

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Describe the herbs used in hair care in detail with example.	10	CO1	K1, K2	PO1
3	How preparation of Arista differs from Asavas. Describe the Parameters for standardization of Asavas and Arista.	10	CO1	K1, K2	PO2
4	What is Bhasma? Describe in detail about method of preparation of Bhasma. Describe the Standardization for Bhasma.	10	CO1	K1, K2	PO2

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Give the health benefits and role of nutraceutical in CVS diseases.	05	CO3	K1, K2	PO1
6	Write a short note on herb - drug interactions.	05	CO2	K2	PO2
7	Write about preparation and evaluation of Herbal Tablet formulation.	05	CO2	K2	PO1
8	Describe Herbal medicinal product, herbal drug preparation with example.	05	CO1	K1, K2	PO1
9	Write a note on Pest & pest control method and give examples of Biopesticides/Bioinsecticides	05	CO1	K1, K2	PO1
10	Write a note on herbs, Garlic, Honey as health food	05	CO3	K1, K2	PO2
11	Define the following terms: Patent, IPR, Bio prospecting and Bio piracy.	05	CO4	K1	PO1
12	Write a note on selection & identification of herbal material.	05	CO1	K1	PO1
13	Write note on Stability testing of herbal drugs.	05	CO2	K1	PO2

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

Q. N	QUESTIONS	Mark s	COs	KL	PO
1					
i	Herbs are typically derived from which part of the plant? a) Roots b) Fruits c) Bark d) All of the above	01	CO1	K1	PO1
ii	What is the purpose of using multiple criteria for plant identification? a) To confuse researchers b) To increase accuracy and reliability c) To simplify the process d) To decrease the cost of identification	01	CO1	K1, K2	PO1
iii	What does the term "bhasma" refer to in the context of Ayurvedic medicine? a) Herbal powders b) Ash obtained through calcination c) Liquid extracts d) Fermented preparations	01	CO1	K1	PO2
iv	What are biopesticides? a) Chemical pesticides synthesized in the laboratory b) Pesticides derived from living organisms or natural substances c) Pesticides specifically designed for indoor use d) Pesticides used only in organic farming	01	CO1	K1	PO1



ARKA JAIN University
Jharkhand



END SEM EXAMINATION
School of Health & Allied Science

Program
Bachelor of Pharmacy

Subject Name
Herbal Drug Technology

Semester
VI

Year
June 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 Papers.

Time: 3 Hour
Max. Marks : 75

Knowledge Level (KL)

K1 : Remembering
K2 : Understanding

K3 : Applying
K4 : Analysing

K5 : Evaluating
K6 : Creating

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v	Which of the following is an example of a biopesticide? a) Glyphosate b) Pyrethroid c) Bacillus thuringiensis (Bt) d) Chlorpyrifos	01	CO1	K1	PO2
vi	What is the term for the dilution process used in homeopathy? a) Titration b) Tincture c) Succussion d) Infusion	01	CO1	K1	PO1
ii	What is the fundamental principle of homeopathy? a) Treatment with surgery b) Treatment with natural herbs c) Treatment with diluted substances that produce similar symptoms to the illness d) Treatment with acupuncture	01	CO1	K1, K2	PO1
ii	What is the foundational principle of Ayurveda? a) Like cures like b) Prevention is better than cure c) Balance of body, mind, and spirit d) Disease originates from imbalances in the humors	01	CO1	K1, K2	PO2
	What is the primary goal of diagnosis in homeopathy? a) Identifying specific diseases b) Determining the cause of illness c) Understanding the patient's unique symptom profile d) Administering conventional medical treatments	01	CO1	K1, K2	PO1
	What is the foundational concept of Unani medicine? a) Balance of the four humors b) Theory of Yin and Yang c) Principle of Ayurvedic doshas d) Principle of vital force (Quwwat-e-Mudabbira)	01	CO1	K1	PO1
	What is the main advantage of using herbal cosmetics? a) Longer shelf life b) Reduced risk of allergies c) Stronger fragrance d) Higher cost	01	CO3	K1	PO1
	What is the purpose of granulation in herbal tablet manufacturing? a) Adding moisture to the herbal powder b) Reducing the particle size of the herbal ingredients	01	CO3	K1	PO1

