

Roll No.

Total No. of Questions : 13

Total No. of Pages : 02

**B.Pharmacy (Sem.-2)
PATHOPHYSIOLOGY
Subject Code : BP-204T**

M.Code : 74970

Date of Examination : 20-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

I. Answer briefly:

- a) What is cellular adaptations?
- b) Define homeostasis with suitable example.
- c) Define Angiogenesis?
- d) What is cell necrosis and apoptosis?
- e) Define congestive heart failure and differentiate between backward and forward heart failure.
- f) Enlist various STDs?
- g) What are oncogenes?
- h) How chemical carcinogens cause DNA damage?
- i) Define interleukins with examples.
- j) What is diabetes mellitus? Indicate various types of diabetes.

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SECTION-B

2. Explain the process of apoptosis, elaborate extrinsic and intrinsic pathways.
3. Define wound healing process? Discuss in detail about various steps involved in growth of tissue during wound healing.
4. What is Parkinsonism? Discuss Pathophysiology of parkinsonism.

SECTION-C

5. Write a brief note on pathophysiology of asthma.
6. What are free radicals? Describe role of free radicals in cell injury.
7. What is rheumatoid and osteoarthritis? Add a note on pathophysiology of osteoarthritis.
8. Define anaemia and explain various types of anaemia.
9. Add a brief note on Alzheimer's disease.
10. Add a note on pathophysiology of Gout.
11. Add a brief note on pathophysiology of atherosclerosis.
12. What is tuberculosis? Add a note on pathophysiology of TB.
13. Write a brief note on pathophysiology of AIDS.

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Total No. of Pages : 02

B.Pharmacy (Sem.-2)

Subject Code : BP-203T

M.Code : 74969

Date of Examination : 06-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION - A

1. Answer briefly:
 - a) What is amphoterie nature of amino acid?
 - b) What is the difference between nucleotide and nucleoside?
 - c) What is the difference between α - 4 and β - 4 linkage in polysaccharide?
 - d) Differentiate between AMP and cAMP.
 - e) Differentiate between NADPH and NADH.
 - f) What is role of Phosphoglucuronate?
 - g) What is the biochemical significance of the pentose phosphate pathway?
 - h) What is phenylketonuria?
 - i) What is ketogenesis?
 - j) Name two essential fatty acids.

SECTION - B

2. a) Give IJB classification of enzyme.
b) Explain Lineweaver - Burk plots of enzyme kinetics.
3. Explain the TCA cycle with reactions and its significance.
4. a) Explain semi conservative model of DNA replication.
b) Give salient features of Watson and Crick model of DNA.

SECTION-C

5. What are primary and secondary structures of protein?
6. Classify energy-rich molecules with examples.
7. Describe the Electron Transport Chain (ETC) with a neat diagram.
8. Differentiate between oxidative phosphorylation and substrate level phosphorylation.
9. Describe biosynthesis of vit D from cholesterol.
10. Describe synthesis and biological significance of Melanin.
11. Discuss urea cycle and its importance.
12. Write short notes on inhibitors of protein synthesis.
13. Discuss the diagnostic applications of enzymes.

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B.Pharmacy (Sem.-2)

PHARMACEUTICAL ORGANIC CHEMISTRY-I

Subject Code : BP-202T

M.Code : 74968

Date of Examination : 27-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION - A

1. Answer briefly :
 - a) What is keto-enol isomerism? Give example.
 - b) Draw all structural isomers of pentanol.
 - c) Comment upon Saytzeff reaction.
 - d) What are the uses of acetone?
 - e) Give the structure and uses of dimethylphthalate.
 - f) Give the product of addition of HCl to 1, 3-butadiene.
 - g) Comment upon the uses of ethanolamine.
 - h) Give chemical test to distinguish between propanal and propanone.
 - i) What is the product of halogenation of isobutane.
 - j) Give the order of reactivity of different alkyl halides towards $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions.

