

15

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 13-Jan-2020**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**PHARMACOGNOSY AND PHYTOCHEMISTRY - I**

**Q.P. CODE: 5017**

Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary.

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. What is evaluation? Explain various methods of evaluation briefly.
2. Discuss the factors affecting cultivation of medicinal plants.
3. Define alkaloids. How are they classified? Give examples chemical classification of alkaloids.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. What are crude drugs? Differentiate between organized and unorganized drugs with examples.
5. Discuss Beeswax under suitable pharmacognostic scheme.
6. What are volatile oils? Classify them with examples and give their properties.
7. Write a note on Hybridization and its applications.
8. Explain growth and maintenance of Plant tissue culture.
9. What are proteolytic enzymes? Discuss preparation of Bromelaine.
10. Discuss the role of cytokinin and abscisic acid in the plant growth regulation.
11. What is adulteration? Discuss the methods of adulteration.
12. Give a detail description of types of plant tissue culture.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

3. What are proteins? Give any one general test for proteins.
4. State 'Wuxing' (Five elements in Chinese system of Medicine).
5. Describe Keller Killiani test.
6. State functions of Ethylene.
7. Define and classify allergens.
8. Give any two marine anticancer drugs give their botanical sources.
9. Give the general structure of Cardenolides from Bufadienolides.
10. Define budding and layering.
11. What are edible vaccines? Give examples.
12. Enlist various drying methods for crude drugs.

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**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 02-Dec-2020**

Time: Three Hours

Max. Marks: 75 Marks

**Pharmaceutical Organic Chemistry - III**

**Q.P. CODE: 5013**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Discuss the concepts of optical activity, enantiomerism, diastereomerism, meso compounds with suitable examples.
2. a. Write the nomenclature of geometrical isomers with reference to Cis-Trans, E-Z and Syn-Anti systems.  
b. Explain three methods for determination of configuration of geometrical isomers.
3. Write the methods of synthesis and chemical reactions of Pyrrole. Compare and explain its aromaticity with furan and thiophene.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Explain the different types of elements of symmetry with examples.
5. Explain stereo specific and stereo selective reactions with examples.
6. Write two methods each for the synthesis of thiophene and furan.
7. What are heterocyclic compounds? Classify the mono and bicyclic systems with structural examples.
8. Explain the conformational isomerism in n-Butane and show their energy relationships.
9. What is Clemmensen's reduction? Write the mechanism involved.
10. Write two synthesis and chemical reactions of Pyrazole.
11. Write the methods of synthesis of Pyridine. Give the name, structure and medicinal uses of two pyridines.
12. Define Beckmann's rearrangement and Schmidt rearrangement, give examples.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Write the structure and medicinal uses of two azepines.
14. Write the synthesis of Indole by Fisher's method.
15. What are the conditions for stereo isomerism in biphenyls?
16. What is Claisen-Schmidt reaction? Give an example.
17. Write the structure and uses of any two Thiophene derivatives.
18. Write the structure and uses of any two Imidazole derivatives.
19. Compare the basicity of Pyrimidine with Pyridine.
20. Write one method for the synthesis of Quinoline.
21. What is Wolf Kishner's reduction? Give an example.
22. Write one method for the synthesis of Acridine.

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**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 16-Dec-2020**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**Medicinal Chemistry - I**

**Q.P. CODE: 5014**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Classify adrenergic antagonists with suitable example from each class along with structure and specific uses. Write the synthesis of Tolazoline.
2. Write the SAR of benzodiazepines. Outline the synthesis of diazepam.
3. Classify NSAIDS with suitable example from each class. Write the synthesis of Ibuprofen.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. What is phase II biotransformation? Discuss any two conjugation reactions.
5. Explain the role of hydrogen bonding and partition coefficient in drug action.
6. Discuss hepatic and extra-hepatic metabolism.
7. Write a note on alpha adrenergic antagonists and structure and use of any one.
8. Explain the catabolism of acetyl choline. Write the structure and uses of pilocarpine.
9. Discuss SAR of parasympathomimetic agents.
10. Write the synthesis of procyclidine hydrochloride. Discuss its mechanism of action, uses and possible side effects.
11. Classify barbiturates based on duration of action with suitable examples. Write the synthesis of barbital.
12. What are Narcotic antagonists? Write the structure, uses and demerits of any two narcotic antagonists.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

