

Roll No.

Total No. of Questions : 13

Total No. of Pages : 02

**B.Pharm (Sem-4)
PHARMACOGNOSY & PHYTOCHEMISTRY-I**

Subject Code : BP-405T

M.Code : 75847

Date of Examination : 01-06-2023

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) What is Pharmacognosy?
- b) What are organized and unorganized drugs?
- c) What are crude drugs and phytoconstituents?
- d) Give one example each of accidental and deliberate adulteration.
- e) What are edible vaccines?
- f) What are C- and O-glycosides?
- g) You are given plant sample containing alkaloids. How will you confirm the presence of alkaloids in the sample?
- h) What is polyploidy?
- i) Give the basic principles of AYURVEDA.
- j) What are the methods for conservation of medicinal plants?

SECTION-B

2. What is adulteration? How can adulteration be detected and prevented?
3. Discuss the contribution of Pharmacognostic study in modern and traditional medicine.
4. What are the requirements, process and applications of plant tissue culture?

SECTION-C

5. What are the different abiotic and biotic factors that affect the quality of medicinal plants during cultivation?
6. Discuss the current status of Pharmacognosy.
7. Write a detailed note on the pharmacological classification of crude drugs.
8. What are alkaloids? How are they classified?
9. Describe the isolation, medicinal and commercial importance of Papain.
10. Describe the importance of organoleptic evaluation of crude drugs with suitable examples.
11. "The sea is wonderful source of novel medicinal agents." Comment on this statement.
12. What are tannins? How are they classified? What are the commercial uses of tannins?
13. Write a note on sources, chemical nature and uses of natural fibres.

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July-2023

Roll No.

Total No. of Questions : 13

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**B. Pharmacy (Sem-4)
PHARMACEUTICAL ORGANIC CHEMISTRY-III
Subject Code : BP-401T**

M.Code : 75843

Date of Examination : 14-06-2023

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) Define Heterocyclic compounds with examples.
- b) Define the term chiral molecule. What is necessary condition for optical activity?
- c) Explain configuration vs conformation.
- d) Draw all possible conformation of Ethane and Cyclohexane.
- e) Write the structure of meso tartaric acid in Fischer projection. Comment on its optical activity.
- f) Write the resonance structures of Pyridine and Pyrimidine.
- g) Write chemical structure with numbering of Imidazole.
- h) Write basic structure and uses of Purine.
- i) Write synthesis and medicinal use of Sodium Borohydride.
- j) Write the structure and uses of Sodium Borohydride.

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SECTION-B

2. Discuss synthesis of Fisher-Indole synthesis and Skarup synthesis of Quinolinc.
3. Write explanatory note on stereochemistry of biphenyl compounds and asymmetric synthesis.
4. Write, detailed note on Oppenauer-oxidation and Dakin reaction.

SECTION-C

5. Explain the relative aromaticity of thiophene in contrast to furan and pyrrole.
6. Illustrate using example DL system and RS system of nomenclature of optical isomers.
7. Discuss stereospecific vs stereoselective reactions using one suitable example.
8. Discuss mechanism and synthetic importance of Wolff Kishner reduction.
9. Differentiate between Enantiomerism and Diastereomerism using suitable examples.
10. Write synthesis and uses of Acridine. Discuss basicity of pyridine.
11. Explain mechanism and synthetic importance of Claisen-Schmidt condensation.
12. Discuss racemic modification and resolution of racemic mixture.
13. Give, brief note on methods of determination of configuration of geometrical isomers.

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Roll No.

Total No. of Questions : 13

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B.Pharmacy (Sem-4)
PHARMACOLOGY-I
Subject Code : BP-404T
M.Code : 75846
Date of Examination : 09-06-2023

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

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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) Give advantages of oral route over I.V route.
- b) Mention the difference between central and peripheral acting analgesics.
- c) Define loading dose and mention its importance.
- d) How bioavailability and bioequivalence are different?
- e) Explain volume of distribution. Mention its importance.
- f) Why anti-cholinergic drugs are contraindicated in glaucoma?
- g) Differentiate receptors from the other endogenous protein molecules.
- h) How sedatives are different from hypnotic?
- i) What is the difference between adverse drug reaction and adverse drug event?
- j) Define nootropics.

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SECTION-B

2. Define Parkinsonism. Classify anti-Parkinson drugs. Write the mechanism of action and therapeutic uses of MAO inhibitors.
3. What is ADME? Write the various factors affecting absorption and distribution of drugs.
4. a) Write pharmacology of adrenaline.
b) Write therapeutic use and adverse drug reaction of alpha blockers.

SECTION-C

5. Explain pharmacology of atropines.
6. Discuss phases of clinical trials.
7. Differentiate Dementia and Alzheimer's disease. Write the mechanism of action of memantine.
8. Classify atypical anti psychotic drugs and write there adverse effects.
9. Write uses and contradictions of morphine.
10. Write a note on neurohumoral transmission in CNS.
11. Write different uses of local anesthetics.
12. Explain pharmacological action and therapeutic uses of anti cholinesterase inhibitors.
13. Explain drug tolerance and drug dependence.

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B.Pharma (Sem.-4)
MEDICAL CHEMISTRY-I

Subject Code : BP-402T

M.Code : 75844

Date of Examination : 02-06-2023

Max. Marks : 75

Time : 3 Hrs.

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 Terms :

- a) Define the term Bioisosterism.
- b) Classify alpha adrenergic blockers.
- c) Write chemical synthesis of Ethosuximide.
- d) Give chemical structure and uses of Tolazoline.
- e) Draw chemical structures of Halothane and Methoxyflurane.
- f) Give the structure and specific medicinal use of Zoilepdem.
- g) What are ultra short acting barbiturates? Give examples.
- h) What are the medicinal uses of Sodium salicylate?
- i) Give structure and medicinal uses of Clozapine.
- j) Write structure and uses of Paraldehyde.

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SECTION-B

2. Describe medicinal chemistry of barbiturates and hydantoins as anticonvulsants.
3. Discuss SAR of phenothiazines as antipsychotics. Write note on ring analogues of phenothiazines.
4. Write in detail SAR of morphine analogues as narcotic analgesics. Discuss narcotic antagonists.

SECTION-C

5. Give an account on SAR of benzodiazepines.
6. Write chemical structures, IUPAC name and uses of Ketamine and Gabapentin.
7. Write a brief note on solanaceous alkaloids and analogues.
8. Discuss in detail about indomethacin and ibuprofen.
9. Write detailed note on fluoro buterphenones as antipsychotics.
10. Write down structures with IUPAC names and uses of Carbamazepine and Valproic acid.
11. Comment on biosynthesis and catabolism of Adrenaline.
12. Comment upon the role of acid base properties on biological activity.
13. Write a short note on Phase I metabolic reactions.

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Roll No.

Total No. of Pages : 02

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

Date of Examination : 06-01-2023

Max. Marks : 75

Time : 3 Hrs.

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 Bioavailability? Name primary factors affecting bioavailability.
- b) What is Tachyphylaxis?
- c) What is Prazocin?
- d) What is Therapeutic index? Indicate its significance.
- e) What are Pharmacokinetic drug interactions?
- f) What is GABA?
- g) What are atypical anti-psychotics? Give two examples.
- h) What is Ketamine?
- i) What is Petitmal epilepsy? Name two drugs for this condition.
- j) What is Glaucoma? Mention two drugs for this condition.

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SECTION-B

2. Write an exhaustive note on pharmacology of anti-adrenergic drugs.
3. Discuss pharmacology of anti-Parkinsonian drugs.
4. Discuss pharmacology of anti anxiety agents.

SECTION-C

5. What is parenteral route of drug administration? Indicate merits and demerits of IV route of administration.
6. Add a brief note on local anaesthetic agents.
7. Add a note on various processes of transport across cell membrane.
8. Explain mechanism of action and side effects of phenytoin.
9. Write a brief note on drugs for Alzheimer's disease.
10. What is drug discovery and drug development? Outline various phases of clinical trials of drugs.
11. Write a brief note on opioid analgesics.
12. Add a brief note on Phenothiazines as anti-psychotic agents.
13. Write a note on selective serotonin reuptake inhibitors.

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Roll No.