SECTION - B

2. Write a detailed note on acidity of carboxylic acids and explain the effect of substituent on its acidic behaviour.
3. Give the detailed comparison of SN^1 and SN^2 reactions with respect to their kinetics, reactivity and stereochemistry involved in various types of alkyl halides.
4. Comment upon the chemistry of conjugated dienes which includes their stability and various reactions they participate into..

SECTION-C

5. Write down various methods of preparation of alcohols.
6. Explain benzoin condensation reaction.
7. Explain various tests carried out to detect the presence of carboxylic acids and carboxanides.
8. How can we distinguish between various types of amines via qualitative tests?
9. Comment upon various factors affecting E1 and E2 reactions.
10. Give structure and uses of chloral hydrate and vanillin.
11. Explain Ozonolysis.
12. Classify structural isomerism giving example of each class.
13. Differentiate between electromeric and inductive effect.

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**B. Pharmacy (Sem.-2)
HUMAN ANATOMY AND PHYSIOLOGY-II**

Subject Code BP-201T

M.Code : 74967

Date of Examination: 29-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) How do you define a receptor? Mention various types of receptors.
- b) What is neuromuscular junction?
- c) Define with examples "Neurotransmitter".
- d) What is intracellular respiration?
- e) Highlight various functions of Spleen.
- f) Define Spermatogenesis and Oogenesis.
- g) What is saliva? Highlight various functions of saliva.
- h) What is Acromegaly and Gigantism?
- i) Define transcription and translation.
- j) Highlight the functions of Thyroid hormone.

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SECTION-B

2. Discuss structure and functions of the liver in detail.
3. Write an exhaustive note on hormones of the adrenal gland.
4. What are the organs of respiratory tract? Discuss physiology of respiration in detail.

SECTION-C

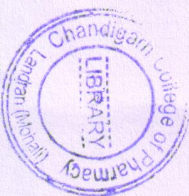
5. Write a note on Hypothalamus.
6. Add a note on BMR and its significance.
7. Write a note on small intestine and its role in food absorption.
8. Write a note on protein synthesis.
9. Describe physiology of menstruation cycle.
10. Discuss various methods of artificial respiration and resuscitation.
11. Write a note on physiology of growth hormone.
12. Describe the structure and functions of Kidneys.
13. Describe structure of DNA with suitable diagram, highlight functions of DNA.

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**B.Pharmacy (Sem.-4)
PHARMACEUTICAL ORGANIC CHEMISTRY-III**

Subject Code : BP-401 T

M Code : 75843

Date of Examination : 26-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write short notes on:

- a) E and Z configuration
- b) D and L configuration
- c) Eclipsed and staggered conformations.
- d) Centre of symmetry.
- e) Partial asymmetric synthesis.
- f) Basicity of pyrrole vs. pyridine.
- g) Birch reduction
- h) Aromaticity of pyrrole
- i) Wolf Kishner reduction
- j) Structure and uses of oxazole.

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SECTION - B

2. What are sequence rules? Comment upon their role in assigning the R/S nomenclature to optically active compounds.
3. Write a detailed note on nomenclature and classification of various Heterocyclic compounds.
4. Explain :
 - a) Beckmann Rearrangement
 - b) Oppenauer oxidation
 - c) Chaisen Schmidt condensation.

SECTION - C

5. Explain the reduction reactions carried out by utilizing different types of metal hydrides.
6. Discuss in detail asymmetric synthesis.
7. Discuss in detail various elements of symmetry and their significance in determining optical activity.
8. Write down physical methods utilized to determine the configuration of geometrical isomers.
9. Give various reactions of thiophene.
10. What is racemic mixture? Give various methods utilized to resolve it.
11. Explain stereoisomerism in biphenyl compounds.
12. Write the structure and uses of purine and Isoquinoline.
13. Write a detailed note on chemistry of Quinoline.