3. Write the diagrammatic representation of Cytochrome – P 450.
4. Importance of solubility in drug action
5. Write any two drug structures for asthma.
6. What is catecholamine? Mention any two important neurotransmitter catecholamines.
7. Write the structure and specific uses of Prazosin and Carvedilol.
8. Write the structure and uses of Malathion.
9. Write a note on Cholinesterase reactivator.
10. Write the structure and uses of Atropine sulphate.
11. Write the structure and uses Beta amino ketones as CNS depressants.
12. Write any one drug structure of antitussive narcotic drug.

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Rajiv Gandhi University of Health Sciences, Karnataka  
Fourth Semester B. Pharm Degree Examination – 08-Dec-2020

Time: Three Hours

Max. Marks: 75 Marks

**Physical Pharmaceutics - II**

**Q.P. CODE: 5015**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Describe in detail optical and kinetic properties of colloids.
2. Explain in detail different systems of Non-Newtonian flow of liquids with respective equations.
3. Derive the equation for the determination of rate constant, half life and shelf life for first order reaction kinetics.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Write a short note on stability of emulsions.
5. Write the principle and working of coulter counter method to determine particle size with neat diagram.
6. Briefly explain the preventive measures for chemical degradation by oxidation.
7. Discuss briefly the concept of DLVO theory with energy curves.
8. Explain the principle and working of Ostwald's viscometer.
9. Write short note on settling properties of suspensions.
10. Write in brief on derived properties of powders.
11. What are the different methods for determining order of reaction and explain any two.
12. Briefly describe electrical double layer with diagram.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Define first order reaction and zero order with example.
14. Define pseudo first order reaction and molecularity of reaction with example.
15. Rheogram and rheopexy.
16. State Edmundson's equation.
17. Ferret diameter and Projected diameter.
18. What are association colloids?
19. Gold number and Tyndall effect.
20. Heckle equation.
21. Stress and Strain.
22. Relative viscosity and specific viscosity.

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**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 10-Dec-2020**

Time: Three Hours

Max. Marks: 75 Marks

**PHARMACOLOGY - I**

**Q.P. CODE: 5016**

Your answers should be specific to the questions asked.  
 Draw neat labeled diagrams wherever necessary.

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Describe signal transduction mechanism. Explain in details regulation of receptor and JAK-STAT binding receptor. (3+3+4)
2. What are Parasympatholytic? Write the classification of Parasympatholytic? Explain pharmacology of atropine. (1+4+5)
3. Explain neurohumoral transmission in the CNS. Explain the Importance of dopamine and GABA. (4+6)

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Explain agonist and antagonist with examples.
5. Short note on Ion channel receptors with examples.
6. Explain pharmacology of atenolol.
7. What are classification of neurotransmitters? Explain co-transmission with examples.
8. Explain the principles and mechanism of drug action.
9. Write the classification of general anaesthetics with examples and stages of Anaesthesia.
10. Mechanism of action of phenytoin and its ADR.
11. Define clinical trial. What are the different phases in clinical trials?
12. What are the different natural source of drugs?

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

3. Enlist drugs used in Parkinsons disease.
4. What are drugs used in Alzheimer's disease.
5. What is myasthenia gravis? Give the drugs used in its treatment.
6. What are the therapeutic uses of sedative and hypnotics?
7. Define tolerance and dependence.
8. Write the classification of anti-anxiety agents.
9. Examples of Opioid analgesics ?
10. What is the significance of pharmacovigilance?
11. Write about methyl alcohol poisoning.
12. Write the uses of sympatholytics.

