYUSH?
9. Define Palisade Ratio.
10. What is GAP?

PART B

Note: Answer any two questions. **(2 x 10= 20 Marks)**

11. Define and classify markers with examples and their role in standardization of herbal products
12. Discuss EU or ICH guidelines for quality control of herbal drugs.
13. Explain about the current Good Manufacturing Practices (cGMP) for Herbal Medicines.

PART C

Note: Answer any seven questions. **(7 x 5= 35 Marks)**

14. Explain the importance of HPTLC method in the standardization of herbal drugs.
15. Describe the guidelines on safety and efficacy of herbal medicine.
16. Describe the basic test for medicinal plant materials.
17. Write the applications of chromatography technique in the standardization of herbal drugs.
18. Briefly explain various aspects of GLP in Herbal Drug Industry
19. Write a note on regulatory requirement for herbal drugs.
20. Explain the preparation of document for new drug application.
21. Write briefly about stability studies of herbal medicinal products.
22. Discuss about the assessment of Genotoxicity of herbal preparations.

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Code No. H-8260/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Computer Aided Drug Design (Elective-I)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Write a note on serendipitous discovery of drugs.
2. What is De novo drug design?
3. Define the term lead optimization.
4. Differentiate between rigid and flexible docking studies.
5. Explain the significance of the partition coefficient.
6. What is 3D QSAR technique? Give examples.
7. Write the examples for protein database?
8. What is bioinformatics?
9. What is global conformational minima determination.
10. Explain the Lipinski's rule of five.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain various stages involved in drug discovery and development.
12. Explain the methodology involved in Hansch QSAR analysis with its advantages & disadvantages. Highlight its role in predicting biological activity with a model QSAR equation.
13. Describe the concept of pharmacophore-based virtual screening in drug design.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Discuss about druglikeness screening.
15. Explain about various steps in molecular docking.
16. Classify bioisosteres with examples.
17. Write a note on quantum mechanics and its applications.
18. Write about various energy minimization methods.
19. List out various protein databases. Explain the significance of these databases in drug design with a specific example.
20. Describe Free -Wilson QSAR analysis with its advantages and disadvantages.
21. Discuss the methodology involved in CoMFA.
22. Write about ADME databases used in drug design.

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(other subject)

Code No.: H-8261/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII Semester (Main & Backlog) Examination, July 2026

Subject: Cell and Molecular Biology (Elective-II)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define molecular biology and write its scope.
2. Define nucleoside and nucleotide
3. Define genetic code.
4. What are ribosomal RNAs (rRNA)? Mention their role.
5. Define peptide bond.
6. What are tumour suppressor genes?
7. Write any four functions of cell membrane proteins.
8. Define DNA mutation.
9. What are second messengers in cell signalling? Give examples.
10. Define genomic analysis.

PART – B

Note: Answer any two questions. **(2 × 10 = 20 Marks)**

11. Describe in detail different phases of cell cycle with mechanism.
12. Explain the organization of genetic material in cells and describe the role of DNA in storage and transfer of genetic information.
13. Explain the mechanism of cell signalling with special reference to receptors and intracellular signal transduction.

PART – C

Note: Answer any seven questions. **(7 × 5 = 35 Marks)**

14. Describe the different types of cell surface receptors involved in signalling.
15. Describe cellular reproduction and explain the stages of cell division.
16. Explain DNA damage and repair mechanisms in cells.
17. Describe the process of protein synthesis and factors controlling it.
18. Explain about different types of RNA and discuss their functions.
19. Explain about different checkpoints of cell cycle.
20. Write in detail about cell signalling pathways of cell.
21. Explain the history and development of cell and molecular biology.
22. Explain the importance of mitosis in growth and maintenance of organisms.

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Code No.: H-8262/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII Semester (Main & Backlog) Examination, July 2026

Subject: COSMETIC SCIENCE (Elective-II)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define Cosmetic and Cosmeceuticals.
2. Define Quasi and OTC drugs. Give examples.
3. Mention the preservatives used for cosmetics.
4. Write the uses of mouth washes.
5. Define & give examples for humectants & emollients.
6. Define & give examples for anti per spirants & anti deodorants.
7. Explain role of herbs in sun protection formulations.
8. Differentiate between soaps and syndet bars.
9. Explain reasons and prevention of dry skin.
10. Determination of skin colour.