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Total No. of Pages : 02

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B.Pharma (Sem.-4)

PHARMACOGNOSY & PHYTOCHEMISTRY-I

Subject Code : BP-405T

M.Code : 75847

Date of Examination : 22-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION-A

1. Answer briefly:

- What is pharmacognosy and phytochemistry?
- What are primary and secondary metabolites?
- Compare organized and unorganized crude drugs.
- What is hybridization? What is the objective of making hybrids of medicinal plants?
- Enumerate the techniques that can help in conservation of medicinal plants.
- What are the differences between volatile oils and fixed oils? ;
- Give an example of a plant which gives positive result with Mayer's reagent and Hager's reagent. Also mention its medicinal use.
- Give source and uses of two natural fibres.
- Give the biological source and commercial uses of a plant derived proteolytic enzyme.
- Give the basic structure of flavonoids. What are the uses of flavonoids?

SECTION-B

2. Describe the factors that influence quality of medicinal plants during cultivation and collection.
3. What is Plant Tissue Culture? What are the requirements for PTC? What are the applications of PTC in Pharmacognosy?
4. What are traditional and complementary systems of medicine? How does knowledge of pharmacognosy help in study of modern and traditional systems of medicine?

SECTION-C

5. Which method of classification of drugs studied in pharmacognosy is most suitable according to you? Give reasons and examples to support your answer.
6. What is adulteration? How can one detect adulteration of medicinal plants?
7. What are glycosides? How are they classified?
8. What are edible vaccines? How are they prepared?
9. What is the medicinal importance of lipids? Give the biological source, constituents and uses of Castor.
10. Describe the importance of drugs of marine origin. What are the difficulties in getting drugs from the sea?
11. What are alkaloids? How are alkaloids extracted from plants?
12. Discuss the importance of plant growth hormones in plant tissue culture.
13. Describe the importance of microscopic techniques for identifying crude drugs. Support your answer with suitable examples.

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B.Pharmacy (Sem.-4)
PHARMACOLOGY-I
Subject Code : BP-404T
M.Code : 75846

Date of Examination: 19-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
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SECTION-A

1. Answer briefly:

- a) Pinocytosis and diffusion.
- b) Idiosyncrasy and allergy
- c) Tachyphylaxis with suitable example.
- d) Nuclear receptors with suitable example.
- e) Agonist and antagonist
- f) Therapeutic Index
- g) Hallucinogens with examples.
- h) Drug Dependence
- i) Grandmal Epilepsy
- j) Bioavailability

SECTION-B

2. Classify NSAIDs and discuss pharmacology of Aspirin in detail.
3. Classify anti-cholinergic drugs and discuss pharmacology of Atropine.
4. Write a critical note on pharmacology of anti-depressants.

SECTION-C

5. What is drug absorption? Describe various factors affecting drug absorption.
6. Add a note on oral route of drug administration critically highlighting merits and demerits of this route.
7. Write a note on ion channel receptors.
8. Give an account of mechanism of action and adverse effects of benzodiazepines as anti-anxiety agent.
9. Add a short note on neuromuscular blockers.
10. Write a note on clinical trials and its various phases.
11. Write a brief note on anti-Alzheimer drugs.
12. Write a brief note on anti-psychotic drugs.
13. Add note on levodopa-Carbidopa as anti-Parkinsonian agents.



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Total No. of Pages : 02

SECTION - B

**B.Pharmacy (Sem.-4)
PHYSICAL PHARMACEUTICS-II**

Subject Code : BP-403T
M.Code : 75845

Time : 3 Hrs.

Date of Examination: 05-05-2025

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly:

- a) What is meant by projected diameter of a particle?
- b) What is the porosity during cubic packing?
- c) Mention the angle of repose indicating poor, moderate and excellent flow?
- d) What is specific surface area?
- e) What is dilatant flow?
- f) Give two examples of photolytic degradation of drugs.
- g) What is pseudo zero order reaction?
- h) What is yield value and in which types of systems it is observed?
- i) What is specific surface area and its importance?
- j) Write the equation for calculating the half life for a drug following first order degradation kinetics.