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# Rajiv Gandhi University of Health Sciences, Karnataka

Fourth Semester B. Pharm Degree Examination – 14-Dec-2020

Time: Three Hours

Max. Marks: 75 Marks

## Pharmacognosy and Phytochemistry - I

**Q.P. CODE: 5017**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

### LONG ESSAYS (Answer any Two)

2 x 10 = 20 Marks

1. Define, classify and write the properties of Volatile oils.
2. Define Adulteration of crude drugs. Explain the various methods of Adulteration and detection of adulterants in crude drugs.
3. Elaborate on Ayurveda and Unani system of medicine.

### SHORT ESSAYS (Answer any Seven)

7 x 5 = 35 Marks

4. Give the biological source, chemistry and method of preparation of Beeswax.
5. Explain Lycopodium spore method in evaluation of crude drugs.
6. Explain the methods of cultivation with merits and demerits.
7. Explain the growth curve of Plant tissue culture.
8. Give the chemical tests for Gelatin and Tragacanth.
9. Explain Organoleptic evaluation of crude drugs with examples.
0. Explain the drying methods for crude drugs.
1. Give the biological source, chemistry and method of preparation of seratiopeptidase.
2. Write a note on different types of soil and soil fertility.

### SHORT ANSWERS (Answer All)

10 x 2 = 20 Marks

3. Write the various methods of collection of barks.
4. What is Growth index?
5. Write "Keller Killiani test".
5. Give the biological source, chemistry of an antileprotic drug.
7. Name any four anti-inflammatory agents from marine source.
8. Write the general test for alkaloids.
8. Applications of cell suspension cultures
8. Define hybridization and mutation.
8. Method of detection of Honey
8. What are the sources of Carbon and Nitrogen in PTC?

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**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 03-Jan-2020**

Time: Three Hours

Max. Marks: 75 Marks

**Pharmaceutical Organic Chemistry - III**  
**Q.P. CODE: 5013**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Define configuration. Explain the R S and D L system of nomenclature of optical isomers.
2. Give various methods of determination of configuration of geometrical isomers.
3. What are heterocyclic compounds? Give their classification and systematic nomenclature with examples.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Distinguish between configuration and conformation with examples
5. Define chiral and achiral molecules with example. Write any two reactions of chiral molecules.
6. Discuss the various conformational isomers of cyclohexane.
7. Write methods of synthesis and reactions of Furan.
8. Write the methods of synthesis and chemical reactions of Pyrazole.
9. Write synthesis and reactions of Indole.
10. Explain Paal-Knorr synthesis of Pyrrole.
11. Describe the mechanism involved in Schmidt rearrangement.
12. Write the mechanism of Oppenauer-oxidation reaction.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Define Meso compounds with example.
14. Define alternative axis of symmetry with example.
15. What do you understand by the term optical activity?
16. Define Stereoselective reaction with example.
17. Write the resonance structures of Thiophene.
18. What are Hetero atoms? Name the compounds containing hetero atom.
19. Write any one method of synthesis of Pyridine.
20. Give the structure and uses of Acridine.
21. Give the structure and use of Lithium Aluminium hydride.
22. Enumerate the synthetic application of Dakin reaction.

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12

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 07-Jan-2020**

**Time: Three Hours**

**Max. Marks: 75 Mar**

**MEDICINAL CHEMISTRY - I**

**Q.P. CODE: 5014**

Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary.