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Total No. of Pages : 02

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**B.Pharma (Sem.-4)
PHARMACOLOGY & PHYTOCHEMISTRY-I**

Subject Code : BP-405T

M.Code : 75847

Date of Examination : 07-01-23

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) Who gave the term '*Pharmacognosy*'?
- b) What are primary and secondary metabolites?
- c) What is the difference between organized and unorganized drugs?
- d) What are edible vaccines?
- e) What are glycosides?
- f) Give one difference between drugs studied in Pharmacognosy and Ayurvedic drugs.
- g) Compare fixed oils and waxes.
- h) Explain how totipotency is important for plant tissue culture?
- i) What are the commercial and medicinal uses of volatile oils?
- j) If a sample of leafy drug contains 15% of stems, is this sample pure or adulterated?

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SECTION-B

2. Describe in detail the requirements and applications of plant tissue culture.
3. What are the abiotic and biotic factors that affect quality of medicinal plants during cultivation?
4. '*Study of pharmacognosy is relevant to both traditional as well as allopathic systems of medicine*'. Justify this statement.

SECTION-C

5. What is pharmacognosy? What are the different sources of drugs studied in pharmacognosy?
6. How does organoleptic evaluation help in identification of crude drugs and their adulterants? Explain with suitable examples.
7. What are alkaloids? How can you isolate alkaloids from plants?
8. Write a note on advantages and limitations of drugs of marine origin.
9. Which method according to you is most suitable for classification of crude drugs? Why?
10. What are Gums? Write a note on biological source, constituents and uses of Gum Tragacanth.
11. How can one detect adulteration in medicinal plants by microscopic evaluation?
12. Compare fixed oils and volatile oils.
13. Give the sources as well as commercial and pharmaceutical uses of cotton and jute fibres.

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Roll No.

Total No. of Questions : 13

Total No. of Pages : 02

B.Pharma (Sem.-4)
PHYSICAL PHARMACEUTICS-II
Subject Code : BP-403T
M.Code : 75845
Date of Examination : 04-01-2023

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.

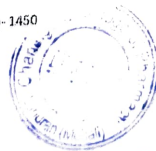
SECTION-A

1. Answer briefly :

- a) Pseudoplastic flow vs. Dilatant flow.
- b) Number distribution vs. weight distribution curve.
- c) Any two advantages of cone plate viscometer over cup bob viscometer.
- d) Dielectric constant.
- e) Difference between flocculated and deflocculated suspensions.
- f) Kinematic viscosity.
- g) Elastic modulus.
- h) Enumerate different theories of emulsification.
- i) Sieving.
- j) Acid base catalysis.

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SECTION-B

2. Discuss Principle, construction, working and applications of Brookefield viscometer.
3. State different methods of determining Particle size and discuss Andreason Pipette method in detail.
4. Discuss stability of emulsions.

SECTION-C

5. A drug solution of 150 mg/ml concentration was prepared. Calculate the time required for 20% decomposition of drug, if decomposition follows a zero order kinetics for which specific reaction rate $K = 2.5 \times 10^{-2}$ moles/L/hr
6. Define zeta potential. How it is determined?
7. Define Thixotropy. Explain its importance in pharmacy.
8. Explain Arrhenius theory of electrolytic dissociation.
9. Enumerate the important factors that influence the particle size analysis by sieving.
10. Discuss the stability of pharmaceutical products against hydrolysis.
11. Discuss plastic vs elastic deformation in solids
12. Discuss the optical vs electrical properties of colloidal dispersions.
13. Discuss in brief the interfacial properties of suspensions.

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Roll No.

Total No. of Questions : 13

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B. Pharma (Sem.-4)
PHYSICAL PHARMACEUTICS-II
Subject Code : BP-403T

M. Code : 75845
Date of Examination : 07-07-22

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 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) What is rheopexy and in which types of systems it is observed?
- g) What is syneresis?
- h) What are multiple emulsions?
- i) What is first order reaction? Mention the formula for calculating the drug concentration at any given time for degradation following first order kinetics.
- j) What is Gold Number and its significance?

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SECTION-B

2. Give a detailed account of the electrical properties of colloids. Explain the significance of Nernst and Zeta potential in influencing stability of colloidal systems.
3. Explain plastic and elastic deformation in solids and correlate with Heckel Plot.
4. Enumerate the chemical factors affecting drug stability. Mention the remedies for each of these factors.

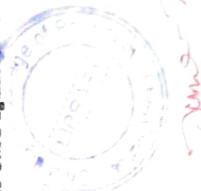
SECTION-C

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. Enumerate the physical factors influencing drug stability and methods to overcome it.
11. Write a note on adsorption and its applications.
12. Discuss the methodology employed for determining the shelf-life of dosage forms using temperature as a stress condition.
13. Differentiate between Newtonian and Non-Newtonian flow of fluids. Explain Non-Newtonian fluid flow with examples.

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Total No. of Pages : 02

Total No. of Questions : 13

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

Date of Examination : 11-07-22

Max. Marks : 75

Time : 3 Hrs.

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. Define Tolerance.
 - b. What is Idiosyncrasy?
 - c. Enlist factors modifying drug action.
 - d. How adverse drug reaction is different from adverse drug event?
 - e. How neurological disorders are different from psychological disorders?
 - f. What is Drug abuse?
 - g. How Parkinsonism is different from Parkinson's disease?
 - h. Define Loading dose and mention its importance.
 - i. What is Vasomotor reversal of dial?.
 - j. Why methyl-alcohol is toxic but ethyl alcohol is safe, orally?

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SECTION-B

2. Define and classify receptors
3. Write a detailed note on NSAIDS
4. Explain drug discovery process in detail.

SECTION-C

5. Write a short note on drug-drug interaction.
6. Explain and classify ADRs.
7. Define and classify neurotransmitters.
8. Outline methanol toxicity and its treatment.
9. Discuss pharmacology of adrenaline.
10. Explain mechanisms of drug transport across cell membrane.
11. Classify antiepileptic drugs.
12. Write a short note on sympatholytic.
13. How central analgesic are different from peripheral analgesics?

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**B.Pharma (Sem.-4)
PHARMACOLOGY & PHYTOCHEMISTRY-I**

Subject Code : BP-405T

M.Code : 75847

Date of Examination : 13-07-22

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

1. Answer briefly :

- (a) Give biological sources of any two drugs obtained from marine source.
- (b) Distinguish between Organized and Unorganized drugs.
- (c) Give chemical tests for identification of TANNINS.
- (d) Define HYBRIDIZATION.
- (e) What are EDIBLE VACCINES?
- (f) Distinguish between absorbent and non-absorbent cotton.
- (g) Classify ALKALOIDS.
- (h) Enumerate various factors influencing cultivation of medicinal plants.
- (i) Write biological source and chemical constituents of ACACIA.
- (j) Write biological source and uses of BEES WAX.

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SECTION-B

2. Write short notes on:
 - (a) DRUG ADULTERATION
 - (b) PLANT HORMONES
3. What is Plant Tissue Culture? Give various applications of PTC in Pharmacognosy.
4. Give detailed pharmacognostic account on :
 - (a) AGAR
 - (b) GELATIN

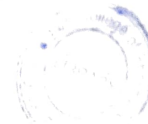
SECTION-C

5. Write a short note on NATURAL ALLERGENS.
6. Define RESINS. Classify resins, and give their properties.
7. Describe present status and future prospects of pharmacognosy.
8. Describe methods of conservation of medicinal plants.
9. Discuss the role of pharmacognosy in traditional systems of medicine.
10. Explain chemo-taxonomical classification of crude drugs.
11. Describe any four physical methods of evaluation of crude drugs.
12. Discuss plant tissue culture as source of drugs.
13. Give tests for identification of different types of glycosides.

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Roll No.

Total No. of Pages : 02

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

Subject Code : BP-401T

M.Code : 75843

Date of Examination : 01-07-22

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

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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) Define optical isomerism.
- (b) Explain chiral versus achiral molecules.
- (c) State Cahn Ingold Prelog sequence rules.
- (d) Draw eclipsed and staggered conformation of ethane.
- (e) Define meso compounds with examples.
- (f) Write structures of indole and imidazole.
- (g) Write chemical structure with numbering of quinoline.
- (h) Write structure and medicinal uses of azepine.
- (i) What is Sodium borohydride used for? What happens when sodium borohydride react with water?
- (j) What is an oppenauer-oxidation reagent?