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SECTION - C

5. What are emulsions? Discuss the role of primary and auxiliary emulsifiers in formulating stable emulsions. Briefly write about the tests employed for evaluating stability of emulsions.
6. Explain coacervation of colloids.
7. Write a note on thixotropy.
8. Explain the role of structured vehicle while formulating flocculated suspensions.
9. Give a brief account of different methods for particle size measurement (principle only).
10. Write a note on prevention of hydrolytic degradation in pharmaceutical products.
11. Explain particle shapes and their influence on packing.
12. Briefly explain the differences between conventional and microemulsions.
13. Enumerate the methods used for determination of surface area of powders. Discuss any one method in detail.

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Total No. of Questions : 13

B. Pharmacy (Sem.-6)
MEDICINAL CHEMISTRY-III-THEORY
Subject Code : BP601T
M.Code : 77986
Date of Examination : 30-04-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- SECTION-B contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.
- SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION - A

1. Briefly explain :

- Give structure and IUPAC name of any one Folate reductase inhibitor.
- Write down various steps involved in the synthesis of chloramphenicol.
- Write down the moa of acyclovir. Give its structure.
- Name any four antifungal antibiotics.
- Give the synthesis of Dapsone.
- Differentiate between structure based drug design and ligand based drug design approach.
- What are prodrugs? Give example.
- Write down the mechanism of action of ketoconazole and ofloxacin.
- Name any two molecular docking software's available now days.
- Comment upon the therapeutic uses of nitrofurantoin.

SECTION - B

- Classify Sulphonamides. Give examples. Comment upon their SAR and write synthesis of any one drug belonging to this class.
- Give detailed note on different physicochemical and steric parameters used in QSAR studies.
- Write the synthetic procedures for the following drugs :
 - Metronidazole
 - Parvaquine
 - Ciprofloxacin
 - Paraminio salicylic acid

SECTION - C

- Write a note on drugs used as First line treatment of Tuberculosis.
- Discuss SAR of quinolones as anti-malarial agents.
- Classify Antiviral agents. Give examples of drugs belonging to each category.
- Give structure, IUPAC name, synthesis and uses of Miconazole.
- Discuss the SAR of tetracycline antibiotics.
- Write a note on tetracyclins as antibiotic agents.
- Write a detailed note on combinatorial chemistry.
- Give structure, IUPAC name, moa and use of Tolnaftate.
- Discuss various applications of Prodrug design.

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B.Pharmacy (Sem.-6)
PHARMACOLOGY-III-THEORY

Subject Code : BP602T

M.Code : 77987

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.
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SECTION-A

1. Answer the following:

2. Which of the following is a selective β_2 -adrenergic receptor agonist used for asthma?

- A) Propranolol
- B) Salbutamol
- C) Theophylline
- D) Ipratropium

- b. Which of the following is a proton pump inhibitor?

- A) Ranitidine
- B) Omeprazole
- C) Misoprostol
- D) Sucralfate

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- c. What is the mechanism of action of methotrexate?

- A) DNA intercalation
- B) Inhibition of dihydrofolate reductase
- C) Topoisomerase inhibition
- D) Microtubule stabilization

- d. What is the primary dose-limiting toxicity of cisplatin?

- A) Myelosuppression
- B) Nephrotoxicity
- C) Cardiotoxicity
- D) Neurotoxicity

- e. What is the mechanism of action of bevacizumab?

- A) Inhibits Epidermal Growth Factor Receptor (EGFR)
- B) Inhibits Vascular Endothelial Growth Factor (VEGF)
- C) Induces DNA intercalation
- D) Inhibits cyclin-dependent kinases

- f. Which of the following antibiotics inhibits bacterial cell wall synthesis by binding to D-Ala-D-Ala terminus?