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Define and classify sedatives and hypnotic giving examples with one structure from each class. Discuss the SAR of benzodiazepines.
2. Define and classify general anesthetic with examples. Explain their mode of action. Write the synthesis of methahexital sodium.
3. a) What are adrenergic blockers? Classify alpha and beta adrenergic blockers with one structure from each class.  
b) Write the synthesis and uses of Tolazoline and Propranolol.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Define and classify NSAIDS with example. Give the structure of one drug from each class.
5. Discuss the SAR of phenothiazine analogs used as tranquilizers.
6. What are direct acting sympathomimetics? Write four structures and their uses. Outline the synthesis of any one.
7. Explain the role of hydrogen bonding and protein binding on drug action.
8. Explain the importance of optical and geometrical isomerism in relation to biological action of drugs.
9. What is Phase - I metabolism? Explain reductive and hydrolytic metabolisms with examples.
10. Write the mechanism of action of cholinesterase inhibitors. Give two structural examples each for reversible and irreversible type.
11. Discuss the SAR of cholinergic agonists.
12. Give an account on solanaceous alkaloids with structural examples. Write the synthesis of Ipratropium bromide.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Write a note on nicotinic receptors.
14. Write the structure and uses of Pilocarpine and Pyridostigmine.
15. Write the synthesis of Procyclidine hydrochloride.
16. What are Narcotic antagonists? Give two examples with structure.
17. Write a note on the role of ionization on drug action.
18. Explain amino acid conjugation in phase-II metabolism.
19. Write the structure and uses of Atenolol and Metoprolol.
20. Write a note on mixed acting sympathomimetics.
21. Write the structure and uses of Dicyclomine and Clodinium.
22. Write the structure and uses of Haloperidol and Phenytoin.

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13

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 09-Jan-2020**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**Physical Pharmaceutics - II**

**Q.P. CODE: 5015**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**2 x 10 = 20 Marks**

**LONG ESSAYS (Answer any Two)**

1. Describe the kinetic properties of colloids.
2. What is thixotropy? Explain the thixotropic properties of the plastic and pseudoplastic materials.
3. Define emulsions. Classify with examples. Write a note on Instabilities of emulsions.

**7 x 5 = 35 Marks**

**SHORT ESSAYS (Answer any Seven)**

4. How do you prepare lyophobic colloids? Give examples.
5. Give the equation and graphical representation of zero order, first order and second order reaction.
6. How do you determine bulk density?
7. Differentiate creaming and cracking of an emulsion
8. What are dilatant systems? Explain with examples.
9. Explain the concept of Donnan membrane equilibrium.
10. Discuss the physical and chemical factors influencing the chemical degradation of pharmaceutical product.
1. Give the importance of porosity and angle of repose.
2. How do you represent the particle size distribution graphically?

**10 x 2 = 20 Marks**

**HORT ANSWERS (Answer All)**

3. Why deflocculating agent is added in the determination of particle size by sedimentation method.
4. What is hysteresis effect?
5. Define hysteresis loop.
6. Differentiate Micro and Multiple emulsions
7. What do you mean by polydisperse system?
18. What is hydrolysis? Write any two preventive methods of the same.
19. What is  $\pm dc/dt$ ?
20. Name two Instruments used to measure turbidity.
21. What is 'Rheogram'?
22. Stoke's law.

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14

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 16-Jan-2020**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**PHARMACOLOGY - I**

**Q.P. CODE: 5016**

Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary.

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. What are types of receptors? Explain in detail G-protein coupled receptors and ion channel receptor. (3+7)
2. What are parasympathomimetics? Classify parasympathomimetics. Explain in detail any one parasympathomimetics. (1+2+7)
3. What is epilepsy? Classify anti-epileptics. Explain in detail pharmacology of phenytoin. (1+2+7)

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Explain different nature and source of drugs with examples.
5. Classify route of drug administration. Explain merits and demerit of parenteral routes of drug administration.
6. What are drug interactions? Explain in detail pharmacokinetic drug interactions.
7. Explain in detail about clinical trials.
8. Classify neuromuscular blocking agents. Add a note on any one agent.
9. Explain neurohumoral transmission with note on co-transmission.
10. Explain in detail stages of general anesthesia.
11. Short note on CNS stimulants.
12. Explain in detail opioid analgesics.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. What is drug addiction and drug dependence?
14. Write merits and demerits of rectal routes of drug administration.
15. What are pharmacodynamic drug interactions? Give examples.
16. What is Pharmacovigilance?
17. Write the classification of antidepressants with examples.
18. Enlist drugs used in treatment of myasthenia gravis and glaucoma.
19. Write about Disulfiram.
20. Drugs used in Antipsychotics.
21. Enlist the drugs used in Parkinsons disease.
22. Give the examples of short acting barbiturates with their uses.