PART B

Note: Answer any two questions. **(2 x 10= 20 Marks)**

11. Write basic structure and functions of skin. Explain formulation of Moisturizing cream, Cold Cream and Vanishing cream as skin care products.
12. Write a note on BIS specifications and analytical methods for evaluation of **i)** Shampoo **ii)** Skin care **iii)** Toothpaste
13. Write the principles and applications of **a)** Sebumeter and Corneometer **b)** Tewameter (TEWL) and **c)** Hair tensile strength study

PART C

Note: Answer any seven questions. **(7 x 5= 35 Marks)**

14. Write the classification of cosmetics and cosmeceuticals with examples.
15. Write a note on **i)** Surfactants **ii)** Rheology modifiers **iii)** Humectants
16. Write the common problems associated with teeth and gums. Explain formulation of toothpaste for bleeding gums and sensitive teeth as oral care products.
17. Write the role of Aloe & Turmeric in skin care.
18. Explain the role of Henna and Amla in hair care.
19. Classify sunscreens and explain SPF.
20. Write a note on BIS specifications and Analytical methods for evaluation of Shampoo and Tooth paste.
21. Write about blemishes, wrinkles and acne in problems associated with skin.
22. Write formulation and mechanism of action of Antiperspirants & deodorants.

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Code No. H-8263/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Experimental Pharmacology (Elective-II)
(Pharmacological Screening Methods)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Write about Euthanasia.
2. What are nootropics?
3. Explain the significance of sham negative group.
4. Write the objectives of OECD guidelines.
5. List out screening methods for drugs acting on eye.
6. Write the mechanism of Alloxan induced diabetes model.
7. Write the importance of cell lines for preclinical anticancer research.
8. What is preclinical data analysis?
9. What is Students 't' test and where is it used?
10. Name different methods used for screening parasympatholytics.

PART-B

Note: Answer any two questions. **(2 × 10 = 20 Marks)**

11. Write a note on CPCSEA guidelines for performing experiments on animals. Describe in detail about requirement for IAEC permission on animal studies.
12. Explain the various preclinical screening methods for anti-inflammatory drugs. Discuss any two *in vivo* methods.
13. Write in detail about the methods of screening for antihypertensives and antiarrhythmics.

PART-C

Note: Answer any seven questions. **(7 × 5 = 35 Marks)**

14. Describe various routes of drug administration in animals with advantages and disadvantages.
15. Explain the screening methods for skeletal muscle relaxants.
16. Write a brief note on screening methods of antiparkinsonism drugs.
17. Explain the criteria of dose selection and calculations of dose for animals.
18. Enumerate any two preclinical screening methods for local anaesthetics.
19. Write about One-way ANOVA and its importance in preclinical studies.
20. What are antiasthamatic agents? Discuss the methods involved in their screening.
21. What is Research? Mention the significance of selection of research topic.
22. Explain the screening methods for diuretics.

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Code No. H-8264/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Advanced Instrumentation Techniques (Elective-II)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. What is internal standard? Give examples of internal standards of NMR Spectroscopy.
2. Define chemical shift. List out the factors affecting it.
3. Name different ionization techniques.
4. Mention different isotope peaks observed in a mass spectrum.
5. Give the principle of TGA.
6. List applications of X-Ray crystallography.
7. Define the terms calibration & Validation.
8. What are the requirements for a sample to analyse on GC?
9. Write applications of RIA.
10. List the important steps in solid phase extraction.

PART-B

Note: Answer any two questions **(2 x 10 = 20 Marks)**

11. Explain the principle instrumentation of NMR spectroscopy with a neat, labelled diagram.
12. Discuss the instrumentation and working of RP-HPLC with a neat, labelled diagram.
13. Explain any one hyphenated technique with suitable experimental details.

PART-C

Note: Answer any seven questions **(7 x 5 = 35 Marks)**

14. Write about spin-spin coupling of H1 NMR spectroscopy.
15. Brief out fragmentation patterns of Mass spectrometry.
16. Discuss about any one mass analyzer.
17. Explain instrumentation and applications of DTA.
18. What is Brag's law? Derive the equation of it.
19. Write the calibration of UV-visible spectrophotometer in brief.
20. How flame photometer is calibrated?
21. Explain principle and procedure of solid phase extraction.
22. Explain about HPTLC-MS.