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SECTION-B

2. Write a brief note on methods of determining configuration of geometrical isomers.
3. Write explanatory note on Beckmann's rearrangement and Schmidt rearrangement.
4. Draw the preferred conformations of Cyclohexane and n-Butane. Give reason for your preference.

SECTION-C

5. Write in detail about DL system of nomenclature of optical isomers.
6. Explain briefly a relation between elements of symmetry and optical activity.
7. Give an account on absolute 'configuration of biphenyls.'
8. Discuss mechanism and synthetic importance of Claisen-Schmidt condensation.
9. Discuss synthesis and various medicinal uses of pyrrole and thiophene.
10. Write synthesis and important reactions of Purine.
11. Write chemical synthesis of pyridine. Is pyridine a strong base?
12. Discuss briefly about clemmensen reduction birch reduction.
13. Write down brief note on stereospecific and stereoselective reactions.

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June 2022

Roll No.

Total No. of Pages : 02

Total No. of Questions : 22

B.Pharma (2017 Batch) (Sem.-4)
PHARMACOLOGY & PHYTOCHEMISTRY-I
Subject Code : BP-405T
M.Code : 75847

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.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

Answer briefly :

1. Give biological sources of any two drugs obtained from animal source.
2. Distinguish between gums and mucilages.
3. Give chemical tests for identification of CARDIAC GLYCOSIDES.
4. Define STOMATAL NUMBER and STOMATAL INDEX.
5. Write down functions of GIBBERELLINS.
6. Define the term POLYPLOIDY.
7. Classify TANNINS.
8. Describe the term MICROPROPAGATION.
9. Write biological source and chemical constituents of TRAGACANTH.
10. Write biological source and uses of CHAULMOOGRA OIL.

SECTION-B

11. a) What are ALKALOIDS? Classify them. Give tests for identification of alkaloids.
b) Write a short note on HALLUCINOGENS.
12. Explain physical methods of evaluation of crude drugs.
13. a) Describe extrinsic factors influencing cultivation of medicinal plants.
b) Write a short note on EDIBLE VACCINE.

SECTION-C

14. Discuss historical background of Pharmacology.
15. Explain chemical classification of crude drugs.
16. What are Plant hormones? Give applications of AUXINS.
17. Describe different types of cultures.
18. Discuss the role of pharmacology in allopathic system of medicine.
19. What are FLAVONOIDS? Classify them. Give identification tests of flavonoids.
20. Write a detailed note on COTTON.
21. Write sources, method of preparation and uses of PAPAIN.
22. Write a short note on Novel medicinal agents from marine source.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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10/11/2017

Roll No.

Total No. of Questions : 22

B. Pharma (2017 Batch) (Sem.-4)
PHARMACOLOGY-I
Subject Code : BP-404T
M.Code : 75846

SECTION-B

11. Outline organization and function of ANS.
12. Define pharmacology and explain pharmacokinetics in detail.
13. Write a detailed note on antiepileptic drugs.

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.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-C

14. Write a short note on enzyme coupled receptors.
15. How central acting muscle relaxants are different from peripheral acting?
16. Write a short note on Para sympatholytic.
17. What are pre-anesthetic medications? Discuss in brief.
18. Outline pharmacotherapy of glaucoma.
19. Write a short note on drug abuse.
20. What is zero order and first order elimination kinetics?
21. Write a short note on MAO inhibitors.
22. Outline scope of pharmacology.

SECTION-A

Answer briefly :

1. Define Pharmacovigilance.
2. What are spare receptors?
3. Define Tachyphylaxis.
4. Explain concept of therapeutic index.
5. Define and Classify Seizures.
6. What is Drug Dependence?
7. What are Nootropics?
8. How efficacy, potency and affinity are different?
9. Give limitations of non-selective β -blockers
10. Why some drugs follow zero order kinetics and other first order kinetics?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.



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Total No. of Pages : 02

Roll No. _____

Total No. of Questions : 13

B.Pharm (2017 Batch) (Sem.-4)

MEDICINAL CHEMISTRY-I

Subject Code : BP-402T

M.Code : 75844

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

Q1. Answer briefly :

- a) What is the mechanism of action and uses of ephedrine?
- b) Define Bioisosteres.
- c) Give the structure of any one urea derivative acting as anticonvulsant agent.
- d) Write a note on catabolism of acetylcholine.
- e) Give the structure and name of alpha blocker having quinazoline moiety.
- f) Name any two NSAIDs. Give their moa.
- g) Outline the synthesis of barbital.
- h) Give the structure of any one reactivator of organophosphate poisoning.
- i) What are dissociative anesthetics?
- j) Give the structure of benzodiazepine derivative acting as anticonvulsant agent.

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SECTION-B

Q2. Classify Antipsychotic agents giving the structure of at least one drug belonging to each category. Comment upon the SAR, moa and uses of phenothiazine class of drugs.

Q3. Give the chemical name, moa, the synthetic procedure and uses of the following drugs :

- a) Carbamezepine
- b) Diazepam

Q4. Discuss in detail the chemistry of :

- a) Morphine analogs
- b) Ultra short acting barbiturates

SECTION-C

Q5. Comment upon various factors affecting drug metabolism.

Q6. Outline various steps involved in the synthesis of ibuprofen. Discuss its role as anti-inflammatory agent.

Q7. Discuss the SAR of benzodiazepines.

Q8. Classify anticholinergic agents. Give atleast two examples of each class.

Q9. Write a short note on history and development of medicinal chemistry

Q10. Discuss the biological importance and chemistry of hydantoin derivatives.

Q11. Write a short note on narcotic antagonists.

Q12. Explain the chemistry of AchE inhibitors.

Q13. Classify Anticonvulsants. Suggest their mechanism of action.

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2 M-75844

(5/29/89)

Dec-2020

Roll No.

Total No. of Pages : 02

Total No. of Questions : 22

B.Pharma (2017 Batch) (Sem.-4)
PHYSICAL PHARMACEUTICS-II

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

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.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

Answer briefly :

- Q1. What is protective colloid?
- Q2. What is meant by Nernst potential?
- Q3. Define Kanematic viscosity and its units.
- Q4. What is the porosity when solid particles are packed closely?
- Q5. What is angle of repose?
- Q6. Give two examples of photolytic degradation of drugs.
- Q7. What is pseudo zero order reaction?
- Q8. What is yield value and in which types of systems it is observed?
- Q9. What is specific surface area and its importance?
- Q10. Write the equation for calculating the half life for a drug following first order degradation kinetics

1 M 75845

SECTION-B

- Q11. Differentiate between Newtonian and Non-Newtonian systems giving suitable examples.
- Q12. Differentiate between flocculated and deflocculated suspensions. Discuss the strategies used for reducing settling of particles in suspensions.
- Q13. Explain the use of accelerated stability testing of pharmaceutical products using temperature as a stress condition.

SECTION-C

- Q14. Write a note on prevention of hydrolytic degradation in pharmaceutical products.
- Q15. Explain particle shapes and their influence on packing.
- Q16. Briefly explain the differences between conventional and microemulsions.
- Q17. Enumerate the methods used for determination of surface area of powders. Discuss any one method in detail.
- Q18. Write a note on elastic deformation of solids.
- Q19. Discuss the HLB method of preparing emulsions.
- Q20. Classify colloids and mention their properties.
- Q21. What is a falling sphere viscometer? Mention its applications and limitations.
- Q22. Briefly discuss the influence of dielectric constant on drug stability.

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Dec 2020

Roll No. _____

Total No. of Questions : 22

Total No. of Pages : 02

B. Pharma (2017 Batch) (Sem.-4)
PHARMACEUTICAL ORGANIC CHEMISTRY-III

Subject Code : BP-401T

M.Code : 75843

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

Write short notes on :

1. Draw and specify D & L configuration of glyceraldehyde.
2. What do you understand by heterocyclic compounds? Give examples.
3. Explain enantiomerism versus diastereoisomerism.
4. Draw all possible conformations of cyclohexane. Which is more stable?
5. Write the structure of meso tartaric acid in Fischer projection.
6. What is Atropisomerism?
7. Write chemical structure with numbering of isoquinoline and acridine.
8. Write structures of pyrazole and purine.
9. Write structure and medicinal uses of imidazole.
10. What is Oppenauer-oxidation?



SECTION-B

11. Discuss with examples Clemmensen reduction, Birch reduction and Wolff Kishner reduction.
12. Write detailed note on relative aromaticity, reactivity and uses of pyrrole, furan and thiophene.
13. Write detailed note on methods used for the determination of the configuration.