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20

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – JUNE-2019**

Time: Three Hours

Max. Marks: 75 Marks

**Pharmacognosy and Phytochemistry -I**  
**Q.P. CODE: 5017**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. What is evaluation? Explain physical method of evaluation of crude drugs.
2. Define, classify and write the general chemical tests for Alkaloids.
3. Define polyploidy and Hybridization. Explain their applications.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Define adulteration. Explain the four methods of adulteration of crude drugs.
5. Explain different types of pests and methods used to control them.
6. Short note on Homeopathic system of medicine.
7. Describe the chemistry of Lipids.
8. Give the biological source, preparation and uses of Honey.
9. Write a note on edible vaccines.
10. Explain the different methods to determine the moisture content of crude drugs.
11. Classify medicinal agents from marine sources with examples.
12. Give the biological source, chemistry and method of preparation of Bromelain.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Uses of Gibberllic acid
14. Define the term organogenesis.
15. Write "Shinoda test".
16. Define Rancidity.
17. What are Teratogens?
18. Write "Borntrager's test".
19. Write the advantages of PTC.
20. What is budding and layering?
21. Write chemical tests for Mucilage.
22. What is callus?

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19

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – JUNE-2019**

Time: Three Hours

Max. Marks: 75 Marks

**Pharmacology - I**

**Q.P. CODE: 5016**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Explain about different routes of drug administration.
2. Write the principle and mechanism of drug action.
3. Describe the neurohumoral transmission with examples.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. What do you mean by competitive antagonism?
5. Explain the JAK-STAT binding receptor transduction mechanism.
6. What are the factors affecting the absorption of drugs?
7. Explain the pharmacology of MAO inhibitors.
8. Explain the organization of the autonomic nervous system.
9. Write the mechanism of action and pharmacology of sodium valproate.
10. Write the pharmacology of gabapentin.
11. Write brief notes on antagonistic drugs of morphine.
12. What is the role of serotonin in central nervous system?

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. What are the different types of signal transduction mechanism?
14. What do you mean by drug receptor interactions?
15. What is the significance of therapeutic index?
16. What are the combined effects of drugs?
17. Enlist the neurotransmitters in Central Nervous System.
18. How the sympathomimetic agents are classified?
19. What are the adverse reactions of barbiturates?
20. Classify the muscle relaxants with examples.
21. Define the drug tolerance.
22. What are the withdrawal symptoms of anti-depressants?

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18

**Rajiv Gandhi University of Health Sciences, Karnata**  
**Fourth Semester B. Pharm Degree Examination – JUNE-2019**

Time: Three Hours

Max. Marks: 75 Marks

**Physical Pharmaceutics - II**

**Q.P. CODE: 5015**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Define colloids. Discuss the electrical properties and kinetic properties of colloids.
2. Define and explain in detail Non-Newtonian flow of liquids.
3. Define emulsions. Explain in detail different identification tests for emulsions.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. With the help of neat diagram explain Andreasen's pipette method to determine the particle size.
5. Discuss the general properties of colloids.
6. Define order of reaction. Explain the differential method for determination of order of reaction.
7. Explain the principle of cup and bob viscometer.
8. Discuss settling of suspensions.
9. With the help of graphical representation explain the weight distribution of powder.
10. Explain the effect of electrolytes on colloids.
11. Discuss the chemical factors affecting chemical degradation of pharmaceutical product.
12. Define angle of repose. Explain the method to determine the same.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. What is gold number?
14. What are Bulges and Spurs?
15. Define phase inversion.
16. Classify colloids.
17. Significance of shape factor
18. Define pseudo zero order reaction with example.
19. Differentiate between bulk and true density
20. Define the term microemulsion.
21. Define the term viscosity.
22. Photolytic degradation

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12

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – JUNE-2019**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**Medicinal Chemistry - I**

