



Program	Bachelor of Pharmacy
Subject Name	Medicinal Chemistry-II
Semester	V
Year	Nov/Dec 2024

- Start writing from 2nd page onwards; don't write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Two out of Three of Section B
- Answer Any Seven out of Nine of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Paper.

Time: 3 Hour Max.  
Marks : 75

Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

**Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks**

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	An acrylyl moiety containing diuretic is a) Indacrinone b) Ethacrynic acid c) Torsemide d) Canrenone	1	CO4	K1	PO9
ii	The substitution of an aryl group which increase the electron density of carbonyl oxygen, in the structure of LA results in a) Increased relative toxicity b) Decreased relative toxicity c) Increased local anaesthetics activity d) Decreased local anaesthetic activity	1	CO6	K1	PO1
iii	Drug receptor site for Sulfonylurea is a) muscarinic receptor b) calcium channel c) potassium channel d) beta adrenergic receptor	1	CO5	K5	PO2
iv	Captopril, Lisinopril and Enalapril are a) ACE inhibitors b) Beta blockers c) Alpha2 antagonists d) None of the above	1	CO4	K5	PO2
v	Which one of the following local anesthetics belongs to the ester group? a) Procaine b) Bupivacaine c) Lignocaine d) Mepivacaine	1	CO6	K2, K1	PO1
vi	Cisplatin can be used as a) Calcium channel blocker	1	CO4	K1	PO1

CO - Course Outcomes,	KL - Knowledge Level,	PO - Program Outcome
6	Outline the synthesis of Nitroglycerine and explain its Mechanism of Action.	CO1, CO2, CO4 K1, K6 PO9
7	Give examples of Loop Diuretics with structures and outline the synthesis of Furosemide.	CO2, CO4 K3, K5 PO9
8	Classify Oral hypoglycaemic agents with examples.	CO6 K1 PO2
9	Write the SAR of Local Anesthetics.	CO6 K1, K2 PO2
10	Name the two thyroid hormones released in the body. Give suitable examples with structures of Thyroid and Anti-thyroid drugs.	CO5 K1, K6 PO1
11	Outline the synthesis of Tolbutamide and explain its MOA.	CO1, CO2, CO6 K1, K3, K4 PO9
12	What is the use of Procaine? Outline its synthesis. Briefly explain its MOA.	CO1, CO2, CO6 K1, K6 PO9
13	What are Alkylating agents? Give examples and outline the synthesis of Mechlorethamine.	CO2, CO3 K1, K6 PO9

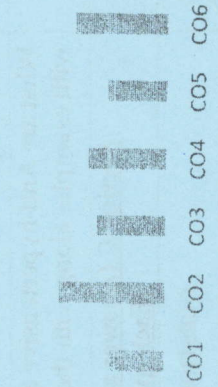
Course Outcomes	CO1	CO2	CO3	CO4	CO5	CO6
	Know the correlation between pharmacology of a disease and its mitigation or cure.	Write and study the chemical synthesis of some drugs.	Understand detailed aspects of design and development of drugs including classification, nomenclature, structure activity relationship (SAR), mechanism of action, adverse effects, therapeutic uses of various categories such as anti histaminic agents and anticancer.	Know the structural activity relationship of different class of drugs. To understand detailed aspects of design and development of drugs including classification, nomenclature, structure activity relationship (SAR), mechanism of action, adverse effects, therapeutic uses of drugs acting on CVS.	Know the classification, nomenclature, stereochemistry, SAR and mechanism of action and metabolism of drugs acting on the endocrine system.	Acquire knowledge about the chemotherapy for cancer. Acquire knowledge about detailed aspects of design and development of drugs including classification, nomenclature, structure activity relationship (SAR), mechanism of action, adverse effects, therapeutic uses of various categories of drugs antidiabetic agents and local anaesthetics.

