

FACULTY OF PHARMACY**B. Pharmacy VIII - Semester (PCI) (Backlog) Examination, March 2024****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 important steps in MS?
2. List the different ionisation techniques in MS.
3. Explain Base peak and molecular ion in MS.
4. Define chemical shift. List the factors affecting chemical shift
5. What is the internal standard in NMR spectroscopy? Justify its selection.
6. What is the principle of TGA?
7. List the important steps in solid phase extraction.
8. Give suitable applications of radioimmunoassay.
9. List the parameters for the calibration of UV Visible spectrophotometer.
10. What is the difference between calibration and validation?

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

11. Explain the principle of Mass spectrometry. With a labelled diagram, explain MS instrumentation.
12. Explain HPLC calibration process.
13. Explain the principle of LC/MS/MS.

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

14. With a neat labelled diagram explain the instrumentation and application of DTA.
15. Classify the ionisation techniques in MS. Explain any two methods in detail.
16. Explain Time of flight and quadrupole mass analysers in MS.
17. What are the differences between C^{13} and H^1 NMR spectroscopy?
18. Explain the origin of X-rays. Derive Bragg's equation
19. Explain the phenomena of spin – spin coupling with a suitable example.
20. Explain the principle and procedure involved in liquid-liquid extraction.
21. Write a note on hyphenated techniques. Give suitable examples. What are their advantages? Add a note on interfaces.
22. Explain the principle advantages and applications of RIA.

FACULTY OF PHARMACY

B. Pharmacy VIII - Semester (PCI) (Backlog) Examination, March 2024

Paper: 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. Differentiate Prokaryotic cell versus Eukaryotic cell.
2. Write a note on power house of the cell.
3. Differentiate between DNA and RNA.
4. Write the components of Lac-operon.
5. Define chromatin.
6. What is osmosis and diffusion?
7. Differentiate SER and RER.
8. Discuss the role of DNA ligase during DNA replication.
9. Mention different sub-stages of prophase -2 of meiotic cell division.
10. Differentiate microtubules and microfilaments.

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. What is Bacterial Transduction? Explain the process of Transduction in Bacteria.
12. What are the structural and regulatory genes? Explain genetic control of protein synthesis.
13. Explain about giant chromosomes with their structure, functions of nucleus and its components.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write an account on the types of RNA. Discuss their functions.
15. Write in detail about cell signaling pathways and its misregulation.
16. Explain the role of DNA -dependent RNA polymerase in transcription.
17. Distinguish between mitosis and meiosis with appropriate diagrams.
18. Write a short note on classification of cell types.
19. Describe the Watson and Crick model of DNA structure with labelled diagram.
20. Explain in detail functioning of protein kinases.
21. Write in detail about definition, theory, basics and applications of cell and molecular Biology.
22. Explain Chargaff's law.

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Code No: F-7203/PCI

FACULTY OF PHARMACY

B. Pharmacy VIII - Semester (PCI) (Backlog) Examination, March 2024

Subject: Cosmetic Science (Elective-II)

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. Write a note on preservatives used in cosmetics
2. Explain cosmetics as Quasi and OTC drugs.
3. What are emollients?
4. Write a note on moisturizing cream.
5. Explain sun protection formulations.
6. What are mouthwashes?
7. Write the role of neem in oral care.
8. What is the difference between soap and syndet bar.
9. What are the reasons and prevention of dry skin.
10. Write a note on reasons and prevention of body odor.

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Write a brief note on following excipients with examples a) Surfactants b) Humectants
c) Rheology modifiers d) Emollients e) Preservatives
12. Write the causes and prevention of blemishes, wrinkles, acne and hair fall.
13. Explain Sebumeter, Corneometer, Tewameter (TEWL) in cosmetic evaluation.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Classify cosmetics and cosmeceuticals with examples.
15. Write a note on basic structure of hair and hair growth cycle.
16. Write the principle involved in formulation of cold cream and vanishing cream.
17. Write formulation and mechanism of action of Antiperspirants & deodorants.
18. Write a note on conditioning shampoo, antidandruff shampoo in hair care.
19. Write the formulation of toothpaste for bleeding gums and sensitive teeth.
20. Write a note on henna and amla in hair care.
21. Write the causes and prevention of blemishes, wrinkles and acne.
22. Discuss the role of importance of Aloe and turmeric in Herbal cosmetics.

FACULTY OF PHARMACY

B. Pharmacy VIII – Semester (PCI) (Backlog) Examination, March 2024

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

Time: 3 Hours

Max. Marks: 75

PART-A

Note: Answer all the questions.

(10 x 2 = 20 Marks)

1. List a few laboratory animals and their use in research.
2. What are transgenic animals?
3. List the common routes of drug administration in animals.
4. What are coagulants and anticoagulants?
5. List out the drugs acting on the eye. Name the models.
6. What is Euthanasia and list the techniques of euthanasia.
7. List various agents which cause inflammation.
8. How is dose selected in preclinical screening methods?
9. What is Students-t test and where is it used?
10. What is preclinical data analysis?

PART-B

Note: Answer any two questions.

(2 x 10 = 20 Marks)

11. Describe the screening models for evaluation of a compound for Antihypertensive activity.
12. Discuss the *in vitro* and *in vivo* techniques for screening of anticancer agents.
13. Describe in detail about regulations for laboratory animal care as per CPCSEA guidelines.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Write a brief note on screening methods of antiinflammatory drugs.
15. What is Research? Mention the significance of selection of research topic.
16. Explain the screening methods for diuretics.
17. Describe the techniques for collection of blood in the animals?
18. Write about One-way ANOVA and its importance in preclinical studies.
19. Write a note on methods involved in the screening of nootropics.
20. Enumerate any two preclinical screening methods for local anaesthetics.
21. What are antiasthamatic agents? Discuss the methods involved in their screening.
22. Write the preclinical screening methods of sympathomimetics.

FACULTY OF PHARMACY

B. Pharmacy VIII – Semester (PCI) (Backlog) Examination, March 2024

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. Write the difference between dietary supplements and nutraceuticals.
2. Write about polyphenols and tocopherols.
3. Give the occurrence and medical benefits of Lycopene.
4. Write about dietary fibres as functional food ingredients.
5. Give the source, chemical nature and uses of Oats and Rice bran.
6. Explain about enzymatic antioxidant defence.
7. What are phytosterols give its uses?
8. Write about AGMARK on food safety.
9. Write the benefits of Public health nutrition.
10. Name the marker compounds of spirulina and ginko.

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 dietary supplements.
12. (a) Explain the role of antioxidants in the treatment of Cancer.
(b) Write about various nutritional benefits in a community.
13. (a) Classify various nutraceuticals with examples.
(b) Explain the role of Reactive Oxygen Species involvement in the treatment of disorders.

PART-C

Note: Answer any seven questions.

(7 x 5 = 35 Marks)

14. Explain the role of anti-oxidants in the treatment of kidney damage.
15. Give the pharmacopeial specification for complex carbohydrates.
16. Explain the regulatory aspects of FSSAI on food safety.
17. Explain the role of melatonin, Vitamin E and Catalase.
18. Define flavonoids and give the source and medicinal benefits of any two flavonoids.
19. Write in detail about adulteration of foods.
20. Explain the role of various endogenous anti-oxidants.
21. Give the importance of proteins and vitamins as functional foods.
22. Give the occurrence, chemical nature and uses of Garlic and Flax seeds.