**Q.P. CODE: 5014**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Define classify and write the SAR of adrenergic agents and give the synthesis of phenylephrine.
2. Define antipsychotic drugs. Write the structure of any four drugs to treat the same froms different classes. Outline the synthesis of chlorpromazine hydrochloride.
3. Explain the SAR of Morphine with respect to peripheral modification. Write the synthesis of Fentanyl citrate.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. What is phase I biotransformation? Discuss any two oxidative reactions.
5. Explain the role of solubility and protein binding.
6. Explain role of Cytochrome P-450 in biotransformation.
7. What are indirect acting sympathomimetic agents? Write the structure and uses of any one drug.
8. Write the structure atropine. Discuss its mechanism of action, uses and side effects.
9. Discuss SAR parasympathomimetic agents.
10. Write the synthesis of dicyclomine hydrochloride. Discuss its mechanism of action, uses and possible side effects.
11. Discuss the SAR of Benzodiazepins. Write the structure and uses of Alprazolam.
12. Write the structure, uses and their serious side effects of a) Indomethacin b) Ketorolac c) Naproxen

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Reduction reactions in drug metabolism
14. Hydrolytic reactions in drug metabolism
15. What is catecholamine? Mention any two important neurotransmitter catacholamines.
16. Write a note on alpha receptors.
17. Write any two structures of selective beta two agonists.
18. Write a note on muscarinic receptors.
19. Write the structure and uses of Ambenonium chloride.
20. Write the structure and uses of Malathion.
21. Write the structure and specific uses of Phenobarbital with possible side effects.
22. Write the structure and specific uses of Tolmetin

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16

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – MAY/JUNE 2019**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**Pharmaceutical Organic Chemistry - III**

**Q.P. CODE: 5013**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)**

**2 x 10 = 20 Marks**

1. Define configuration. Explain the sequence rule for R S system of nomenclature of optical isomers.
2. Discuss aromaticity and chemical reactivity of Furan, Thiophene and Pyrrole.
3. Explain the stereochemistry of biphenyls and conditions required for optical activity.

**SHORT ESSAYS (Answer any Seven)**

**7 x 5 = 35 Marks**

4. Mention the methods used for the resolution of racemic mixture and explain any two.
5. Explain any two reactions of chiral molecules.
6. Discuss the various conformational isomers of n-Butane.
7. Explain the systematic classification of heterocyclic compounds with example.
8. Write the method of synthesis and chemical reactions of Thiazole.
9. Write synthesis and reactions of Pyridine.
10. Compare the basicity of Pyrrole with Pyridine.
11. Explain the mechanism involved in Claisen-Schmidt condensation.
12. Write the Dakin reaction.

**SHORT ANSWERS (Answer All)**

**10 x 2 = 20 Marks**

13. Define Enantiomers with example.
14. Define alternative axis of symmetry with example.
15. Illustrate with example of E and Z nomenclature
16. Define Stereospecific reaction with example.
17. Write the resonance structures of Thiophene.
18. Write the structure and medicinal uses of Furan derivative.
19. Give any one method of synthesis of Pyrimidine.
20. Give the basic structure and uses of Azepines.
21. Give the structure and use of Lithium Aluminium hydride.
22. Enlist the importance of Oppenauer-oxidation reaction.

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5

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 26-Mar-2021**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**PHARMACOGNOSY AND PHYTOCHEMISTRY - I**

**Q.P. CODE: 5017**

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

All the Questions are compulsory

**LONG ESSAYS**

**2 x 10 = 20 Marks**

1. What is evaluation? Explain Microscopical and chemical evaluation of crude drugs with examples.

**OR**

Define, classify glycoside and write the chemical test for Glycosides.

2. Define mutation and polyploidy. Explain their application in improving the quality and quantity of medicinal plants.

**7 x 5 = 35 Marks**

**SHORT ESSAYS**

3. Plant hormones and their applications.

**OR**

Write a note on storage of crude drugs.

4. Write the method of preparation and uses of Papain.

**OR**

Briefly discuss the laboratory requirements of plant tissue culture.