**GRAPHICAL REPRESENTATION**

**Bloom's levelwise marks distribution**



**Course Outcomewise Marks Distribution**



vii	b) Anti-arrhythmic drug c) Antineoplastic cytotoxicity drug d) Immunosuppressor agent Therapeutic use of amyl nitrite is a) Treatment of angina pectoris b) Treatment of methemoglobinemia c) Treatment of syncope d) None of the above	1	CO1, CO4	K1, K3	PO1
viii	Steroid can be used to a) Stimulate muscle growth b) Cause eye site c) To increase intelligent d) All of the above	1	CO1, CO5	K1, K4	PO9
ix	The basic PPI pharmacophore is a) 2-pyridyl methyl sulfinyl benzimidazole b) 2-pyridyl ethyl sulfinyl benzimidazole c) 1-pyridyl methyl sulfinyl benzimidazole d) 1-pyridyl ethyl sulfinyl benzimidazole	1	CO4	K2, K3	PO9
x	The drug Promethazine is mainly used for treatment of? a) Nausea b) Motion sickness c) Tension d) All of the above	1	CO1, CO3	K2, K4	PO1
xi	The term is used to indicate the ability of a cancer to invade other parts of the body and to produce secondary tumours is a) Carcinogenesis b) Apoptosis c) Metastasis d) Mutagenesis	1	CO3	K1, K2	PO2
xii	The starting material for synthesis of Nitroglycerine is a) Trinitrolyceraldehyde b) Glycerinaldehyde c) Trinitroglycerol d) Glycerol	1	CO3	K1, K2	PO1
xiii	Methimazole is a a) Antidiabetic drug b) Antithyroid drug c) Antianginal drug d) None of the above	1	CO5	K1, K2	PO2
xiv	Famotidine acts as a) H1-receptor antagonist b) Proton pump inhibitor c) H1-receptor agonist d) H2-receptor antagonist	1	CO3	K1, K2	PO1
xv	Which of the following antianginal agents is a calcium channel blocker?	1	CO4	K1, K2	PO2

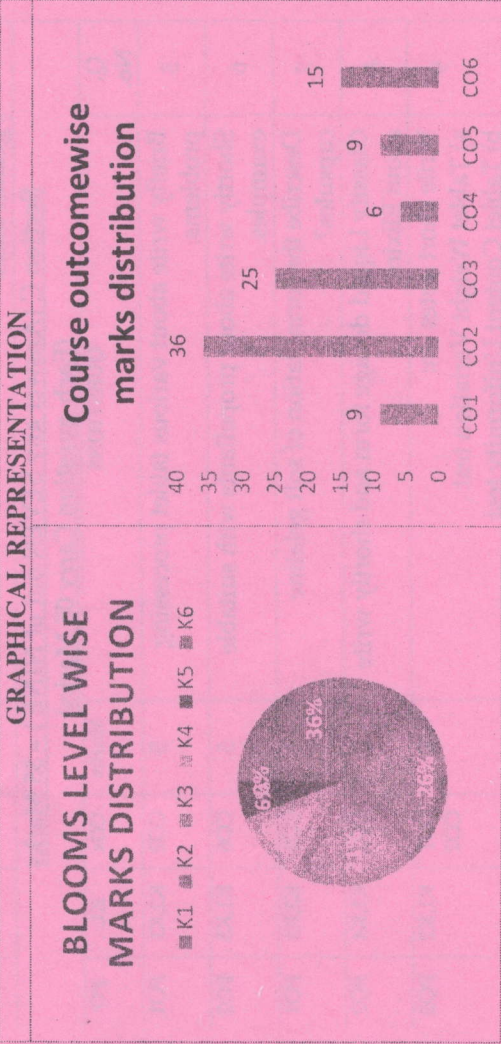
xvi	a) Nitroglycerin c) Isosorbide dinitrate Diuretic is a) A Drug that accelerate the rate of urine formation b) A Drug that accelerates heart rate c) A drug that accelerates breathing rate d) A drug that reduces heart rate	1	CO4	K2, K3	PO2
xvii	The starting material for synthesis of dibucaine is.... a) 2-formyl benzoic acid b) Indole c) 4-chloro acetophenone d) Isatin	1	CO6	K2, K3	PO2
xviii	Testosterone is secreted by a) Sertoli cells b) Leydig cells c) Thyroid gland d) Spermatogen cells	1	CO5	K4	PO2
xix	Chemically meprylcaine belongs to the class a) Benzoic acid derivatives b) Anilide derivatives c) Amino benzoic acid derivatives d) Miscellaneous agents	1	CO6	K4	PO1
xx	Repaglinide belongs to class.... a) Biguanides b) Glitazones c) Meglitinides d) Glucosidase inhibitors	1	CO6	K1	PO1
<b>Section B (Answer any TWO out of THREE) – 20 Marks</b> (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Classify H1-antagonists having classical structures. Write the synthesis of Promethazine hydrochloride.	10	CO2, CO3	K1, K2, K4	PO1
3	Give a detailed classification of Calcium channel blockers with examples and structures. Explain its MOA, any two uses and ADR.	10	CO1,C O4	K1, K2, K3, K6	PO2
4	What are Anti-hypertensive agents? Classify them with examples along with their structures.	10	CO4	K2, K5, K1	PO1
<b>Section C (Answer any SEVEN out of NINE) – 35Marks</b> (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	What are gastric pump inhibitors? Give suitable examples with structures.	5	CO3	K2, K4	PO1