	c) Binding the herbal powder particles together to form granules d) Separating the active ingredients from the excipients	01	CO2	K1	PO2
xiii	What does IPR stand for? a) International Property Rights b) Intellectual Property Rights c) Industrial Property Rights d) Internal Property Rights	01	CO3	K1, K2	PO2
xiv	What is the term used to describe the bulblets of garlic that develop in the flower head? a) Clove b) Bulbils c) Tubers d) Pods	01	CO3	K1	PO1
xv	How does Amla contribute to hair health? a) By reducing hair growth b) By preventing hair loss c) By increasing dandruff d) By causing scalp irritation	01	CO1	K1	PO1
xvi	What is the primary advantage of Ghutika formulations over other Ayurvedic dosage forms? a) Faster absorption b) Longer shelf life c) Ease of administration d) Reduced risk of contamination	01	CO1	K1	PO1
xvii	Identification test includes a) Macroscopic character b) Chemical reaction c) Microscopic character d) All	01	CO1	K1	PO1
xviii	Organic farming means a) Used organic fertilizers b) Not to use pesticides c) To optimize productivity d) All	01	CO2	K1	PO2
xix	Which of the following is an organic farming practice that helps to maintain soil health? a) Crop rotation b) Monoculture c) Synthetic fertilizer d) Sewage sludge	01	CO1	K1, K2	PO2
xx	Schedule Z refers for a) Drug and Cosmetic Act b) Homeopathy Act c) Medical Termination of Pregnancy Act d) Labour Act	01	CO3	K1	PO1

CO – Course Outcomes,

KL- Knowledge Level,

PO – Program Outcome

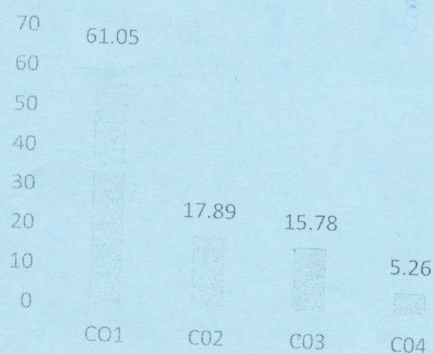
Course Outcomes	CO1	Understand raw material as source of herbal drugs from cultivation to herbal drug product
	CO2	Know about the WHO and ICH guidelines for evaluation of herbal drugs
	CO3	Know about the herbal cosmetics, natural sweeteners, nutraceuticals
	CO4	Appreciate patenting of herbal drugs, GMP.

GRAPHICAL REPRESENTATION

BLOOM'S LEVEL WISE MARKS DISTRIBUTION

KL1 KL2 KL3 KL4 KL5 KL6

Course Outcome Wise Marks Distribution



Program	Bachelor of Pharmacy	
Subject Name	Pharmacology-III	
	Semester	VI
	Year	June 2024
Time: 3 Hour Max. Marks : 75	<ul style="list-style-type: none"> 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 <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</u> in the <u>Cancellation of the Papers.</u> 	
Knowledge Level (KL)	K1 : Remembering	K3 : Applying
	K2 : Understanding	K4 : Analysing
	K5 : Evaluating	K6 : Creating

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

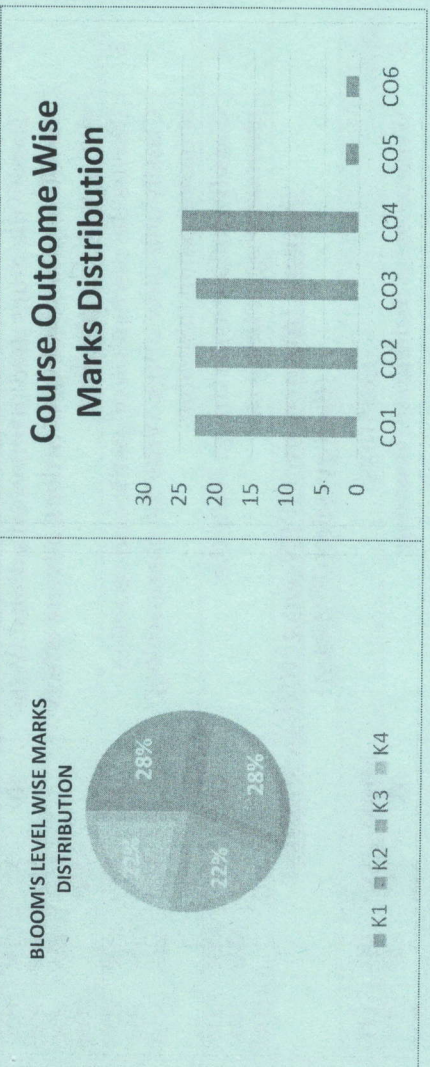
Q. N1	QUESTIONS	Marks	COs	KL	PO
i	First line drugs for tuberculosis are a) Isoniazid, Rifampin, Amikacin, Ethambutol b) Isoniazid, Cycloserine, Amikacin, Ethambutol c) Isoniazid, Rifampin, Pyrazinamide, Ethambutol d) Isoniazid, Cycloserine, Amikacin, Ofloxacin	01	CO1, CO2, CO3, CO4	K1	PO1, PO2, PO8, PO9, PO10
ii	Antacids act by a) Decreasing the volume of HCl in stomach b) Neutralizing the gastric HCl contents c) Through H ⁺ /K ⁺ ATPase pump d) All	01	CO1, CO2, CO3, CO4	K2	PO1, PO2, PO8, PO9, PO10
iii	Antitussive are opioids that a) Treat patients from chronic bronchitis b) Cause sputum retention c) Produce soothing effect d) Depress cough centre	01	CO1, CO2, CO3, CO4	KL, K2	PO1, PO2, PO8, PO9, PO10
iv	Which of the following is used for extra-intestinal amoebiasis only a) Metronidazole b) Ornidazole c) Chloroquine d) Emetine	01	CO1, CO2, CO3, CO4	KL, K2	PO1, PO2, PO8, PO9, PO10
v	Which one is the most common risk factor for COPD? a) Smoking b) Bacteria c) Fungi d) Water	01	CO1, CO2, CO3, CO4	K2	PO1, PO2, PO8, PO9, PO10