5. Give the biological source, preparation and uses of Gelatin.

6. Define volatile oils. Discuss their properties.

7. Explain the suspension culture.

8. Describe chemical tests useful in differentiating Acacia and Agar.

9. Write a note on Ash value and its significance.

**10 x 2 = 20 Marks**

**SHORT ANSWERS**

10. Write the principles of Unani system of medicine.
11. Define explants. How do you sterilize the explants?
12. Give the source and uses of Bormelain.
13. Name the macro and micronutrients in M.S Medium.
14. What are citrous Bioflavonoids?
15. Define Stomatal number and Stomatal index
16. Surgical dressing.
17. Write Goldbeater's skin test.
18. Define Hybridization.
19. Physical constants.

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4

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 24-Mar-2021**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**PHARMACOLOGY - I**

**Q.P. CODE: 5016**

Your answers should be specific to the questions asked

Draw neat labeled diagrams wherever necessary

All the Questions are compulsory

**LONG ESSAYS**

**2 x 10 = 20 Marks**

1. Explain about different routes of drug administration.  
**OR**  
Classify general anaesthetic agents and write about the different stages of general anaesthesia.
2. Classify antipsychotic drugs and write the pharmacology of Chlorpromazine

**7 x 5 = 35 Marks**

**SHORT ESSAYS**

3. Write about nature and source of drugs with examples.  
**OR**  
Write notes on factors modifying effects of the drug.
4. Note on clinical trial phases.  
**OR**  
Write in brief about various neurotransmitters in CNS.
5. Enlist drugs used in Myasthenia gravis and glaucoma.
6. Write in brief about anti anxiety agents.
7. Write brief notes on CNS stimulants.
8. Write a note on L-dopa as an anti-parkinsons agents.
9. Write about the pharmacology of Succinylcholine.

**10 x 2 = 20 Marks**

**SHORT ANSWERS**

10. What is Essential drug concept?
11. What is drug Tolerance?
12. Classification of receptors.
13. Significance of Therapeutic index.
14. Classification of para-sympathomimetic agents.
15. Drugs used as neuromuscular blocking agents.
16. Adverse effects of barbiturates.
17. Ethosuximide as an anti-epileptic drug.
18. Cocaine as an hallucinogenic agent.
19. Imipramine as an antidepressant drug.

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3

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 22-Mar-2021**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**PHYSICAL PHARMACEUTICS - II**

**Q.P. CODE: 5015**

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

All the Questions are compulsory.

**LONG ESSAYS**

**2 x 10 = 20 Marks**

1. List out various derived properties of powder and explain the method to determine specific surface area of powder by gas displacement method.

**OR**

Deduce an equation for first order reaction rate constant. Show the inter relationship between the initial concentration and the half period in first order reaction.

2. Define Thixotrophy. Explain the different methods of measurement of Thixotrophy.

**SHORT ESSAYS**

**7 x 5 = 35 Marks**

3. Write any two methods of purification of colloids.

**OR**

Describe association colloids. Mention their application.

4. Define plug flow and how it can be overcome. Mention the advantages of a cone and plate viscometer.

**OR**

Explain dilatant systems with suitable example.

5. Define deformation. Explain elastic and plastic deformation of solids.

6. Discuss the factors affecting settlement of particle in suspensions.

7. Explain any two physical instability parameters in an emulsion.

8. Define angle of repose and discuss the method to determine it. Give its significance.

9. How do you protect drugs against oxidative breakdown?

**10 x 2 = 20 Marks**

**SHORT ANSWERS**

10. Define Hardy-Schulze rule.
11. Why colloidal solutions are coloured?
12. Define photolysis and zero order reaction
13. Give the importance of bulges and spurs.
14. Define poise.
15. Define degree of flocculation.
16. Write the applications of bulk density and give its equation.
17. Define porosity. Give its applications in pharmacy.
18. Define half-life and shelf life of a reaction.
19. Define energy of activation and give its importance.

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**Rajiv Gandhi University of Health Sciences, Karnataka**  
**Fourth Semester B. Pharm Degree Examination – 18-Mar-2021**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**MEDICINAL CHEMISTRY - I**  
**Q.P. CODE: 5014**

Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary.  
All the Questions are compulsory.

**LONG ESSAYS**

**2 x 10 = 20 Marks**

1. Define and classify Antipsychotics with examples. Give the structure of one drug from each class. Write the synthesis and uses of Diazepam and Chlorpromazine.