<b>JGI</b>	<b>ARKA JAIN University</b> Jharkhand	<b>NAAC GRADE A</b> ACCREDITED UNIVERSITY	<b>END SEM EXAMINATION</b> School of Health & Allied Science
<b>Program</b>	<b>Bachelor of Pharmacy</b>		
<b>Subject Name</b>	<b>Industrial Pharmacy-I</b>		
	<b>Semester</b>	<b>V</b>	
	<b>Year</b>	<b>Nov/Dec 2024</b>	
<b>Time: 3 Hour</b> <b>Max. Marks: 75</b>	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't write on the 1st Page <b>Backside</b></li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Two out of Three of Section B</li> <li>Answer Any Seven out of Nine of Section C</li> <li>Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under <b>Unfair Means</b> and will result in the <b>Cancellation of the Papers.</b></li> </ul>		
<b>Knowledge Level (KL)</b>	<b>K1: Remembering</b>	<b>K3: Applying</b>	<b>K5: Evaluating</b>
	<b>K2: Understanding</b>	<b>K4: Analysing</b>	<b>K6: Creating</b>

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Separation of tablet into two or more distinct layers a) Capping b) Lamination c) Shipping d) All	1	CO2	K2,K1	PO9
ii	Smallest size of the capsule is denoted by which number? a) 0 b) 1 c) 2 d) 5	1	CO3	K2,K1	PO1
iii	Which of the following is capsule opacifier a) TiO2 b) Povidone c) Polyethylene glycol d) HPMC	1	CO3	K5,K1	PO2
iv	Disintegration time for Uncoated tablet is a) 15 minutes b) 30 minutes c) 60 minutes d) 90 minutes	1	CO2	K5	PO2
v	Which one of the following is Tablet binding agent. a) Talc b) PVP c) Polyethylene glycol d) Lactose	1	CO2	K2,K1	PO1
vi	Which of the following container is hermitical sealed a) Vial b) Ampoule c) Screw capped bottle d) None of the above	1	CO4	K1	PO2

**Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks**

CO- Course Outcomes,	KL- Knowledge Level,	PO - Program Outcome
CO1	Know various pre-formulation considerations in development of pharmaceutical dosage forms	Formulate solid (tablet), liquid orals and evaluate them for their quality
CO2	Know the techniques of formulation of capsules/pellets and their quality evaluations	Understand the formulation aspects and quality control of sterile dosage forms
CO3	Know the preparation of various cosmetic products	Know the formulation and evaluation of aerosols and to understand materials used for packaging of pharmaceutical products.



vii	The most common granulation method is a) Dry granulation b) Wet granulation c) Direct compression d) All of the above	1	CO1	K1,K3	PO1
viii	Cold cream is a) W/O emulsion b) O/W emulsion c) Both a and b d) None of the above	1	CO5	K1,K4	PO1
ix	_____ should be stored at temperature not exceeding 30°C. a) Tablet b) Capsule c) Sustain Release Tablet d) Sublingual tablet	1	CO1	K2,K3	PO1 0
x	The following surfactant is used in the preparation of O/W type of emulsion a) Tween80 b) Certitude c) Span 80 d) Span 20	1	CO2	K2,K1	PO1
xi	Type-B gelatin has isoelectric point at pH a) 9 b) 4.7 c) 7 d) 5	1	CO3	K1,K2	PO2
xii	Which is the commonly used humectant in cosmetic preparation a) Polyethylene glycol b) Isopropyl alcohol c) Glycerol d) None of the above	1	CO5	K1,K2	PO1
xiii	Zinc pyrithione in shampoo is used as a) Conditioner b) Cleansing c) Antidandruff agent d) Detergent	1	CO5	K1,K2	PO2
xiv	Dissolution Test apparatus no 1 as per USP is: a) Paddle b) Rotating basket c) Basket d) Rotating cylinder	1	CO2	K1,K2	PO1
xv	Which of the following dosage form is having maximum bioavailability? a) Tablet b) Parenteral c) Emulsion d) Suspension	1	CO1	K1,K2	PO2
xvi	Which of the following steps are involved in manufacturing of "Hard Gelatin capsule shell" a) Dipping b) Spinning c) Trimming d) All of the above	1	CO3	K2,K3	PO2
xvii	Co- solvents can be used to improve -- -- a) Solubility b) Dielectric constant c) pKa d) pH	1	CO1	K2,K3	PO2
xviii	Capsule dedusting and polishing machine is a) Rotoshort b) Rotofill c) Erweka Kea d) Rotoweigh	1	CO3	K4,K5	PO2
xix	Vanishing Cream is which type of emulsion a) O/W b) W/O c) O/W/O d) W/O/W	1	CO5	K4,K5	PO1