- A) Vancomycin
- B) Penicillin
- C) Imipenem
- D) Fosfomycin

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B.Pharmacy (Sem.-6)
BIOPHARMACEUTICS AND PHARMACOKINETICS (THEORY)
S. Bhat, C. S. Bhat, P. Bhat

subject Code : BP6041
M.Code : 77989

Date of Examination: 20-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
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SECTION-A

1. Explain briefly:

- a) What is the difference between one and two compartment models?
- b) Draw a typical plasma concentration Vs time plot for oral drug administration and indicate the pharmacokinetic parameters.
- c) What is the difference between elimination and excretion rate constants?
- d) What are the most bioavailable dosage forms orally and parenterally?
- e) Name an acidic and basic plasma protein.
- f) Give two examples of therapeutic equivalents.
- g) What is meant by generic substitutes? Give two examples.
- h) What is meant by pharmaceutical alternative? Give two examples.
- i) Enumerate the advantages of IV infusion administration.
- j) How is AUC calculated?

SECTION-B

2. Describe the plasma pharmacokinetics of a drug following one-compartment open model after oral administration by deriving suitable equations. How is K_a and K_e calculated from these derivations.
3. Discuss the physiological factors influencing drug absorption.
4. What is meant by non-linear pharmacokinetics? Discuss the various reasons for non-linear behaviour of drugs.

SECTION-C

5. Distinguish between absolute and relative bioavailability.
6. Distinguish between facilitated and passive drug transport.
7. Distinguish between phase-I and phase-II metabolism.
8. Briefly discuss the factors affecting renal drug clearance.
9. Mention the clinical implications of protein binding on drug pharmacokinetics.
10. Mention the units of K_a , Clearance, V_d , C_{max} and AUC.
11. Give examples of five drugs whose bioavailability is influenced due to limited solubility.
12. Mention the factors influencing gastric emptying time.
13. Discuss IVIVC models.

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B.Pharmacy (Sem.-6)

PHARMACEUTICAL BIOTECHNOLOGY-THEORY

Subject Code : BP605T

M.Code : 77990

Date of Examination : 23-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION A is COMPULSORY consisting of TEN questions carrying TWO marks each.
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SECTION-A

1. Explain the following terms:
 - a. Biotechnology
 - b. Transformation
 - c. Immunological tolerance
 - d. Monoclonal antibody
 - e. Biosensors
 - f. Plasma substitute
 - g. rDNA
2. Distinguish between :
 - h. Antigen and antibody
 - i. Toxin and Toxoid
 - j. Vaccine and enzymes

SECTION - B

2. Explain the isolation of Glutamic acid by fermentation technology.
3. Enumerate how recombinant DNA technology used to produce Insulin.
4. **Write short note on:**

SECTION - C

5. Explain the use of culture system for the production of microbial products.
6. How genetic recombination is used to prepare hepatitis B?
7. Enumerate role of steroids in the biotransformation processes.
8. Highlight the techniques of immobilization of enzymes.
9. What is PCR? Give its applications.
10. Explain structure and function of MHC.
11. Write short note on genetic engineering.
12. Give microbial production of peroxidase.
13. **Write a short note on :**
 - a) ELISA
 - b) Dried human plasma

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June - 2025

Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharm (Sem.-6)
QUALITY ASSURANCE-THEORY
Subject Code : BP-606T
M.Code : 77991

Date of Examination : 27-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
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SECTION-A

1. Define briefly :

- a) QbD
- b) NABL
- c) ISO 14000
- d) DMF
- e) Quality assurance
- f) Master formula record
- g) Performance Qualification (PQ)
- h) Quality audit
- i) QSEM
- j) Line clearance.

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SECTION - B

2. Write a detailed note on document maintenance in pharmaceutical industry.
3. Define ICH. Explain briefly the various categories of ICH guidelines and enumerate them with codes. Explain the guidelines required for stability testing.
4. Define GLP. What are the objectives of GLP? Discuss the general provisions of GLP for organisation and personnel, equipment and testing facilities.

SECTION - C

5. Discuss the role of quality. Assurance department in equipment selection.
6. Write a note on different components of QbD.
7. What is product recall? Explain procedure of product recall.
8. Write an account on general principles of analytical method validation.
9. Write a comparative note on quality control and quality assurance.
10. Discuss good warehousing practices.
11. What is GMP and cGMP? Discuss the benefits of GMP in pharmaceuticals.
12. Define customers. How do you measure the customer satisfaction in service industry?
13. Comment upon Quality review and quality documentation

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B.Pharmacy (Sem.-6)

HERBAL DRUG TECHNOLOGY-THEORY

Subject Code : BP603T

M.Code : 77988

Date of Examination : 06-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
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3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and students have to attempt any **SEVEN** questions.