SECTION-C

14. Give an account of asymmetric synthesis.
15. Molecular dissymmetry is an essential feature for optical activity. Comment on giving example.
16. Give an account on stereoisomerism in biphenyl compounds.
17. Discuss mechanism and synthetic importance of Beckmann's rearrangement.
18. Write a detailed note on metal hydride reduction.
19. Write synthesis and uses of Quinoline and Indole.
20. Explain Claisen-Schmidt condensation.
1. Discuss racemic modification and resolution of racemic mixture.
2. Give brief note on stereoselective and stereospecific reactions.



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Roll No.

Total No. of Pages : 02

Total No. of Questions : 13

B.Pharma (2017 Batch) (Sem.-4)

MEDICINAL CHEMISTRY-I

Subject Code : BP-402T

M.Code : 75844

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

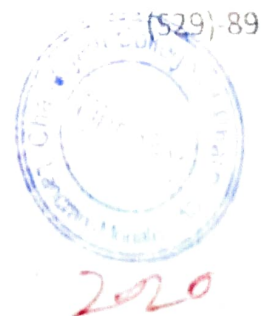
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

Q1. Answer briefly :

- a) What is the mechanism of action and uses of ephedrine?
- b) Define Bioisosteres.
- c) Give the structure of any one urea derivative acting as anticonvulsant agent.
- d) Write a note on catabolism of acetylcholine.
- e) Give the structure and name of alpha blocker having quinazoline moiety.
- f) Name any two NSAIDs. Give their moa.
- g) Outline the synthesis of barbital.
- h) Give the structure of any one reactivator of organophosphate poisoning.
- i) What are dissociative anesthetics?
- j) Give the structure of benzodiazepine derivative acting as anticonvulsant agent.

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SECTION-B

- Q2. Classify Antipsychotic agents giving the structure of atleast one drug belonging to each category. Comment upon the SAR, moa and uses of phenothiazine class of drugs.
- Q3. Give the chemical name, moa, the synthetic procedure and uses of the following drugs :
- a) Carbamazepine
 - b) Diazepam
- Q4. Discuss in detail the chemistry of :
- a) Morphine analogs
 - b) Ultra short acting barbiturates

SECTION-C

- Q5. Comment upon various factors affecting drug metabolism.
- Q6. Outline various steps involved in the synthesis of ibuprofen. Discuss its role as anti-inflammatory agent.
- Q7. Discuss the SAR of benzodiazepines.
- Q8. Classify anticholinergic agents. Give atleast two examples of each class.
- Q9. Write a short note on history and development of medicinal chemistry.
- Q10. Discuss the biological importance and chemistry of hydantoin derivatives.
- Q11. Write a short note on narcotic antagonists.
- Q12. Explain the chemistry of AchE inhibitors.
- Q13. Classify Anticonvulsants. Suggest their mechanism of action.

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Roll No. 1

Total No. of Pages : 02

Total No. of Questions : 22

B.Pharma (2017 Batch) (Sem.-4)
PHYSICAL PHARMACEUTICS-II
Subject Code : BP-403T
M.Code : 75845

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.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

Answer briefly :

- Q1. What is protective colloid?
- Q2. What is meant by Nernst potential?
- Q3. Define Kinematic viscosity and its units.
- Q4. What is the porosity when solid particles are packed closely?
- Q5. What is angle of repose?
- Q6. Give two examples of photolytic degradation of drugs.
- Q7. What is pseudo zero order reaction?
- Q8. What is yield value and in which types of systems it is observed?
- Q9. What is specific surface area and its importance?
- Q10. Write the equation for calculating the half life for a drug following first order degradation kinetics.

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SECTION-B

- Q11. Differentiate between Newtonian and Non-Newtonian systems giving suitable examples.
- Q12. Differentiate between flocculated and deflocculated suspensions. Discuss the strategies used for reducing settling of particles in suspensions.
- Q13. Explain the use of accelerated stability testing of pharmaceutical products using temperature as a stress condition.

SECTION-C

- Q14. Write a note on prevention of hydrolytic degradation in pharmaceutical products.
- Q15. Explain particle shapes and their influence on packing.
- Q16. Briefly explain the differences between conventional and microemulsions.
- Q17. Enumerate the methods used for determination of surface area of powders. Discuss any one method in detail.
- Q18. Write a note on elastic deformation of solids.
- Q19. Discuss the HLB method of preparing emulsions.
- Q20. Classify colloids and mention their properties.
- Q21. What is a falling sphere viscometer? Mention its applications and limitations.
- Q22. Briefly discuss the influence of dielectric constant on drug stability.

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Roll No.

Total No. of Questions : 22

Total No. of Pages : 02

B.Pharma (2017 Batch) (Sem.-4)
PHARMACOLOGY-I
Subject Code : BP-404T
M.Code : 75846

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.
3. **SECTION-C** contains **NINE** questions carrying **FIVE** marks each and students have to attempt any **SEVEN** questions.

SECTION-A

Answer briefly :

1. Define Pharmacovigilance.
2. What are spare receptors?
3. Define Tachyphylaxis.
4. Explain concept of therapeutic index.
5. Define and Classify Seizures.
6. What is Drug Dependence?
7. What are Nootropics?
8. How efficacy, potency and affinity are different?
9. Give limitations of non-selective β -blockers
10. Why some drugs follow zero order kinetics and other first order kinetics?



SECTION-B

11. Outline organization and function of ANS.
12. Define pharmacology and explain pharmacokinetics in detail.
13. Write a detailed note on antiepileptic drugs.

SECTION-C

14. Write a short note on enzyme coupled receptors.
15. How central acting muscle relaxants are different from peripheral acting?
16. Write a short note on Para sympatholytic.
17. What are pre-anesthetic medications? Discuss in brief.
18. Outline pharmacotherapy of glaucoma.
19. Write a short note on drug abuse.
20. What is zero order and first order elimination kinetics?
21. Write a short note on MAO inhibitors.
22. Outline scope of pharmacology.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.



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Roll No.

Total No. of Pages : 02

Total No. of Questions : 22

B.Pharm (2017 Batch) (Sem.-4)
PHARMACOGNOSY & PHYTOCHEMISTRY-I
Subject Code : BP-405T
M.Code : 75847

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.
3. SECTION-C contains NINE questions carrying FIVE marks each and students have to attempt any SEVEN questions.

SECTION-A

Answer briefly :

1. Give biological sources of any two drugs obtained from animal source.
2. Distinguish between gums and mucilages.
3. Give chemical tests for identification of CARDIAC GLYCOSIDES.
4. Define STOMATAL NUMBER and STOMATAL INDEX.
5. Write down functions of GIBBERELLINS.
6. Define the term POLYPLOIDY.
7. Classify TANNINS.
8. Describe the term MICROPROPAGATION.
9. Write biological source and chemical constituents of TRAGACANTH.
10. Write biological source and uses of CHAULMOOGRA OIL.



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SECTION-B

11. a) What are ALKALOIDS? Classify them. Give tests for identification of alkaloids.
b) Write a short note on HALLUCINOGENS.
12. Explain physical methods of evaluation of crude drugs.
13. a) Describe extrinsic factors influencing cultivation of medicinal plants.
b) Write a short note on EDIBLE VACCINE.

SECTION-C

14. Discuss historical background of Pharmacognosy.
15. Explain chemical classification of crude drugs.
16. What are Plant hormones? Give applications of AUXINS.
17. Describe different types of cultures.
18. Discuss the role of pharmacognosy in allopathic system of medicine.
19. What are FLAVONOIDS? Classify them. Give identification tests of flavonoids.
20. Write a detailed note on COTTON.
21. Write sources, method of preparation and uses of PAPAIN.
22. Write a short note on Novel medicinal agents from marine source.

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2020

Roll No.

Total No. of Questions : 10

Total No. of Pages : 02

B.Pharm (2012 to 2016) (Sem.-4)
INTELLECTUAL PROPERTY RIGHTS
Subject Code : BPHM-406
M.Code : 46236

Time : 3 Hrs.