11	Describe about life cycle of HIV virus.	05	CO2, CO3, CO4	KL, K2, K3, K4	PO8, PO9, PO10
12	Write note on Cotrimoxazole.	05	CO3, CO4	K2, K3, K4	PO9, PO10
13	Classify Anti-retroviral drugs. Write MOA and adverse effects of Zidovudine.	05	CO2, CO3, CO4	KL, K2, K3, K4	PO1, PO9, PO10

CO- 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	Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
CO3	Understand the mechanism of drug action and its relevance in the immunotherapy
CO4	Appreciate correlation of pharmacology with related medical sciences
CO5	Understand about symptoms of several poisonings
CO6	Understand the principles of toxicology and treatment of various poisonings

GRAPHICAL REPRESENTATION



xviii	Match the following A. Nitroimidazoles B. Amides C. Antibiotics D. Alkaloids a. A (I), B(II), C(III), D (IV) b. A(III), B(IV), C(II), D (I) c. A(III), B(I), C(II), D (IV) d. A(IV), B(II), C(III), D (I)	I. Dehydroemetine II. Paromomycin III. Tinidazole IV. Nitazoxanide	01	CO1, CO2, CO3, CO4	K1	PO1, PO2, PO8, PO9, PO10
xix	Antidote for Arsenic poisoning a) N-acetylcysteine c) Physostigmine	b) Dimercaprol d) None	01	CO5, CO6	K1,K 2	PO8, PO9, PO10
xx	Anti-TB agent that acts by inhibiting DNA dependent RNA Polymerase a) Pyrazinamide c) Isoniazid	b) Ethambutol d) Rifampin	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10
Section B (Answer any TWO out of THREE) – 20 Marks (Each question 10 Marks)						
Q. No.	QUESTIONS	Marks	COs	KL	PO	
2	Classify the drugs used in bronchial asthma. Write the MOA, pharmacological actions, adverse effects and uses of Theophylline	10	CO1, CO2, CO3, CO4	K1,K 2,K3, K4,	PO1, PO2, PO8, PO10	
3	Discuss the mechanism of gastric acid secretion. Classify anti-ulcer drugs. Write the pharmacology of proton pump inhibitors.	10	CO1, CO2, CO3, CO4	K1,K 2,K3, K4,	PO1, PO9, PO10	
4	Classify antitubercular drugs. Write the pharmacology of Isoniazid	10	CO2, CO3, CO4	K2,K 3,K4,	PO2, PO9, PO10	
Section C (Answer any SEVEN out of NINE) – 35 Marks (Each question 05 Marks)						
Q. No.	QUESTIONS	Marks	COs	KL	PO	
5	Write notes on Barbiturate Poisoning.	05	CO5, CO6	K2	PO8, PO9	
6	Classify anti-emetics. Write MOA and uses of Ondansetron.	05	CO2, CO3, CO4	K3,K 4,	PO8, PO9, PO10	
7	Classify anti-diarrhoeal drugs. Write MOA of antimotility drugs.	05	CO2, CO3, CO4	K2,K 3,K4,	PO1, PO9, PO10	
8	Write short notes on Biological Clock and their significance leading to Chronotherapy	05	CO4	K3,K 4,	PO1, PO2, PO10	
9	Write the MOA and adverse effects of Aminoglycosides.	05	CO1, CO2, CO4	K2,K 3,K4,	PO8, PO9, PO10	
10	Classify Anti-fungal drugs & write M.O.A of Echinocandins	05	CO1, CO2, CO4	K1,K 2,K3, K4,	PO1, PO2, PO8, PO10	