xx	For content uniformity test is the number of tablets sample is a) 10 b) 20 c) 30 d) 40	1	CO2	K4,K3	PO1
<b>Section B (Answer any TWO out of THREE) – 20 Marks</b> (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL #	PO
2	Explain the various Tablet excipients with suitable examples.	10	CO2	K1,K2,K4	PO1
3	Explain the various evaluation test for aerosols.	10	CO6	K1,K2,K3,	PO2
4	Describe the preparation of capsule shell from gelatin mass.	10	CO3	K2,K1	PO1 0
<b>Section C (Answer any SEVEN out of NINE) – 35 Marks</b> (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Briefly write about various tablet processing problems.	5	CO2	K2,K1	PO1
6	Shortly write about propellants with suitable examples.	5	CO6	K1,K3	PO2
7	Describe the formulation of soft gelatine capsules?	5	CO3	K3,K5	PO1
8	Classify Liquid dosage form and shortly write about Elixirs.	5	CO2	K1,K4	PO2
9	Write short notes on: a) Tablet Weight Variation test b) Tablet Content Uniformity test	5	CO1 CO2	K1,K2	PO2
10	Briefly write about Rabbit Pyrogen test.	5	CO4	K3,K5	PO4
11	Write a shot notes on Pellets.	5	CO3	K1,K3,K4	PO7
12	Shortly write about the various identification test for Emulsions.	5	CO2	K1,K2,K3,	PO2
13	Write a short note on Ointment bases.	5	CO5	K1,K3	PO2

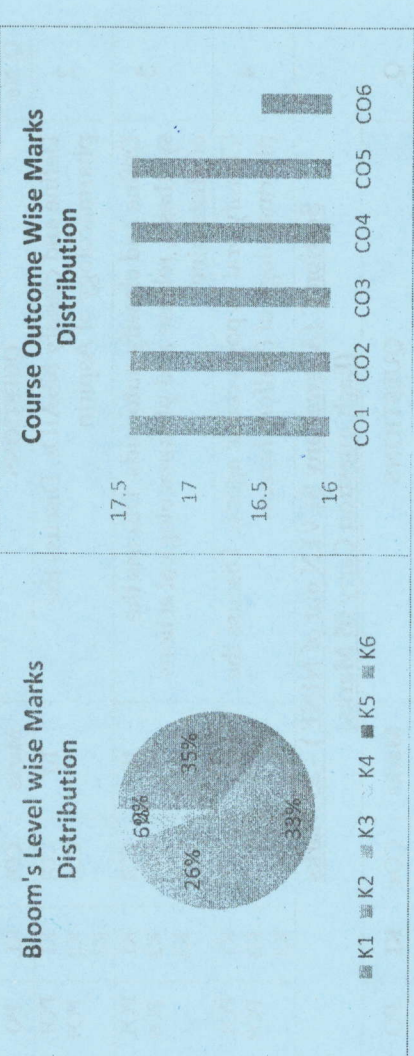
<b>Program</b>	Bachelor of Pharmacy	
<b>Subject Name</b>	Pharmacology II	V
	Semester	Year
		Nov/Dec 2024
<b>Time: 3 Hour</b> <b>Max. Marks : 75</b>	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u></li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Two out of Three of Section B</li> <li>Answer Any Seven out of Nine of Section C</li> <li>Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u></li> </ul>	
<b>Knowledge Level (KL)</b>	K1: Remembering K2: Understanding	K3: Applying K4: Analysing K5: Evaluating K6: Creating

**Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks**

Q. N	QUESTIONS	Marks	COs	KL	PO
i	Lipid lowering drug that acts by the inhibiting of HMG-COA Reductase inhibitors a) Bezafibrate b) Simvastatin c) Ezetimide	1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
ii	Antihypertensive agent which is NOT an Arteriolar vasodilator a) Hydralazine b) Methylodopa c) Minoxidil	1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
iii	Warfarin acts as competitive antagonist of a) Vitamin B b) Vitamin C c) Vitamin K d) Vitamin D	1	CO1 CO2 CO3	K1 K2 K4	PO1, PO9
iv	The essential element is an essential constituent of thyroid hormone a) Bromine b) Iron c) Sulphur d) Iodine	1	CO1 CO2 CO3	K1 K2 K4	PO1, PO9
v	Acetazolamide inhibits the enzyme a) Alcohol dehydrogenase b) Aldehyde dehydrogenase c) Carbonic anhydrase d) Pyruvate dehydrogenase	1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
vi	Which of the following enzyme inhibits fibrinolytic activity a) Pepsin b) Urokinas	1	CO1 CO2 CO3	K1 K2 K4	PO1, PO9

CO- Course Outcomes,	KL- Knowledge Level,	PO - Program Outcome
8	Discuss the physiological role and therapeutic uses of prostaglandins.	5
9	Write down the mechanism of Iron Absorption	5
10	Classify fibrinolytics. Discuss pharmacology of Alteplase	5
11	Short note on insulin.	5
12	Write short note on potassium sparing diuretic.	5
13	Define Bioassay. Write the Principle and Uses of Bioassay.	5