Max. Marks : 80

INSTRUCTION TO CANDIDATES :

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

SECTION-A

- Write briefly :
 - Infringement of copyright
 - IPR Regime
 - Software patents
 - Protection of patent
 - GATT
 - Ownership
 - Patent
 - Copyright societies
 - Copyrights
 - Function of trademark.
 - Patents



I. Geographical Indication

- Paris convention
- What is infringement?
- TRIPS

SECTION-B

- Explain the basic concept of IPR.
- Significance of law of national trade mark.
- What is Trade Secret?
- Explain different types of internet crime.
- Discuss Copy Right Registration Process.

SECTION-C

- Explain the different types of Intellectual Property Rights.
- Distinguish between innovation and inventions.
- What are the liabilities of Trade mark claims and infringement?
- Explain the significance of International Trade Mark Law.
- What are cyber crimes? Give examples.
- Write the procedure for registration of trade mark.
- Write a note on the new developments in Patent Law.
- Write a note on Rights conferred on copyright owners plagiarism and related rights.

NOTE : Disclosure of Identity by writing Mobile No. or Mailing of passing request on any page of Answer Sheet will lead to UMC against the Student

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B. Pharma (2012 to 2016) (Sem.-4)
PHARMACEUTICS-V
 (Physical Pharmacy)
 Subject Code : BPHM-405
 M. Code : 46235

Time : 3 Hrs.

Max. Marks : 80

INSTRUCTION TO CANDIDATES :

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

SECTION-A**1. Answer briefly :**

- What are eutectic mixtures? Explain with examples.
- What is polymorphism? Explain with examples.
- Define Angle of repose. What are its uses in the pharmaceutical field?
- Write Stokes' equation. What are its applications in pharmacy?
- Write the equation for the spreading coefficient. Suggest two methods to improve the spreading of a medicament.
- Explain the concept of surface tension.
- Define Thixotropy. Draw a thixotropic curve for a plastic flow.
- What type of viscometers is necessary for the study of non-Newtonian fluids? Why?
- What is Brownian movement? Which formulations exhibit this movement?
- What is meant by protective colloids? Mention one example for the same.
- Explain the term "phase inversion" with one suitable example.

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l) What is Scatchard plot? Give a labeled plot with a suitable example.

m) Define First order reaction. List the examples which have applications in biological processes.

n) Define Half-Life. What relationship does the half-life period bear to the initial concentration?

o) What is buffer capacity?

SECTION-B

- List different types of densities of powders/granules. Write the experimental method for the determination of any one of them.
- Draw the flow curves for Newtonian and non-Newtonian types of flow. Give one example for each type of flow.
- Deduce an equation for the determination of interfacial tension using DuNouy method.
- Describe the process of micellar solubilization. Explain its applications in pharmacy with suitable examples.
- How does complexation influence drug action? Explain with help of two examples.

SECTION-C

- Compare first and second order reactions with respect to the rates and explain the mechanism for their behaviour.
- Discuss the methodology of accelerated stability studies. Mention its limitations.
- Explain with relevant mathematical equation, give the construction, working and applications of cup and bob viscometer. What are its disadvantages?
- What is meant by controlled flocculation? Discuss the various means by which controlled flocculation can be achieved.

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Roll No.

Total No. of Questions : 10

Total No. of Pages : 02

B. Pharma (2012 to 2016) (Sem.-4)
PATHOPHYSIOLOGY OF COMMON DISEASES
Subject Code : BPHM-404
M. Code : 46234

Time : 3 Hrs.

Max. Marks : 80

INSTRUCTION TO CANDIDATES :

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

SECTION-A

- Briefly describe the following :
 - Name the causative agent of tuberculosis
 - Differentiate between type I and type II diabetes mellitus.
 - STD's
 - Define Iatrogenic disease.
 - Difference between Gout and Rheumatoid arthritis.
 - Urinary tract infections
 - Write two diagnostic tests for renal failure.
 - What are the common signs and symptoms of tuberculosis?
 - Enlist the causes of cell injury.
 - What is hypertension?
 - Ulcerative colitis
 - Pathophysiology of asthma
 - Differentiate between hyperplasia and hypertrophy.

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n) Generalised epilepsy

o) Write the diagnostic test for gout

SECTION-B

- What are the various signs and symptoms of Asthma? Discuss the precipitating factors for bronchial asthma.
- Discuss the etiology and pathogenesis of atherosclerosis.
- What pathophysiological changes occur in Alzheimer's disease?
- Give a brief outline of the process of repair.
- Discuss briefly :
 - Pernicious anaemia
 - Mediators of inflammation

SECTION-C

- Discuss in detail the causes, pathogenesis and morphology of cellular injury.
- Write a note on :
 - Peptic ulcer
 - Acute renal failure
 - AIDS
- Discuss in detail the causes and pathophysiology of following diseases :
 - Parkinson's disease
 - Congestive heart failure
- Discuss the chemical mediators involved in inflammation. Describe in detail the basic mechanisms involved in the process of inflammation.

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2023

Roll No. _____

Total No. of Pages : 02

Total No. of Questions : 10

B.Pharm (2012 to 2016) (Sem.-4)
PHARMACOGNOSY-III
Subject Code : BPHM-403
M.Code : 46233

Max. Marks : 80

Time : 3 Hrs.

INSTRUCTION TO CANDIDATES :

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

SECTION-A

1. Answer briefly :

- a) Draw the structures of sennoside A and guggulsterone E.
- b) Name two controversial sources of shankpushpi.
- c) Name the steps involved in preparation of Bhasmas.
- d) Give biological source and one major use of Palash and Adusa.
- e) Draw structure of psoralen and strophanthidin.
- f) Give main chemical constituents (along with structures) of saffron.
- g) Why Modified Borntrager's test is performed? How it is different from Borntrager's test?
- h) Write two tests used to detect the presence of unsaturated lactone ring in a cardiac glycoside.
- i) Give biological source and important chemical constituent (with structure) of kalmegh.
- j) Which is the most common adulterant of digitalis and how will you identify it microscopically?

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Dec-2019

- k) Give important uses of Rasna and Kantikari.
- l) Define lehyas. Give two examples of it.
- m) Give two marketed formulations each of Kalijiri and Apamarg.
- n) Give characteristic microscopic features of senna.
- o) What do you understand by the term standardization?

SECTION-B

2. Write a note on the chemical constituents (with structures) of neem.
3. Discuss about Brahma.
4. Explain and draw a well labelled diagram of transverse section of licorice.
5. Write about the source and chemical constituents of chiraita and arjuna.
6. Discuss about the pharmacological properties of shatavari.

SECTION-C

7. a) Write an elaborated note on Arishtas and Asvas. How they are different from each other? 5
b) Write an elaborated note on ginseng. 5
8. Discuss the chemical constituents (with structures) and uses of the following : 3
a) Dioscorea 4
b) Punarnava 3
c) *Ammi visnaga* 10
9. How will you standardize a herbal product? Elaborate on various steps involved in it. 10
10. Write about source, chemical constituents (with structures) and uses of Gilo and Bach. 10

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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Roll No. _____

Total No. of Questions : 10

Total No. of Pages : 02

B. Pharma (2012 to 2016) (Sem.-4)

PHARMACEUTICS IV
(Unit Operation-II)

Subject Code : BPHM-401

M. Code : 46231

Max. Marks : 80

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

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

SECTION-A

1. Define :

- Define Unit Process.
- Define the term attrition.
- Define Overall Heat Transfer Coefficient.
- Explain Stefan Boltzmann's Law
- Describe Raoult's law.
- Mention the equipment used for solid-solid mixing.
- Define Different types of rectifying columns.
- Define LOD.
- Define Drying and its importance in dosage forms.
- Mention the factors affecting constant drying rate.

k. Define flash distillation

- Define Impact and attrition in size reduction.
- Differentiate ideal and actual screens
- Define Mechanism of mixing in liquid.
- Define Principle of sigma blade mixer.

SECTION-B

- Explain the principle of freeze drying.
- What is meant by steam distillation? What are its special advantages?
- Explain the principle and working of fluidized bed dryer.
- Describe the mechanism of size reduction with suitable examples of equipments.
- Explain the working of a mixture used for mixing dry powder before granulation.

SECTION-C

- Describe the construction, working and advantages of multipass heater.
- Explain principle, working and applications of film evaporator.
- Discuss the construction, working and advantages of drum dryer.
- Describe the construction, working advantages and disadvantages of fluid energy mill.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on a paper of Answer Sheet will lead to UMC against the Student.