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Code No. H-8265/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2026

Subject: Dietary Supplements and Nutraceuticals (Elective-II)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Name the marker compounds of soya bean and flax seeds.
2. Write about AGMARK on food safety.
3. What are phytoestrogens. give examples?
4. Write the health benefits of tocopherols.
5. Explain the importance of anti-oxidants.
6. Write the difference between dietary supplements and neturaceuticals.
7. Explain the role of melatonin and glutathione peroxidase.
8. Give the source, chemical nature and uses of Tea and coffee.
9. Write the medicinal benefits of sulfides.
10. Give the source, chemical nature and uses of Oats and Rice bran.

PART – B

Note: Answer any two questions. **(2 X 10 = 20 Marks)**

11. Explain the role of Reactive Oxygen Species involvement in the treatment of disorders.
12. Write a brief note on Functional foods for chronic disease prevention.
13. Explain in detail the effect of processing, storage and interactions of various environmental factors on the potential of neutraceuticals.

PART – C

Note: Answer any seven questions. **(7 X 5 = 35 Marks)**

14. Explain the role of complex carbohydrates as functional food ingredients.
15. Write in brief about prebiotics and probiotics.
16. Give the occurrence, chemical nature and uses of ginseng and spirulina.
17. Explain damaging reactions of free radicals on proteins.
18. Explain the regulatory aspects of FSSAI on food safety.
19. Write about various pharmacopoeial specification of neutraceuticals.
20. Write the chemical nature and medicinal benefits of rutin and quercetin.
21. Write a note on proteins and vitamins as functional foods.
22. Define carotenoids and give the source and medicinal benefits of any two carotenoids.

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Code No: G-13112/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII – Semester (Main & Backlog) Examination, July 2025

Subject: Pharmaceutical Marketing Management (Elective-I)

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Differentiate between marketing and selling
2. Mention the parameters to be considered for competitive analysis.
3. What is product mix and mention its importance.
4. Mention the benefits and limitations of medical exhibition in promotion.
5. Write the role of journals in product promotion.
6. Write advantages and disadvantages of wholesalers.
7. Mention the future roles of professional sales representatives.
8. What is vertical marketing?
9. Write the differences in advertising and publicity.
10. Write the objectives of pricing.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Describe the qualifications and duties of professional sales representative.
12. Write the overview of DPCO and its importance in pharmaceutical marketing management.
13. Explain the stages of product life cycle and mention their impact on branding and product decisions.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Describe the qualitative and quantitative aspects of pharmaceutical marketing.
15. Describe the factors influencing the motivation and prescribing habits of physician.
16. What is market research and describe its role in pharmaceutical marketing management.
17. Explain factors affecting new product decisions and product positioning.
18. Write the online promotional techniques for OTC products and mention the regulations applicable to them.
19. Describe the strategic importance of pharmaceutical marketing channels.
20. Write the approaches of motivation and compensation planning for professional sales representative.
21. Write factors to be considered for fixation of price.
22. Compare and contrast rural marketing and industrial marketing.

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Code No: G-13113/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025
Subject: Pharmaceutical Regulatory Science (Elective - I)

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write a short note on drug master files.
2. Define IND, regulatory authority.
3. What is Three arm study?
4. Explain Investigational Product
5. Explain orange book.
6. Write a note on clinical studies.
7. Explain how to manage and monitor clinical trials.
8. Explain generic drug product development.
9. Explain Australia regulatory authority.
10. Write about innovator and generics.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Write about the regulatory approval process involved in investigational new drug
12. Explain the organization and functions of regulatory bodies of EU and Japan.
13. Describe Informed consent process and procedures in clinical trials.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Discuss about regulatory requirements for Generic drug approval process as per ASEAN region.
15. Discuss about ACTD.
16. Describe GCP guidelines.
17. Explain independent ethics committee.
18. Explain the organization structure and functions of Japan drug regulatory body.
19. Explain the Purple Book features.
20. With suitable example differentiate between brand and generic products.
21. Write a note on different modules of DMF.
22. Discuss the criteria for selection of human volunteers in clinical trials.

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Code No: G-13114/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025

Subject: Pharmacovigilance (Elective - I)