Course Outcomes	KL- Knowledge Level,	PO - Program Outcome
CO1	Understand the mechanism of drug action and its relevance in the treatment of different diseases	
CO2	Acquire knowledge about the newer targets of several disease conditions for treatment	
CO3	Know the clinical uses, side effects and contraindications of different drugs.	
CO4	Understand the cell communication mechanism	
CO5	To impart recent advances in the drugs used for the treatment of various diseases	
CO6	Emphasis on the basic concepts of bioassay	



vii	c) L-asparaginase Match the following a. Rapid acting insulin b. Short acting insulin c. Intermediate acting insulin d. Long-acting insulin a. a (iii) b (i) c (iv) d (ii) b. a (iii) b (iv) c (i) d (ii) c. a (i) b (iv) c (iii) d (ii) d. a (iv) b (i) c (iii) d (ii)	d) Dehydrogenase i. Regular insulin ii. Insulin detemir iii. Insulin lispro iv. Insulin lente	1	CO4 CO5 CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
viii	Common adverse effects of thrombolytics a) Bleeding angina c) Thrombocytopenia	b) Unstable d) Hypertension	1	CO1 CO2 CO3	K1 K2 K4	PO1, PO9
ix	All of the following are the disadvantages of diabetes, EXCEPT a) Retinopathy c) Kidney damage	b) Hypothyroid d) Neuropathy	1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
x	The action of any drug that increases the force of contraction of myocardium is termed as a) Positive chronotropic effect b) Negative chronotropic effect c) Positive inotropic effect d) Negative inotropic effect		1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
xi	Insulin is not administered through oral route as a) It causes GIT bleeding b) It causes nausea vomiting c) It is destroyed by GIT d) None		1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
xii	Combined pill contain a) Oestrogen c) Oestrogen+ Progesterone	b) Progesterone d) None	1	CO1 CO2 CO3	K1 K2 K4	PO1, PO9
xiii	The drugs which have stimulant effects on motility of uterus are known as a) Oxytocics c) Carminatives	b) Diuretics d) Laxatives	1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
xiv	Which of the following is a plasminogen activator a) Donepezil c) Warfarin	b) Aminocaproic acid d) Streptokinase	1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9
xv	Which of the following oral hypoglycaemic drug does NOT enhance insulin release		1	CO1 CO2 CO3	K1 K2 K4	PO1, PO9

xvi	a) Glipizide c) Pramlintide Which of the following is an antidiuretic hormone a) Oxytocin c) FSH	b) Repaglinide d) Sitagliptin b) Vasopressin d) LH	1	CO4 CO5 CO1 CO2 CO3 CO4 CO5	K1	PO1, PO9
xviii	Histamine is synthesized from which amino acids a) Tryptophan c) Arachidonic acid	b) Histidine d) None	1	CO1 CO2 CO3 CO4 CO5	K1 K2	PO1, PO9
xviii	Insulin is composed of total a) 30 amino acids c) 81 amino acids	b) 21 amino acids d) 51 amino acids	1	CO1 CO2 CO3	K1 K2	PO1, PO9
xix	Vitamin K is associated with a) Ellagra c) Haemoglobin	b) Nerves d) Blood clotting	1	CO1 CO2 CO3	K1 K2	PO1, PO9
xx	In congestive heart failure, digitalis glycosides are used because it increases a) Heart rate b) Force of myocardial contraction c) Venous pressure d) Cardiac filling pressure		1	CO1 CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO9

**Section B (Answer any TWO out of THREE) – 20 Marks**  
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Define and classify NSAIDs. Discuss the pharmacology of Aspirin	10	CO1 CO5	K1 K2 K3	PO1, PO9
3	Define and classify autocooids. Discuss the synthesis, release and pharmacological actions of Histamine.	10	CO1 CO2 CO5	K1 K2 K3	PO1, PO9
4	Classify oral hypoglycemic agents. Discuss the pharmacology of (Sulfonylureas)	10	CO1 CO2	K1 K2 K3	PO1, PO9

**Section C (Answer any SEVEN out of NINE) – 35 Marks**  
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Classify Anti-hypertensive drugs. Write the mechanism action of ACE inhibitors.	5	CO3 CO4 CO5	K1 K2 K3	PO1, PO9
6	Explain Warfarin sodium as an oral anticoagulant.	5	CO1 CO4	K1 K2	PO1, PO9
7	Classify anti-thyroid drugs and write the MOA &, adverse effects of each class.	5	CO1 CO5	K1 K2	PO1, PO9