SECTION - A

1. Answer the following:
 - a. Which techniques are used for identification of herbal raw material?
 - b. What is organic farming? What are its advantages?
 - c. What are Asavas and Arishtas?
 - d. Give 2 examples of interactions and side effects of Ginseng.
 - e. What is the role of prebiotics and probiotics?
 - f. What is the importance of Bioprospecting?
 - g. What are the different methods for pest management in medicinal plants?
 - h. Can you get a patent for a phytoconstituent which is isolated for the first time? Give reasons for your answer.
 - i. Give 2 examples of herbal binders and herbal antioxidants.
 - j. What are essential qualities of an ideal herbal drug?

SECTION - B

2. Give a detailed account on GACP of medicinal plants. Support your answer with suitable examples.
3. What are nutraceuticals? How are they classified? Which nutraceuticals are recommended for management of CVS disorders?
4. Describe the requirements and procedures for manufacturing, evaluation and regulation of Unani medicines.

SECTION - C

5. Design an herbal skin hair product which contains active ingredient and excipients of natural origin.
6. Write a note on the importance of herbal drug industry.
7. Discuss what can be patented and what cannot be patented while studying plants?
8. Describe different herbal formulations.
9. Give a detailed account on use Garlic or Spinulna as nutraceutical.
10. Describe the process of preparation and standardization of Churnas and Lohyas.
11. Describe the process of developing a drug from herbs.
12. What is the role of plants/ phytoconstituents in cosmetics?
13. How may you evaluate the quality and stability of herbal drugs?

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Total No. of Pages : 03

Total No. of Questions : 13

B.Pharmacy (Sem.-8)
BIOSTATISTICS AND RESEARCH METHODOLOGY

Subject Code : BP801T

M.Code : 79764

Date of Examination : 28-04-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **THREE** questions carrying **TEN** marks each and student has to attempt any **TWO** questions.
3. SECTION-C contains **NINE** questions carrying **FIVE** marks each and student has to attempt any **SEVEN** questions.

SECTION - A

1. Answer briefly:

- a) What are the characteristics of Frequency Distribution?
- b) Give formulae for calculation of Median and Mode for a continuous series.
- c) Define the term 'Level of significance'.
- d) What are Type I and Type II statistical errors?
- e) What is the difference between Experimental and Observational studies?
- f) What is the need for 'Research'?
- g) What are the advantages of using R-Online Software in statistical analysis?
- h) What is Response Surface Plot?
- i) What are the measures of deviation from the Normal Distribution?
- j) Define Factorial Designs. *

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SECTION - B

2. a) Explain various Non-probability Sampling Methods.
b) Give a detailed account on Plagiarism.
3. Write notes on :

a) Wilcoxon Rank Sum test

b) Multiple Correlation Analysis

4. A study is conducted involving 10 patients to investigate the relationship and effects of patient's age and their blood pressure.

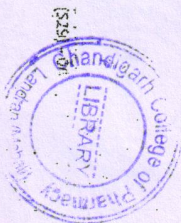
Age	B.P.
35	112
40	128
38	130
44	138
67	158
64	162
59	140
69	175
25	125
50	142

Find regression equation of data and predict the value of B.P. of Patient of age 60. Also test of Statistical significance at 5% level.

SECTION - C

5. What are the advantages of factorial Designs? Explain 2^3 factorial designs.
6. Write a note on central Composite Design.
7. Explain Blocking system for two level factorial.
8. What are the key features, advantages and limitations of SPSS in statistical analysis of clinical trial data?