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Briefly explain pharmacovigilance program of India (PvPI).
2. Give the Types of services provided by CROs.
3. What are the objectives of pharmacovigilance planning?
4. Write about vaccination failure.
5. Define the terms a. cohort study b. cross sectional study.
6. List out factors affecting adverse effects of the vaccine.
7. Discuss the Genomic approaches to serious adverse drug reactions.
8. Mention few examples of predictable ADRs.
9. Define the terms (i) Secondary effects (ii) Abstinence syndrome (iii) Rechallenge.
10. Classify adverse events following immunization.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the Methods for Causality, Severity and Seriousness Assessment of ADRs.
12. Discuss on differences in Indian and global pharmacovigilance requirements.
13. Explain DSUR and PSUR. Discuss in detail the structure of PSUR.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Discuss the Rawlin's and Thompson classification of ADRs with suitable examples.
15. Discuss the functions of Contract Research Organization
16. Write a note on vaccination failure.
17. Explain the Drug Safety Crisis management.
18. Write about post approval phase.
19. Write a note on MedDRA
20. What are the prerequisite for setting up pharmacovigilance center in a hospital?
21. Enlist the different volumes of ICD 10, outlining its contents. Write in brief the use of alphabetical index.
22. Discuss drug safety evaluation in elderly population.

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Code No: G-13116/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII – Semester (Main & Backlog) Examination, July 2025
Subject: Computer Aided Drug Design (Elective-I)

Time: 3 Hours **Max Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What are the advantages of virtual screening?
2. Write the applications of cheminformatics in drug design.
3. Write the steps involved in homology modelling of a protein.
4. What is SAR & QSAR?
5. Mention pharmaceutical databases with examples.
6. Explain the Lipinski's rule of five.
7. Write the significance of PDB in drug design.
8. What is bioinformatics?
9. What is De novo drug design?
10. What is global conformational minima determination.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Describe the concept of pharmacophore-based virtual screening in drug design.
12. Explain in detail about various physicochemical parameters used in QSAR analysis.
13. Explain various stages involved in drug discovery and development.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write a note on Bioisosterism and its importance in drug design.
15. Write a note on Free-Wilson Analysis.
16. Write a note on COMFA and COMSIA for drug design.
17. Write a note on Drug likeliness screening technique.
18. Write a note on different docking methods for screening.
19. Write about ADME databases used in drug design.
20. Write the applications of bioinformatics in drug design.
21. Write a note on quantum mechanics and its applications.
22. Write about energy minimization methods and its importance.

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Code No. G-13115/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025

Subject: Quality Control and Standardization of Herbals (Elective-I)

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 X 2 = 20 Marks)**

1. Define Stomata.
2. Difference between TLC & HPTLC.
3. Types of markers with examples.
4. Explain an Extractive value and its significance.
5. Define SOP.
6. Explain the six system inspection model?
7. Explain various examples of herbal drug interaction.
8. What is preliminary carcinogenicity study?
9. Write the WHO guidelines for safety monitoring of herbal medicine.
10. What is quality Audit?

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the different parameters in the evaluation of crude drugs.
12. Explain the export registration for pharmaceutical requirements. Discuss the role of AYUSH and D&C act provision.
13. How the chemical and biological marker helpful in standardization of herbal products.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write a note on good manufacturing process of herbal drugs.
15. Explain the importance of HPTLC method in the standardization of herbal drugs.
16. Write a note on regulatory requirement for herbal drugs.
17. Describe the guidelines on safety and efficacy of herbal medicine.
18. Explain WHO guidelines on current good manufacturing practices for herbal medicine.
19. Discuss about the assessment of Genotoxicity of herbal preparations.
20. Define and classify markers with examples.
21. Describe the basic test for medicinal plant material.
22. Explain ICH guidelines for the quality control of herbal drugs.

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Code No: G-13111/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025

Subject: Social & Preventive Pharmacy

Time: 3 Hours **Max Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write a note on personal hygiene and avoidable habits?
2. What are the effects of poverty on health?
3. What is the difference between drug abuse and drug addiction?
4. Mention vitamin deficiency disorder/disease.
5. What is balanced diet?
6. What is Malnutrition?
7. What is pulse polio program?
8. Give the importance of maternal and child intervention program?
9. Write a note on school health education program?
10. What do you mean by primary health care center?

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. (a) Explain about Malnutrition and various methods of its prevention.
    (b) Explain in detail about control and prevention of Malaria.

12. (a) Explain the objectives, functioning and outcomes of national health programme for tuberculosis.
    (b) Write a note on National programme for health care of elderly.

13. (a) Add a note on control and prevention of cancer.
    (b) Write a note on functions of PHC.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Explain in detail about universal immunization programme.
15. Explain signs, symptoms, transmission and treatment of dengue.
16. Define health and add a note on evaluation of public health.
17. Write a note on control and prevention of lymphatic filariasis.
18. Write a note on strategies and outcomes of National programme for control of blindness.
19. Write a note on National family welfare programme.
20. What are the functions of WHO in Indian national programs?
21. Write a brief note on improvement in rural sanitation.
22. Explain in detail about the objectives, functioning and outcomes of Pulse polio program.