**ARKA JAIN University**  
Jharkhand



**END SEM EXAMINATION**  
School of Health & Allied Science

Program	Bachelor of Pharmacy	
Subject Name	Pharmacognosy & Phytochemistry-II	
Semester	V	
Year	Nov/Dec 2024	
Time: 3 Hour	Start writing from 2nd page onwards; don't Write on the 1st Page Backside	
Max. Marks : 75	<ul style="list-style-type: none"> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Two out of Three of Section B</li> <li>Answer Any Seven out of Nine of Section C</li> <li>Possession of Mobile Phones or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u></li> </ul>	
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing K5 : Evaluating K6 : Creating

Q. N	QUESTIONS	Marks	COs	KL	PO
i	Which isolation method is commonly used for menthol? a) Distillation b) Filtration c) Crystallization d) Adsorption	1	CO4	K1, K2	PO1
ii	In a percolation process, what is the term used for the container that holds the drug material? a) Thimble b) Perculator c) Condenser d) Retort	1	CO1	K3	PO2
iii	Glycosides are condensation products of: a) Sugar+aglycone b) Sugar+protein c) Protein+aglycone d) Fats+aglycone	1	CO6	K1, K2	PO2
iv	Flower bud of drug showing medicinal importance: a) Saffron b) Clove c) Fig d) Caraway	1	CO3	K1, K2	PO1
v	Chromatography is _____ a) Separation technique b) Extraction method c) Tracer technique d) Structure elucidation method	1	CO1	K1	PO1
vi	Why are opium seeds mixed with sand during sowing? a) To prevent clumping	1	CO6	K2	PO2

**Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks**

9	Describe the isolation process of curcumin from turmeric.	5	CO4	K1, K2	PO9
10	Write a note on Industrial production, estimation and utilization of Digoxin	5	CO2	K3	PO9
11	Write a note on Isolation, identification and analysis of caffeine.	5	CO4	K1, K3	PO1
12	Write a detailed note on radioactive isotopes in investigation of biogenetic pathway	5	CO5	K1	PO2
13	Define extraction and write a short note on infusion, maceration and decoction.	5	CO1	K1	PO1

**CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome**

CO1	Know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents
CO2	Understand the preparation and development of herbal formulation.
CO3	Understand the herbal drug interactions
CO4	Carryout isolation and identification of phytoconstituents
CO5	Know the various metabolic pathways of plant secondary metabolites.
CO6	Know the biological source, macroscopical & histological properties, phytochemical constituents, therapeutic uses, and commercial applications of crude drugs.

**GRAPHICAL REPRESENTATION**

**BLOOM'S LEVEL WISE MARKS DISTRIBUTION**

**Course outcome wise marks distribution**


■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6




vii	b) To enhance germination c) To add nutrients d) To retain moisture Which of the following compounds serves as the starting molecule for the shikimic acid pathway? a) Glucose b) Pyruvate c) Phosphoenolpyruvate (PEP) d) Shikimate-3-phosphate	1	CO5	K1	PO1
viii	Extraction process in which hard and woody crude drug are boiled with water? a) Maceration c) Decoction Which part of the plant is used to obtain Asafoetida? a) Leaves c) Roots	1	CO1	K4	PO2
ix	Which alkaloid present in opium is primarily used for its antitussive (cough suppressant) effect? a) Codeine c) Papaverine b) Morphine d) Noscapine	1	CO6	K1	PO1
x	Which alkaloid present in opium is primarily used for its antitussive (cough suppressant) effect? a) Codeine c) Papaverine b) Morphine d) Noscapine	1	CO6	K2	PO1
xi	Artemisinin is derived from which plant? a) Catharanthus roseus c) Rauwolfia serpentina b) Artemisia annua d) Digitalis lanata	1	CO2	K1, K2	PO2
xii	In the formulation of Silica Gel G, what does the 'G' stand for? a) General c) Gypsum b) Glass d) Gelatin	1	CO1	K1	PO1
xiii	What is the primary source of forskolin? a) Liquorice root c) Rauwolfia serpentina b) Coleus forskohlii d) Vinca rosea	1	CO4	K1, K2	PO1
xiv	Vinca alkaloid is used in the treatment of ____ a) Hodgkin's disease b) Haemocytic leukemia c) Lymphoblastic leukemia d) All of the above	1	CO6	K2	PO1
xv	Botanical name of Indian senna a) Cassia angustifolia c) Cassia fustula b) Cassia acutifolia d) Cassia indica	1	CO6	K1	PO2
xvi	What is the purpose of the siphon tube in a Soxhlet extractor? a) To regulate temperature b) To collect the extracted compounds	1	CO1	K3	PO1