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SECTION-B

2. What is adulteration of crude drugs? How can adulteration be detected? Explain with suitable examples.
3. Describe the requirements and caution required for cultivation and collection of medicinal plants.
4. Traditional systems are important in health care system of our country. What are the advantages/drawbacks and what is required for improvement of these systems?

SECTION-C

5. What are the requirements and applications of plant tissue culture in pharmacognosy?
6. How does microscopic evaluation help in identification of crude drugs and their adulterants? Explain with suitable examples.
7. What are true, proto and pseudo alkaloids? How can you confirm presence of alkaloids in plants?
8. Write a note on drugs of marine origin.
9. What are the different methods for classification of crude drugs?
10. What are fixed oils and waxes? Write a note on biological source, constituents and uses of Castor oil.
11. How does polyploidy and hybridization help in improvement of medicinal plants?
12. What are glycosides? Give the classification and examples of plants containing cardiac glycosides.
13. Give the sources and commercial and pharmaceutical uses of Honey and Papain.

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Total No. of Pages : 02

Roll No.

Total No. of Questions : 13

B. Pharma (2017 Batch) (Sem.-4)
PHARMACOGNOSY & PHYTOCHEMISTRY-I

Subject Code : BP-405T
M.Code : 75847

Max. Marks : 75

Time : 3 Hrs.

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. Define 'Pharmacognosy'.
 - b. What are primary and secondary metabolites?
 - c. What is the difference between taxonomical and chemo-taxonomical classification of crude drugs?
 - d. What are genetically modified plants?
 - e. What are flavonoid glycosides?
 - f. Give one difference between chemical nature of fixed oils and volatile oils.
 - g. Compare gums and mucilages.
 - h. Which plant growth hormones are necessary for plant tissue culture? Why?
 - i. What is the advantage and drawback of cultivation of medicinal plants?
 - j. How is pharmacognostic study of medicinal plants helpful in Ayurveda?

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Total No. of Pages : 02

Total No. of Questions : 13

B.Pharma (2017 Batch) (Sem.-4)
PHARMACOLOGY-I
Subject Code : BP-404T
M.Code : 75846

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) Define with examples "agonist" and "antagonist".
- b) What are receptors? Give two examples of ion channel receptors.
- c) What is therapeutic index? Indicate its significance.
- d) What is pharmacovigilance? Highlight significance of pharmacovigilance.
- e) What are beneficial drug interactions? Give an example.
- f) What is myasthenia gravis? Name a drug for this condition.
- g) What is disulfiram?
- h) Indicate various stages of general anaesthesia.
- i) What is grandmal epilepsy? Name two drugs for this condition.
- j) Define with examples, sedatives and hypnotics.

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SECTION-B

2. Classify various routes of drug administration and discuss critically about parenteral routes.
3. Discuss pharmacology of anti-depressants
4. What are para-sympatholytics? Classify them and discuss pharmacology of Atropine

SECTION-C

5. What is drug absorption? Give an account of various factors affecting drug absorption.
6. What is drug discovery and drug development? Describe various phases of clinical trials of drugs.
7. Write a note on gaseous anaesthetic agents.
8. What is preanesthetic medication? Highlight significance of it and outline drugs that are used for preanesthetic medication.
9. Write a brief note on drugs for Alzheimer's disease.
10. Write a note on centrally acting muscle relaxants.
11. Write a note on benzodiazepines as anti-anxiety agents.
12. Add a brief note on opioid analgesics.
13. Write a note on CNS stimulants.

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Roll No.

Total No. of Questions : 13

Total No. of Pages : 02

**B.Pharma (2017 Batch) (Sem.-4)
PHYSICAL PHARMACEUTICS-II
Subject Code : BP-403T**

M.Code : 75845

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) Colloids
- b) Thixotropy and negative thixotropy
- c) coacervation
- d) Difference between stress and strain
- e) Heckel plot is valid for which types of solids material?
- f) HLB scale
- g) Degree of flocculation and its units
- h) Porosity
- i) Ionic strength vs. degradation of pharmaceutical products
- j) Arrhenious equation

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SECTION-B

2. Discuss Principle, construction, working and applications of conc and plate viscometer.
3. Discuss Accelerated stability analysis.
4. Discuss different derived properties of powders along with their significance in pharmacy. How they are determined or calculated?

SECTION-C

5. What is a Plug flow? Is it desirable while recording a rheogram?
6. Discuss the stability of pharmaceutical products against oxidation.
7. Explain sedimentation volume and role of flocculating agents in suspensions.
8. Discuss DLVO theory.
9. Enumerate physical factors that influencing degradation of pharmaceuticals. Discuss any one in detail.
10. Write a note on peptization and protective action of colloids.
11. Enumerate different methods to determine particle size and discuss any one in detail.
12. A prescription for a liquid aspirin is called for, it contains 325mg/5ml or 6.5g/ 100ml. Solubility of aspirin at 25°C is 0.33g/100ml. Therefore the suspension will definitely be a suspension. Other ingredients in the prescription cause the product to have a pH of 6. The first order rate constant for aspirin degradation in the solution is $4.5 \times 10^{-6} \text{ sec}^{-1}$. Calculate the zero order rate constant. Determine the self life, t_{90} for the liquid preparation, assuming that the product is satisfactory until at the time at which it has decomposed to 90% of its original concentration (i.e 10% decomposition) at 25°C.
13. Calculate the HLB value of a blend of equal amounts of Polysorbate 80 and sorbitan monooleate, the HLB values of 2 surfactants being 15 and 4.3 respectively.

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Roll No.

Total No. of Questions : 13

Total No. of Pages : 02

B.Pharma (2017 Batch) (Sem.-4)
MEDICINAL CHEMISTRY-I

Subject Code : BP-402T
M.Code : 75844

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 student has to attempt any TWO questions.
- SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Answer briefly :

- Give structures of any two direct cholinesterase inhibitors.
- Enumerate the biosynthetic pathway of acetylcholine.
- What is the significance of pKa value in drug action?
- Give mechanism of action of halothane.
- What do you understand by isosteric replacement?
- Give synthesis of phenylephrine.
- Write the structure and uses of salbutamol.
- Give structure and chemical name of any one β_1 -blocker.
- Write down an example of benzodiazepine acting as antiepileptic agent.
- Justify "the effect of geometrical isomerism on biological activity".

SECTION-B

- Classify NSAIDs with examples Give a detailed account on phenylpropionic acid derivatives.
- Outline the synthetic schemes of the following drugs:
 - Phenytouin
 - Dicyclomine
 - Carbachol
 - Carbamazepine
- Write a detailed account on Phase I metabolic reactions with appropriate examples.

SECTION-C

- Give the salient chemical features and nomenclature of benzomorphan based opioids.
- "Conformational isomerism leads to multiple modes of biological actions". Justify.
- Comment upon irreversible cholinesterase inhibitors.
- Write down the SAR of phenothiazine class of antipsychotic agents.
- Classify antiepileptic agents giving at least two examples from each class.
- Give structure, chemical name, mechanism of action and therapeutic uses of propranolol.
- Comment upon cardioselective β -blockers.
- Discuss SAR of barbituric acid derivatives.
- Outline the biosynthesis and metabolism of adrenaline.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.



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Roll No. _____

Total No. of Questions : 13

Total No. of Pages : 02

B.Pharm (2017 Batch) (Sem.-4)
PHARMACEUTICAL ORGANIC CHEMISTRY-III
Subject Code : BP-401T
M.Code : 75843

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 student has to attempt any TWO questions.
- SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

- Write short notes on :
 - Define Optical activity.
 - What are meso compounds? Give one example.
 - What is resolution of racemic mixture?
 - Draw Eclipsed and Staggered conformation of ethane. Which is more stable?
 - Define Geometric Isomers giving suitable example.
 - What are stereospecific reactions?
 - Write chemical structure with numbering of quinoline.
 - Write structures of pyridine and pyrimidine.
 - What functional groups does sodium borohydride reduce?
 - What are chiral and achiral molecules?



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SECTION-B

- Discuss in detail DL system and RS system of nomenclature of optical isomers.
- Comment on "conformational isomerism in *n*-Butane and cyclohexane".
- Write the synthesis, reactions and medicinal uses of imidazole, purine, acridine and indole.