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Roll No.
Total No. of Questions : 13

Total No. of Pages : 02

B.Pharmacy (Sem.-8)
COSMETIC SCIENCE
Subject Code : BP809ET

M.Code : 79772

Date of Examination : 05-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION - A

1. Write a short notes on :

- a) Define Cosmetics as per Indian regulations.
- b) How are cosmeceuticals different from cosmetics?
- c) Name two ingredients which are comedogenic.
- d) What are causes of Dermatitis?
- e) Enlist types of sunscreens.
- f) How are syndet bars different from soaps?
- g) Give two examples of Emollients.
- h) What are rheology modifiers?
- i) What is "Soap-up" effect?
- j) What are important characteristics of dry skin?

SECTION - B

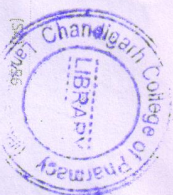
2. Explain the various possible mechanism of action of antiperspirants.
3. What is significance of SPF? How it is determined?
4. What is dandruff? Explain the formulation of an anti-dandruff shampoo.

SECTION - C

5. How are toothpaste formulated for bleeding gums?
6. Write a note on hair growth cycle.
7. What is the role of surfactant in shampoo formulation?
8. How is face wash different from soap bar?
9. What is the significance of using hair oils?
10. What are various grades of Acne?
11. What is the role of Aloe in skin care?
12. Write a formulation containing neem and clove for oral care.
13. What are BIS specifications for shampoo?

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Total No. of Pages : 02

Total No. of Questions : 13

**B. Pharmacy (Sem.-8)
PHARMACEUTICAL PRODUCT DEVELOPMENT**

Subject Code : BP-813 ET

M. Code : 79776

Date of Examination : 28-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION - A

1. Write briefly :

- a) Give names of QC tests for the integrity of tablets and hard gelatin capsule shell.
- b) Give one application of cyclodextrins.
- c) Give examples of formulation where non-ionic surfactant and sorbitols are used.
- d) Give two examples of excipients in a category of directly compressible vehicles
- e) Give two examples of excipients in a category of coat materials
- f) What is optimization technique? Give one example.
- g) Give QC test for cartons and labels
- h) What is Pharmaceutical Product Development?
- i) Give example of any two excipients used for NDDS.
- j) What is emollient and penetration enhancer?

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SECTION - B

2. Enumerate QbD approaches for making tablets.
3. Explain Factorial design with examples.
4. Explain the application of :

- a) Solvent and solubilizers.
- b) Semi solid excipients.

SECTION - C

5. Discuss the regulations related to preformulation.
6. Explain ICH guidelines for stability assessment.
7. Explain excipients used for parenteral products.
8. Explain QC test of glass as per IP.
9. Enumerate regulatory aspects of QC tests for packaging materials.
10. Explain the excipients used for aerosol products.
11. Explain QC tests for creams and suppositories.
12. Discuss manufacturing of capsules.
13. Write a short note on :
 - a) Polyethylene glycol
 - b) Micro crystalline cellulose

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Total No. of Pages : 02

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B.Pharmacy (Sem.-8)

PHARMACOVIGILANCE

ject Code : BP-8

Date of Examination : 26-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION - A

1. Write briefly :
 - a) Enlist key objectives of safety monitoring of medicines.
 - b) Enlist various types of adverse drug reactions.
 - c) Define causality assessment and severity assessment of adverse drug reactions.
 - d) Define and classify phases of clinical trials.
 - e) Define the term 'daily defined doses'.
 - f) Enlist adverse effects following immunization.
 - g) Define Eudra Vigilance and Vigiflow.
 - h) Expand and define the terms CIOMS and MedDRA.
 - i) Define periodic safety update report.
 - j) Define pharmacogenomics.

SECTION - B

- Describe the various methods of causality assessment of ADR.
- Describe the sources of safety data generation during pre-clinical & clinical phases of drug evaluation.
- Describe the data elements of CIOMS form.

SECTION-C

5. Describe ICH guidelines for post-approval expedited reporting.
6. Describe the objectives, activities and organization of PpPL.
7. Briefly describe the concept of International classification of diseases.
8. Briefly describe information resources in pharmacovigilance.
9. Classify and describe adverse events following immunization.
10. Describe the pharmacovigilance methods of active surveillance.
11. Describe the need and approach of effective communication in drug safety management.
12. Differentiate between the Indian and global pharmacovigilance requirements.
13. Describe the concept of drug safety evaluation in paediatrics.