xvii	c) To maintain pressure d) To cool the solvent Sennoside is used as a) Laxative c) Cardiotonic b) Hypoglycaemic d) Antihypertensive	1	CO6	K2	PO1
xviii	What does HPTLC stand for? a) High Pressure Thin Layer Chromatography b) High Performance Thin Layer Chromatography c) High Purity Thin Layer Chromatography d) High Precision Thin Layer Chromatography	1	CO1	K1	PO2
xix	What is the main source of heat generation in MAE? a) Direct heating c) Microwave radiation b) Electrical resistance d) Solar energy	1	CO4	K1	PO2
xx	In Soxhlet extraction, which part collects the extracted compound? a) Condenser c) Round-bottom flask b) Siphon tube d) Thimble	1	CO1	K1, K4	PO1
<b>Section B (Answer any TWO out of THREE) - 20 Marks</b> (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write the biological source, cultivation, collection, microscopic and, macroscopic character chemical constituents and uses of Opium.	10	CO6	K1, K2	PO1
3	Write in detail about Pressurised Liquid Extraction with clean and labelled diagram.	10	CO1	K1, K3	PO2
4	Briefly explain about the conventional method of extraction and write the application of spectroscopy.	10	CO4	K1, K2	PO1
<b>Section C (Answer any SEVEN out of NINE) - 35 Marks</b> (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Write a note on resins and mention biological source, chemical constituents and uses of Asafoetida and Colophony.	5	CO6	K1, K2	PO1
6	Define chromatography and its application.	5	CO1	K1	PO2
7	Write a microscopic and, macroscopic character of clove with a labelled diagram.	5	CO6	K3	PO1
8	Describe the percolation method of extraction and its procedure with a neat diagram.	5	CO1	K1, K3	PO2





**ARKA JAIN University**  
Jharkhand



**NAAC GRADE A**  
ACCREDITED UNIVERSITY

**END SEM EXAMINATION**  
School of Health & Allied Science

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**Program**  
Bachelor of Pharmacy

**Semester**  
V

**Year**  
Nov/Dec 2024

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**Subject Name**  
Pharmaceutical Jurisprudence

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

- Start writing from 2nd page onwards; don't write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Two out of Three of Section B
- Answer Any Seven out of Nine of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.

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<b>Knowledge Level (KL)</b>	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

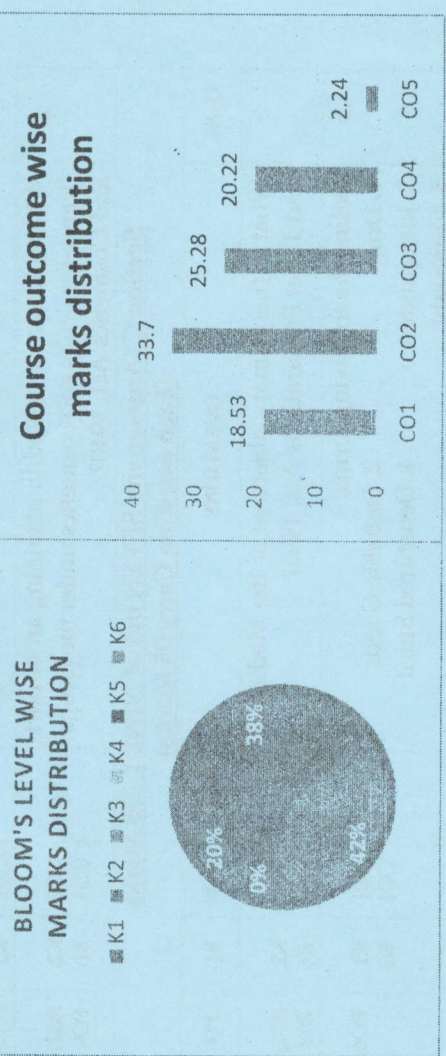
**Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks**

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Which schedule addresses the shelf life of drugs? a) Sch Q b) Sch R c) Sch P d) Sch T	1	CO1 CO3	K1	PO2, PO5
ii	The first edition of Indian Pharmacopoeia was published in the year: a) 1940 b) 1985 c) 1955 d) 1960	1	CO1 CO2	K1	PO2, PO6
iii	The Pharmacy Council of India is also known as: a) Central council of pharmacy b) Central Drug Association c) State Pharmacy Council d) Joint Pharmacy Council	1	CO2 CO5	K1	PO1, PO4
iv	Who was the first chairman of the Drug Enquiry Committee: a) B. Mukharjee b) R. N. Chopra c) Joseph Bhore d) R. D. Dala	1	CO1 CO2	K1, K2	PO2, PO6
v	In 1985, one of the following Acts was passed: a) Narcotic and psychotropic substance act b) Drug and magic remedies act c) Medical termination of pregnancy act d) Poisonous Act	1	CO1	K1	PO6