**OR**

Define and classify adrenergic agents. Discuss the SAR of adrenergic agonistic agents and write the synthesis of phenylephrine.

2. Distinguish between narcotic and non-narcotic analgesics. Classify non-narcotic analgesics with examples and structures. Write the synthesis of Ibuprofen and Mephenemic acid.

**7 x 5 = 35 Marks**

**SHORT ESSAYS**

3. Define biotransformation. What is its importance? Write the sites of biotransformation.

**OR**

Define and classify cholinergic agents. Give the synthesis of Carbachol.

4. Discuss the SAR of Barbiturates

**OR**

Write note on alpha and beta adrenergic blockers. Give examples with structures. Write the synthesis of Tolazoline.

5. Write about cholinergic receptors, their types and functions. Write the biosynthesis of acetylcholine.  
6. Discuss the role of ionization and solubility in drug action.  
7. What are cholinergic agonists? Discuss their SAR.  
8. Discuss the role of glucuronic acid and glycine in biotransformation.  
9. What are General anaesthetics? Give examples. Outline the synthesis of Halothane and Ketamine.

**10 x 2 = 20 Marks**

**SHORT ANSWERS**

10. What do mean by bioisosterism? Give examples.  
11. Enlist the factors affecting drug metabolism.  
12. Give the name and structure of any two drugs used for nasal decongestion.  
13. What is catecholamine? Mention any two important neurotransmitter catecholamines with structure.  
14. Write a note on adrenergic beta receptors.  
15. Give the structure, uses of Scopolamine and Edrophonium chloride.  
16. Write the synthesis and uses of Neostigmine.  
17. Write In brief about Cholinesterase Inhibitors.  
18. Write the structure and uses of Haloperidol and Trimethadione.  
19. Give the structure and uses of codeine and Naloxone.

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Rajiv Gandhi University of Health Sciences, Karnataka  
Fourth Semester B. Pharm Degree Examination – 16-Mar-2021

Time: Three Hours

Max. Marks: 75 Marks

**Pharmaceutical Organic Chemistry - III**

**Q.P. CODE: 5013**

Your answers should be specific to the questions asked

Draw neat labeled diagrams wherever necessary

All the Questions are compulsory.

**LONG ESSAYS**

**2 x 10 = 20 Marks**

1. Explain the rules in nomenclature of stereo isomers by R-S and E-Z configuration.

**OR**

Define heterocyclic compounds? Write their nomenclature and classification with examples.

2. Define geometrical isomers. Discuss the methods used to determine the configuration of geometrical isomers.

**SHORT ESSAYS**

**7 x 5 = 35 Marks**

3. Explain the reactions and mechanism involved in Birch reduction.

**OR**

Explain Fischer-Indole synthesis, giving its mechanism and applications.

4. Discuss stereochemistry of Biphenyl, giving examples.

**OR**

What are metal hydrides? Give examples. Explain the mechanism of reduction of carbonyl compounds using metal hydrides.

5. Write two methods synthesis and chemical reactions of Isoquinoline.
6. Explain stereo selective and stereo specific reactions with examples.
7. Outline two methods of synthesis and chemical reactions of Oxazole.
8. Explain in detail on elements of symmetry, giving examples.
9. Explain enantiomers and diastereomers with suitable examples. How do they differ from each other?

**SHORT ANSWERS**

**10 x 2 = 20 Marks**

10. Write the structure and medicinal uses of any two Pyridine derivatives.
11. Write the cis-trans structure for 1, 2-dichloro ethene.
12. Write the structure and IUPAC name for Pyrazole and Pyrimidine.
13. Write the structure of Debenzazepine and Purine.
14. Write the structure and medicinal uses of any two thiazole derivatives.
15. Outline the Hantzsch synthesis of Pyridine.
16. Write the different Newman projection formulae for isomers of n-Butane.
17. What do D, L and +, - symbols represent and why they are different?
18. What is Clemmensen's reduction? Give an example.
19. What is Claisen-Smiles condensation? Give an example.

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