Code No: G-13110/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025

Subject: Biostatistics & Research Methodology

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define the terms Biostatistics& Research.
2. Mention different measures of dispersion.
3. Age of 10 patients from a population of 169 patients is 42,28,28,61,31,23,50,34,32 and 37. Calculate the range.
4. What is meant by hypothesis?
5. Mention different non-parametric tests.
6. What is the need for Research?
7. Mention different phases of clinical trials.
8. What is power of study?
9. What is SEM? Write its importance.
10. What are the advantages of factorial design?

PART - B

Note: Answer any two questions **(2 x 10 = 20 Marks)**

11. Discuss on report writing in research methodology.
12. What is correlation? Write about different types of correlation.
13. Explain the features of SPSS in detail

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. The relative humidity values in a tablet production department of a pharmaceutical company from Monday to Saturday were recorded as 60,62,65,69,75 and 65. Calculate standard deviation.
15. Explain different types of probability distributions.
16. Write about t-Test with an example.
17. Discuss on design of experiments.
18. Explain the features of MINITAB in brief.

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19. The following figures shows disease count from a region over a span of 6 months. Represent the data by a pie-diagram.

Disease	Disease Count
HIV	17
Malaria	28
Diarrhoea	30
Tuberculosis	25
Influenza	20

20. Write Wilcoxon- Rank Sum Test with an example.
21. Explain 2^2 factorial design.
22. Give informative notes on response surface methodology.

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Code No: G-13117/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025

Subject: Cell and Molecular Biology (Elective-II)

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the question. **(10 x 2 = 20 Marks)**

1. Enlist the types of RNA
2. What is difference between translation and transcription?
3. Enlist the functions of Okasaki fragments
4. What is cell membrane?
5. Define mitosis
6. Define meiosis
7. Enlist the units of gene
8. Differentiate between animal cell and plant cell
9. What are microtubules?
10. Define nucleotides

PART - B

Note: Answer any two question. **(2 x 10 = 20 Marks)**

11. Discuss in detail history of cell molecular biology.
12. Describe in detail the chemical foundations of cell biology.
13. Describe in detail mechanism of cell cycle.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Explain the cellular membrane structure and function.
15. Describe in detail about process of cell division.
16. Write a short note on dark excision repair system of DNA.
17. Write a short note on structure and function of lysosomes.
18. Explain in brief the types of mRNA and their function.
19. Write short notes on organization and function of nucleus.
20. Write down the functions of mitochondria in animal cells.
21. Write a short note on Transgenics and genomic analysis.
22. Write in brief regularities in protein pathway.

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Code No: G-13118/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025

Subject: Cosmetic Science (Elective-II)

Time: 3 Hours **Max.Marks:75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define Cosmetic and Cosmeceuticals.
2. Write a note on cosmetics as Quasi and OTC drugs.
3. Write a note on Hair dyes.
4. Write a note on mouth washes.
5. Write the uses of henna in hair care.
6. Write a note on hair tensile strength.
7. Differentiate between soaps and syndet bars.
8. Write a note on hair combing properties.
9. Write a note on Blemishes and Wrinkles.
10. Write the reasons for bad body odour.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Draw basic structure of skin and its functions. Write the formulation of Moisturizing cream Cold Cream and Vanishing cream.
12. Write the role of following herbs in cosmetics (i) Aloe (ii) Turmeric (iii) Neem and (iv) Clove.
13. (a) Write a note on oily and dry skin. Write causes and preventions for dry skin.
    (b) Write formulation and mechanism of action of Antiperspirants & deodorants.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write the classification of cosmetics and cosmeceuticals with examples.
15. Write a note on evolution of cosmeceuticals from cosmetics.
16. Write a note on basic structure of hair and hair growth cycle.
17. Write a note on conditioning shampoo, antidandruff shampoo in hair care.
18. Write the formulation of toothpaste for bleeding gums and sensitive teeth for oral care.
19. What is SPF? Classify the sunscreen formulations with examples.
20. Write a note on evaluation of Shampoo and Skin cream as per BIS specifications.
21. Write the principles and applications of Sebumeter and Corneometer.
22. Write a note on dandruff and causes for hair fall.