Q. No.	Question	COs	KL	PO
8	Why is it important to regulate alcohol in medicinal and toilet preparations?	CO2, CO3	K2	PO5, PO4
9	What is the main objective of the Prevention of Cruelty to Animals Act, 1960?	CO2, CO4	K1, K2	PO1, PO7
10	Briefly differentiate between State Pharmacy and Joint State Pharmacy.	CO2, CO4	K6	PO2, PO6
11	How is the term "formulation" defined in the DPCO 2013?	CO2, CO3	K1, K2	PO1, PO6
12	What kind of records must institutions maintain regarding the use of animals in experiments?	CO4	K1, K2	PO1, PO7
13	What is the main objective of the Right to Information Act?	CO1, CO4	K1, K6	PO1, PO4

**CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome**

Course Outcomes	Implications
CO1	Understand about the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
CO2	Understand various Indian pharmaceutical Acts and Laws
CO3	Understand regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
CO4	Understand the code of ethics during the pharmaceutical practice
CO5	Understand the concept of Drugs Act, Pharmacy Act, and Excise Act.



vi	Standards for Cosmetics belong to: a) Sch A b) Sch C c) Sch S d) Sch X	1	CO3	K1	PO2, PO6
vii	Sera, vaccines and toxins come under schedule: a) Sch O b) Sch P c) Both A & B d) Sch C	1	CO3 CO5	K1	PO2, PO6
viii	Education regulations are approved by: a) State government b) Central government c) PCI d) Education institutions	1	CO2 CO4	K2	PO1, PO6
ix	Which of the following are prohibited to be imported? a) Toilet Preparations b) Misbranded drugs c) Unani drugs d) Schedule 'C'	1	CO1 CO5	K2	PO1, PO6
x	Which law stops the advertisement of certain drugs for serious diseases like cancer? a) Pharmacy Act b) Drugs and Magic Remedies Act c) Drugs and Cosmetics Act d) Food Safety Act	1	CO2 CO4	K1, K2	PO2, PO5
xi	What is a "Magic Remedy"? a) Scientific drug b) Talisman c) Herbal medicine d) Prescription drug	1	CO2 CO3	K1, K2	PO2, PO6
xii	Who is the father of jurisprudence? a) Moutland b) John Austin c) Bentham d) Gurichy	1	CO3 CO5	K1, K2	PO2, PO6
xiii	What alkaloid is found in tobacco? a) Cocaine b) Caffeine c) Nicotine d) Morphine	1	CO2 CO4	K1, K2	PO2, PO6
xiv	Who constitutes the Drugs Consultative Committee? a) Parliament b) State Government c) Central Government d) Any of the above	1	CO1 CO3	K2	PO1, PO5
xv	A drug not be labeled in the prescribed manner shall be treated as: a) Adulterated drug b) Spurious drug c) Misbranded drug d) Mischievous drug	1	CO3 CO4	K2	PO1, PO4
xvi	Which is an example of a Schedule C drug? a) Fish liver oil b) Insulin c) Ergot d) Barbitol	1	CO1 CO3	K1,	PO2, PO6
xvii	Which drugs are prohibited from being imported? a) Spurious drugs b) Toilet preparations	1	CO2 CO3	K2	PO5, PO4

xviii	c) Schedule H drugs d) All of the above	1	CO2 CO4	K1,	PO2, PO6
	In which form is a license to import Schedule X drugs issued? a) Form 8 b) Form 8A c) Form 10 d) Form 10 A	1	CO2 CO3	K1, K2	PO2, PO5
xix	What qualifies someone as a 'Registered Pharmacist'? a) Diploma in pharmacy b) Sufficient experience c) Name in State Register d) Degree in pharmacy	1	CO1 CO4	K1, K2	PO1, PO4
xx	What is the primary role of NPPA? a) Monitoring drug quality standards. b) Controlling and fixing drug prices. c) Supporting pharmaceutical innovation. d) Granting approvals for new drug formulations.	1	CO1 CO4	K1, K2	PO1, PO4
<b>Section B (Answer any TWO out of THREE) – 20 Marks</b> (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	What are the consequences of advertising drugs with false or misleading claims under this Act?	10	CO3 CO4	K1, K6	PO1, PO4
3	What are the key provisions and objectives of the Pharmacy Act, 1948?	10	CO1 CO2	K1, K2	PO1, PO6
4	What steps are involved in obtaining an import license for drugs and cosmetics under the Drugs and Cosmetics Act, 1940?	10	CO2 CO3	K2, K6	PO2, PO6
<b>Section C (Answer any SEVEN out of NINE) – 35 Marks</b> (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	What is the primary objective of the Medicinal and Toilet Preparations Act, 1955?	5	CO2 CO3	K2, K6	PO2, PO6
6	Define the following terms: 1. Drug 2. Dutiable Goods 3. Jurisprudence 4. Denatured Spirit 5. Copyright	5	CO1 CO4	K1, K2	PO6
7	What is the constitution and functions of the Pharmacy Council of India?	5	CO1 CO2	K1, K2	PO1, PO6