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B. Pharmacy (Sem.-8)
PHARMACEUTICAL REGULATORY SCIENCE

Subject Code : BP804ET

M. Code : 79767

Date of Examination : 22-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION - A

1. Write briefly :

- a) Pharmacovigilance
- b) Limitations of micro dosing.
- c) Difference between generic and innovators product.
- d) Difference between purple and orange book.
- e) Mention the different modules of CTD.
- f) Fast track approval
- g) Pre-market assessment
- h) Difference between CTD and ACTD.
- i) Informed consent
- j) Federal register

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SECTION - B

2. Define DMF. Discuss its contents and its significance.
3. Discuss in detail the approval process involved in the IND.
4. Discuss in detail the development of a clinical trial protocol.

SECTION - C

5. Discuss in detail the approval process of ANDA.
6. Give an overview of different regulatory agencies in INDIA.
7. Write a short note on the functions of IRB.
8. Why there is a need of pharmacovigilance?
9. What is the checklist for GCP complaint protocol?
10. Discuss the present scenario of drug regulation globally.
11. Write a short note on the orange book.
12. What are the obligations of a sponsor in conducting clinical trials?
13. Write a short note on the stages of drug discovery.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

**B.Pharmacy (Sem.-8)
SOCIAL AND PREVENTIVE PHARMACY**

Subject Code : BP802T

M.Code : 79765

Date of Examination : 21-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write briefly :

- a. Define hygiene and health.
- b. Define Chicken guinea and its causes.
- c. Define universal immunization programme.
- d. Write sources and harmful effects of tobacco.
- e. Write the functions of primary health centres.
- f. Define balanced diet and write its important components.
- g. Write briefly about prevention and control of Ebola.
- h. Define Pneumonia and its symptoms.
- i. Write salient features of health promotion and education in schools.
- j. Write salient features of National programme for prevention and control of deafness.

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SECTION - B

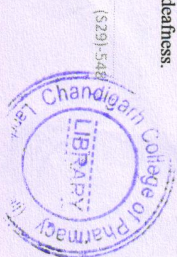
2. Explain in detail about malnutrition and its prevention. Discuss about balanced diet.
3. Explain the concept of prevention and control of disease and social causes of diseases.
4. Explain in detail about national Tuberculosis control programme.

SECTION - C

5. Discuss about concepts and evaluation of public health.
6. Describe the general principles of prevention and control of Malaria and Dengue.
7. Discuss about the role of WHO in National Health Programme.
8. Discuss about the various types of personal hygiene and health care and avoidable habits.
9. Describe the general principles of prevention and control of acute respiratory infections and influenza.
10. Discuss about services in rural, urban and school health.
11. Discuss about National mental health programme.
12. Discuss about different types of vitamin deficiency disorders and their prevention.
13. Discuss about National programme for control of blindness.

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SECTION - B

**B. Pharmacy (Sem.-8)
PHARMA MARKETING MANAGEMENT**

Subject Code : BP803ET

M.Code. : 79766

Date of Examination : 19-05-2025

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION - A

I. Write briefly :

- a) Distribution channels
 - b) Market analysis
 - c) Market segmentation
 - d) OTC products
 - e) Sales representative
 - f) National Pharmaceutical Pricing Authority
 - g) Budget
 - h) Retail Pharmacist
 - i) Global Marketing
 - j) Demographic description
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SECTION - C

5. Write a short note on determinants of price.
6. What is marketing environment?
7. Enumerate consumer buying and industrial buying behavior.
8. Explain the role of marketing research in the analysis of market.
9. Discuss product life cycle. Give at least one example.
10. Discuss the role of product branding and labeling decisions on marketing.
11. What are the duties of professional sales representatives?
12. Explain the physical distribution management.
13. Explain the factors affecting prescribing habits of physician.

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