SECTION-C

- Write in detail about enantiomerism and diastereomerism.
- Discuss in detail about partial and absolute asymmetric synthesis.
- Give an account on optical activity due to chiral axis.
- Discuss mechanism as well as synthetic importance of Schmidt rearrangement.
- Write mechanism involved behind Clemmensen reduction and Birch reduction.
- Write about relative aromaticity and reactivity of thiophene and furan.
- Explain Oppenauer-oxidation and Dakin reaction.
- Discuss structure and uses of oxazole, pyrazole and thiazole.
- Give brief note on elements of symmetry.

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Total No. of Questions : 10

Total No. of Pages : 02

B. Pharma (2011 to 2016) (Sem.-4)

PHARMACEUTICS-V

(Physical Pharmacy)

Subject Code : BPHM-405

M.Code : 46235

Time : 3 Hrs.

Max. Marks : 80

INSTRUCTION TO CANDIDATES :

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

SECTION-A

1. Answer briefly :

- a) What are the components of an aerosol system?
- b) What is an amorphous solid?
- c) Define particle volume.
- d) Define loose and close packing of particles.
- e) What is meant by solubilization? Give two examples.
- f) Differentiate between Zeta and Nernst potential.
- g) What is plastic viscosity? Give one example.
- h) What is angle of repose and what does it indicate?
- i) What is spreading coefficient?
- j) What are cage complexes?
- k) Give two examples of wetting agents.

- l) Mention the formulae for calculating half life of drugs following degradation by first order.
- m) Mention the Arrhenius equation and its utility.
- n) What is contact angle?
- o) What is the HLB scale of hydrophobic surfactants?

SECTION-B

2. Define polymorphism with suitable examples. Briefly write about polymorphic behaviour of solids and its impact on formulations.
3. What is the difference between work of cohesion and work of adhesion? How spreading coefficient is determined?
4. What is thixotropy and anti-thixotropy? Give examples and explain the use of these properties of polymers in dosage form design.
5. Enumerate and explain the methods used for determining particle volume.
6. Discuss the stability indicating parameters for emulsions.

SECTION-C

7. Classify complexes with suitable examples. Comment on the advantages and disadvantages of complex formation in influencing drug stability and effectiveness.
8. Describe the difference between a deflocculated and flocculated suspension. Discuss the role of structured vehicles in formulating a physically stable suspension.
9. Distinguish between pseudoplastic and dilatant viscosities. Giving suitable examples explain their role in dosage form design.
10. Explain the need for eye drops to be isotonic with tears. Enumerate the methods employed for adjusting tonicity of eye drops. Discuss the sodium chloride equivalent method.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 10

B. Pharma (2011 to 2016) (Sem.-4)

PHARMACOGNOSY-III

Subject Code : BPHM-403

M.Code : 46233

Time : 3 Hrs.

Max. Marks : 80

INSTRUCTION TO CANDIDATES :

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

SECTION-A

1) Answer the Following :

- a) Write down biological source and chemical constituents of DIOSCOREA.
- b) Give specific chemical tests for identification of ALOE.
- c) Mention diagnostic microscopic features of SENNA.
- d) Give structure and uses of PSORALIN.
- e) Write down biological source and medicinal uses of SARASPARILLA.
- f) Give chemical constituents of CASCARA.
- g) Write down botanical source and pharmacological uses of GILO.
- h) Give botanical source and chief chemical constituents of GOKHRU.
- i) Name two marketed formulations of GUGGAL.
- j) Differentiate between Arishta and Asava.
- k) Write down substitutes and adulterants of SAFFRON.
- l) Give chemical tests for identification of SQUILL.
- m) Write down biological source and chemical constituents of METHI.

- n) Enumerate various methods of standardization of Churna.
- o) What are fundamental principles of Ayurvedic System?

SECTION-B

- 2) Describe methods of cultivation and collection of ALOE.
- 3) Write down biological source, chemical constituents, uses and microscopic features of GENTIAN.
- 4) Give a pharmacognostic account on AMLA.
- 5) Describe methods of preparation of Gutikas and Tailas.
- 6) Describe macroscopic and microscopic features of DIGITALIS.

SECTION-C

- 7) Explain various physical methods of standardization of herbal products.
- 8) Write a detailed pharmacognostic account on LIQUORICE.
- 9) Write notes on :
 - a) SHANKHPUHPI
 - b) ARJUNA
- 10) Write down vernacular names, botanical sources, chemical constituents, pharmacological uses of :
 - a) PALASH
 - b) NAGARMOTHA

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Roll No

Total No. of Questions : 13

Total No. of Pages : 02

B. Pharma (2017 Batch) (Sem.-4)
MEDICINAL CHEMISTRY-I
Subject Code : BP-402T
M.Code : 75844

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 student has to attempt any TWO questions.
- SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

- Explain the Terms :
 - Hydrogen bonding.
 - Optical activity.
 - Structure and IUPAC name of Phenytoin.
 - Chemical structure and therapeutic class of Phenobarbital.
 - Differentiate between general and partial seizures.
 - Types of autonomic nervous system.
 - What do you mean by ultra short acting barbiturates, name two?
 - Name and give structure of Adrenergic neurotransmitters.
 - Bioisosterism.
 - Synthesis of Neostigmine.

SECTION-B

- Give detailed account of anti-inflammatory agents.
- Synthesis and mechanism of action of two anti-convulsants.
- Name the neurotransmitters responsible for psychosis. Give the symptoms and discuss any drugs used for its treatment in details.

SECTION-C

- Short note on Inhalation anaesthetics.
- Synthesis and mechanism of action of Carbacol.
- Phase II metabolism.
- Biosynthesis and metabolite of dopamine.
- Structure activity relationship of Cholinolytic agents.
- Alpha adrenergic blockers.
- Factors affecting metabolism.
- Biosynthesis and physiological role of GABA.
- Structure and chemical name of morphine and its two related analogues.



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NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on an page of Answer Sheet will lead to UMC against the Student.

Total No. of Questions : 13

B. Pharma (2017 Batch) (Sem.-4)
PHARMACEUTICAL ORGANIC CHEMISTRY-III

Subject Code : BP-401T
 Paper ID : [75843]

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 student has to attempt any TWO questions.
- SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. Write short notes on :

- Give the name and structures of all the possible conformations for propyl chloride
- Name and structure of thiophene ring containing compounds
- Explain the basicity of pyrrole, pyridine.
- Write down the structure and names of all the azoles
- Why Oxazole does not undergo nitration or sulfonation?
- Difference between D and L
- Define and give example of enantiomers
- Geometrical isomers
- Meso compounds
- Imidazole has boiling point of 256° whereas 1-methyl imidazole has boiling point 198° why?

SECTION-B

- Give detailed account of stereospecific reactions.
- Explain :
 - Oppenauer oxidation.
 - Clemmensen reduction.
- Mechanism and synthetic application of Beckmann rearrangement.

SECTION-C

- Give the name and structures of all the possible Newmann projections for n-butane. Arrange them in increasing stability order with suitable justifications.
- Draw the stereochemical formulas for all the possible stereoisomer of 2,3 dichlorobutane. Label pairs of enantiomers, diastereomers and meso compounds.
- Write down the mechanism for synthesis of quinine by Skraup's method.
- Bayers strain theory.
- Explain the techniques used to prepare chiral drugs.
- Short note on asymmetric synthesis.
- Nucleophilic substitution reactions of pyridine.
- Two methods for preparation of isoquinoline.
- Schmidt rearrangement.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on an answer paper of Answer Sheet will lead to UMC against the Student.

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Total No. of Pages : 02

Roll No. _____

Total No. of Questions : 10

B. Pharma (2011 to 2016) (Sem.-4)
PHARMACEUTICS IV
(Unit Operation-II)
Subject Code : BPHM-401
Paper ID : [D1140]

Max. Marks : 80

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

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

SECTION-A

Q1. Define :

- Mole fraction
- Size reduction
- Unit operations
- Viscosity
- Raoult's law
- Distillation
- Distillation
- CMC
- Heat transfer
- Volatility



Distinguish between :

- Freeze drying and vacuum drying
- positive deviation vs negative deviation from Raoult's law
- Ball mill and Hammer mill
- Single and multiple effect evaporators
- Colloidal mill and fluid energy mill.