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Code No: G-13120/PCI

FACULTY OF PHARMACY

B. Pharmacy (CBCS) VIII - Semester (PCI) (Main & Backlog) Examination, July 2025

Subject: Advanced Instrumentation techniques (Elective – II)

Time: 3 Hours **Max Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What are the uses of MS.
2. What type of nucleus can be studied by NMR spectroscopy? Give examples.
3. What is the internal standard in NMR spectroscopy? Justify its selection.
4. What is the difference between HPTLC & HPLC.
5. What are the differences between ^{1}H-NMR and ^{13}C-NMR?
6. What is the principle involved in the calibration of electronic balance?
7. Write Bragg's equation and explain the terms. What are the ionisation methods used in MS.
8. Briefly explain the principle of DTA.
9. What are different modes of vibration of molecules in IR.
10. What is meant by solid phase extraction (SPE)? List the important steps in SPE.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the principle and instrumentation of LC/MS/MS.
12. Explain the principle of NMR spectroscopy. With a labelled diagram, explain NMR instrumentation.
13. Explain the instrumentation of HPTLC/MS and applications.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. What is the principle of TGA? With a neat labelled diagram explain the instrumentation of TGA.
15. Define chemical shift. What are the factors affecting chemical shift?
16. With the help of a suitable example, explain the phenomena of spin-spin coupling.
17. Explain the origin of X-rays. Classify the different types of crystals.
18. Give MS instrumentation diagram. Explain the steps in MS.
19. Explain FAB and MALDI in MS.
20. What is the principle of radioimmuno assay? Add a note on the advantages, limitations and applications of RIA.
21. Explain the calibration of UV- Visible spectrophotometer.
22. What is meant by fragmentation? Explain the fragmentation rules in MS.

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Code No: G-13121/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025
Subject: Experimental Pharmacology (Elective-II)
(Pharmacological Screening Methods)

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What are common laboratory animals?
2. Write the composition of IAEC.
3. Enlist various techniques of blood collection in common laboratory animals
4. What is one way ANOVA?
5. List out screening methods for drugs acting on eye.
6. Write about Mutant animals.
7. What are nootropics?
8. What is the importance of sham negative and positive control groups?
9. Write about Euthanasia?
10. What are parametric and non-parametric tests?

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Write a note on CPCSEA guidelines for performing experiments on animals. Describe in detail about requirement for IAEC permission on animal studies.
12. Describe the screening models for evaluation of a compound for Antihypertensive drugs.
13. Write in detail about the methods of screening for antihypertensive and anti arrhythmias.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write a note on *in vivo* methods for screening of antiepileptic drugs.
15. What is Research? Mention the significance of selection of research topic.
16. Describe various routes of drug administration in animals with advantages and disadvantages.
17. Write a brief note on screening methods of analgesic drugs.
18. Explain the applications of transgenic animals in pharmacological research.
19. Write any two preclinical screening methods for antidepressant activity.
20. Explain the screening methods for diuretics.
21. Explain the criteria of dose selection and calculations of dose for animals.
22. Explain the interpretation of results using Students-t test?

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Code No: G-13119/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VIII - Semester (Main & Backlog) Examination, July 2025
Subject: Dietary Supplements and Nutraceuticals (Elective-II)

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define flavonoids and polyphenolics.
2. Write the benefits of Public health nutrition.
3. Write short notes on Reactive Oxygen Species.
4. Give the occurrence and medical benefits of Lignans and Rutin.
5. Explain the importance of anti-oxidants.
6. Write about complex carbohydrates as functional food ingredients.
7. Give the source, chemical nature and uses of Tea and coffee.
8. Explain about non-enzymatic antioxidant defence.
9. Name the marker compounds of soyabean and flax seeds.
10. Write about FDA on food safety.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain in detail the effect of processing, storage and interactions of various environmental factors on the potential of neutraceuticals.
12. (a) Explain the role of antioxidants in the treatment of Cancer.
    (b) Write about various nutritional education in a community.
13. (a) Explain various functional foods for chronic disease prevention.
    (b) Explain various mechanisms of free radicals involved in the treatment of disorders.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write in detail about dietary fibres.
15. Explain the role of various endogenous anti-oxidants.
16. Explain in role of free radicals in brain metabolism.
17. Explain the effect of environmental factors in the potential of entioxidants.
18. Give the importance of proteins and vitamins as functional foods.
19. Give the occurrence, chemical nature and uses of Ginseng and Spirulina.
20. Explain the regulatory aspects of GMP`s on food safety.
21. Explain the chemical nature and medical benefits of Resvertrol and tocopherols.
22. Define carotenoids and give the source and medicinal benefits of any two carotenoids.

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