SECTION-B

- Q2. A tube 0.09 in. OD is lagged with 0.02 in. layer of asbestos with a conductivity of 0.10 Btu/hr ft² °F followed 0.06 in. layer of cork whose conductivity is 0.06 Btu/hr ft² °F. If the temperature difference between inner and outer surface is 1400 °F. Calculate heat loss.
- Q3. Classify evaporators? What are the factors effecting evaporation.
- Q4. Explain the deviations from Raoult's law with examples.
- Q5. Highlight the mechanisms of drying. Brief principle of vacuum drying.
- Q6. Explain the principles of size Reduction.

SECTION-C

- Q7. Discuss the role of size separation in a size reduction process. Give principle and working of fluid energy mill.
- Q8. Explain the principle, construction and working of hammer mill.
- Q9. How could you calculate the number of theoretical plates needed for a distillation process?
- Q10. Comment on the following :
a. In spray drying, the temperature at which the sprayed droplet dries is much lower than the temperature of the gas used for drying.
b. Size reduction in ball mill is by impact only
c. Steam distillation occurs at 100°C.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student

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Total No. of Pages : 02

Total No. of Questions : 13

B. Pharma (2017 Batch) (Sem.-4)
PHARMACOGNOSY & PHYTOCHEMISTRY-I
Subject Code : BP-405T
M.Code : 75847

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

Q1. Answer briefly :

- a) Define the term Pharmacognosy.
- b) What are organized and unorganized drugs? Give one example for each.
- c) Define Adulteration.
- d) Give two examples of drugs, with complete source, of marine origin.
- e) Define Hybridization and Polyploidy.
- f) Give two functions of ethylene.
- g) What are Elicitors? Give two examples.
- h) What are cardenolides and bufadienolides? Highlight the differences between them.
- i) What are proto- and pseudo-alkaloids? Give example for each.
- j) Draw the basic structure of flavonol and flavanol.

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SECTION-B

Q2. Write an informative note on :

- a) Cotton
 - b) Resins
- Q3. Discuss in detail on callus and suspension cultures.

Q4. Why conservation of Medicinal plants is important? Elaborate on various strategies for conservation of medicinal plants.

SECTION-C

Q5. What are edible vaccines? Write their advantages and challenges faced during their preparation.

Q6. Write a brief note on plant hallucinogens.

Q7. Discuss different types of adulteration with suitable examples.

Q8. Enlist various factors that affect cultivation of medicinal plants. Discuss in detail how temperature, altitude and rainfall effect the growth of medicinal plants.

Q9. Discuss about auxins their types and role in plant growth.

Q10. Write the source, chemical constituents and uses of casein and bees wax.

Q11. Write the source, preparation and uses of papain.

Q12. What are Tannins? Write their properties and classification with examples.

Q13. Define Stomatal Number and Stomatal Index. Also discuss lycopodium spore method and its application.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.



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Roll No.

Total No. of Questions : 10

B.Pharma (2011 to 2016) (Sem.-4)
INTELLECTUAL PROPERTY RIGHTS
Subject Code : BPHM-406
M.Code : 46236

Max. Marks : 80

Time : 3 Hrs.

INSTRUCTION TO CANDIDATES :

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

SECTION-A

1. Discuss the following with suitable examples :

- (a) Write briefly about trademark.
- (b) Define a Copyright.
- (c) Write briefly about cybersquatting.
- (d) Define Utility Patent and design patent.
- (e) Differentiate between certification mark and collective mark.
- (f) Write a note on meta tag.
- (g) Write briefly about Infringement.
- (h) Write about authorship and ownership.
- (i) Write briefly about the term assignee and assignor.
- (j) Write briefly about UNESCO.

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(k) Write briefly about TRIPS.

- (l) Write briefly about revocation of industrial design.
- (m) Define Novelty.
- (n) Enlist various types of IPR.
- (o) Define Plagiarism.

SECTION-B

2. Discuss about economic importance of intellectual property.
3. Write note on basic principles and acquisition of intellectual property rights.
4. Discuss about concepts, idea-expression dichotomy.
5. Discuss about universal copyright convention and the Paris convention.
6. Discuss about methods of infringement determined, direct, contributory and induced.

SECTION-C

7. Discuss about the contents of patent Application, specification, provisional and complete.
8. Discuss about the procedure for registration of trademarks and infringement of trademarks.
9. Discuss about procedure for obtaining design protection, Revocation, infringement and remedies.
10. Discuss about essential ingredients of crime and types of internet crimes.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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Roll No.

Total No. of Questions : 13

Total No. of Pages : 02

B.Pharma (2017 Batch) (Sem.-4)

PHARMACOLOGY-I

Subject Code : BP-404T

M.Code : 75846

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

Q.1 Briefly explain :

- a. Pharmacology
- b. Alpha 1 agonists
- c. Pharmacovigilance
- d. Antagonism
- e. Phase I reactions
- f. GABA
- g. Drug dependence
- h. CNS stimulants
- i. Bioavailability
- j. Tachyphylaxis

SECTION-B

- Q.2 Classify antidepressants. Discuss the pharmacology of SSRIs and SNRIs.
- Q.3 Discuss mode of action, clinical uses, and side effects of the following :
- | | |
|---------------|---------------|
| a. Trazodone | f. Piracetam |
| b. Disulfiram | g. Donepezil |
| c. Carvedilol | h. Olanzapine |
| d. Pentazocin | i. Selegiline |
| e. Lithium | j. Topiramate |
- Q.4 Discuss mode of action, clinical uses, and side effects of the following :
- | | |
|---------------------|----------------|
| a. Sodium valproate | f. Paracetamol |
| b. Bupropion | g. Haloperidol |
| c. Ziprasidone | h. Atomoxetine |
| d. Naloxone | i. Rasagiline |
| e. Buspirone | j. Levodopa |

SECTION-C

- Q.5 Discuss GABAergic drugs used to treat epilepsy.
- Q.6 Briefly discuss the pharmacology of dopamine.
- Q.7 Elaborate your views on drug development process.
- Q.8 Discuss various factors affecting drug absorption.
- Q.9 Classify various drugs acting on parasympathetic nervous system. Discuss the management of glaucoma.
- Q.10 Write a note on pre anesthetic medications.
- Q.11 Discuss the pharmacology of alcohol.
- Q.12 Briefly discuss various pharmacokinetic drug interactions.
- Q.13 Write a note on various routes of drug administration.

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May-2019

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Total No. of Pages : 02

Total No. of Questions : 10

B. Pharma (2011 to 2016) (Sem.-4)
PHARMACEUTICAL ANALYSIS-II
 Subject Code : BPHM-402
 M. Code : 46232

Max. Marks : 80

Time : 3 Hrs.

INSTRUCTION TO CANDIDATES :

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

SECTION-A

Q1. Explain in brief :

- Define Werner's coordination number with examples.
- What type of drugs are analysed by non-aqueous titrations? Give two examples.
- Give composition of Karl-Fischer's reagent.
- Define partition coefficient.
- Give two examples of radiopaque media and their applications.
- What chromatographic technique is most commonly used for purification of amino acids? Justify with reason.
- What do you understand by HETP? How does it affect resolution?
- Give two major limitations of gas chromatography.
- How do you express SHE connected to a copper half cell composed of Cu wire in 1M CuSO₄ solution?
- Name any two techniques used to locate equivalence point in an acid base titration.
- What is specific conductance?



1) Define limiting current. What is its significance?

m) How pH affects extraction?

n) What is void volume of a HPLC column? How is it related to separation efficiency?

o) How would you analyse sulfacetamide by titrimetric analysis?

SECTION-B

- What is the principle of conductometric methods of analysis? Discuss the construction and working of a conductivity cell.
- Explain the concept of masking and demasking in complexometric titrations with examples. Give an application.
- Write an explanatory note on Kjeldahl nitrogen determination.
- How an isotope differs from a radioisotope? Give examples. Explain their applications in pharmacy.
- What is the principle of ion-exchange chromatography? Write an account on various ion-exchange based stationary phases and their applications.

SECTION-C

- What is the principle of liquid-liquid chromatography? Write a detailed account on various stationary phases used in it with emphasis on their chemistry, applications and limitations.
- Explain the different components of instrumentation of GLC with the help of neat diagrams.
- How do you prepare 0.1 M solution of HClO₄? Give principle, chemical equations involved, procedure and general calculations for its standardization and one application.
- What is the principle of polarographic analysis. Discuss various factors affecting it. Explain the construction and working a dropping mercury electrode with the help of a neat diagram.

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May-2019
 Prof