vi	Drug causes leakage from cell membranes a) Amphotericin B c) Streptomycin	b) Rifampin d) All	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10
vii	Which of the following inhibits DNA Gyrase a) Sulfonamides c) Gentamicin	b) Amphotericin B d) Ciprofloxacin	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10
viii	Which of the following is not used in the treatment of Asthma a) Budesonide c) Zafirlukast	b) Dapsone d) Cromolyn sodium	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10
ix	Omalizumab belongs to which class of drug? a) Bronchodilator c) Anti-IgE Antibody	b) Mast cell stabilizer d) Anticholinergics	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO8, PO9, PO10
x	The term MDT (Multi Drug Therapy) is related to a) Leprosy c) Amoebiasis	b) Tuberculosis d) Giardiasis	01	CO1, CO2, CO3, CO4	K1	PO2, PO8, PO9, PO10
xi	Damage to the gas exchanging surfaces of the lungs is a) Chronic bronchitis c) Bradycardia	b) Tachyphylaxis d) Emphysema	01	CO1, CO2, CO3, CO4	K1,K 2,K4	PO1, PO2, PO8, PO9, PO10
xii	The antifungal drug, Flucytosine belongs to the class of a) Azoles c) Antibiotics	b) Allylamine d) Antimetabolites	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10
xiii	Emetics stimulates a) Lungs c) Bronchioles	b) Trachea d) CTZ	01	CO2, CO3, CO4	K1,K 2	PO8, PO9, PO10
xiv	First generation fluoroquinolones a) Levofloxacin c) Moxifloxacin	b) Ciprofloxacin d) Gemifloxacin	01	CO1, CO2, CO3, CO4	K1	PO1, PO2, PO9, PO10
xv	Which of the following antiulcer drug is a proton pump inhibitor? a) Cimetidine c) Lansoprazole	b) Misoprostil d) All	01	CO1, CO2, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10
xvi	Drugs that inhibit gastric acid secretion a) Ranitidine c) Sod. Bicarbonate	b) Sucralfate d) Metronidazole	01	CO1, CO2, CO3, CO4	K1,K 2	PO2, PO8, PO9, PO10
xvii	Which of the following immunosuppressant is calcineurin inhibitor? a) Cyclosporine c) Anakinra	b) Prednisolone d) Sirolimus	01	CO1, CO3, CO4	K1,K 2	PO1, PO2, PO8, PO9, PO10



Program **Bachelor of Pharmacy**

Subject Name **Quality Assurance**

Semester **VI**
Year **June 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
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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. N 1	QUESTIONS	Marks	COs	KL	PO
i	What is the primary objective of Quality Control? a) Ensuring compliance with regulations b) Identifying defects in products or processes c) Developing new quality standards d) Improving customer satisfaction *	01	CO1	K1	PO1
ii	Which of the following best defines Quality Assurance? a) Correcting defects in products after production b) Preventing defects in products before production c) Ensuring products meet regulatory requirements d) Monitoring customer complaints	01	CO1	K1	PO1
iii	Which QbD tool is used to visualize relationships between input factors and outputs in a graphical format? a) Pareto analysis b) Ishikawa diagram c) Scatter diagram d) Failure mode and effects analysis (FMEA)	01	CO2	K1	PO1
iv	Which of the following is NOT considered an element of Total Quality Management? a) Continuous improvement b) Employee empowerment c) Isolation of departments d) Customer focus	01	CO2	K1	PO6

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain Kaoru Ishikawa's key contributions to quality management, including his development of cause-and-effect diagrams and emphasis on the "internal customer." How do these contributions improve organizational performance?	10	CO2	K2	PO1
3	What is the primary purpose of ICH Guidelines? Briefly explain the role of participants involved in the harmonization process.	10	CO1	K1	PO1
4	Explain the principles and procedures involved in NABL accreditation.	10	CO3	K2	PO6

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	How does environmental control contribute to quality assurance?	05	CO1	K2	PO2
6	Name two utilities critical for maintaining sterile areas in manufacturing facilities.	05	CO1	K1	PO2
7	How is contamination controlled in manufacturing premises?	05	CO1	K1	PO2
8	List three benefits of ISO certification.	05	CO1	K2	PO1
9	What are the key elements of ISO 9000?	05	CO1	K2	PO1
10	Describe the role of NABL accreditation in ensuring quality in testing laboratories.	05	CO3	K1	PO1
11	Briefly explain the concept of QSEM.	05	CO2	K1	PO1

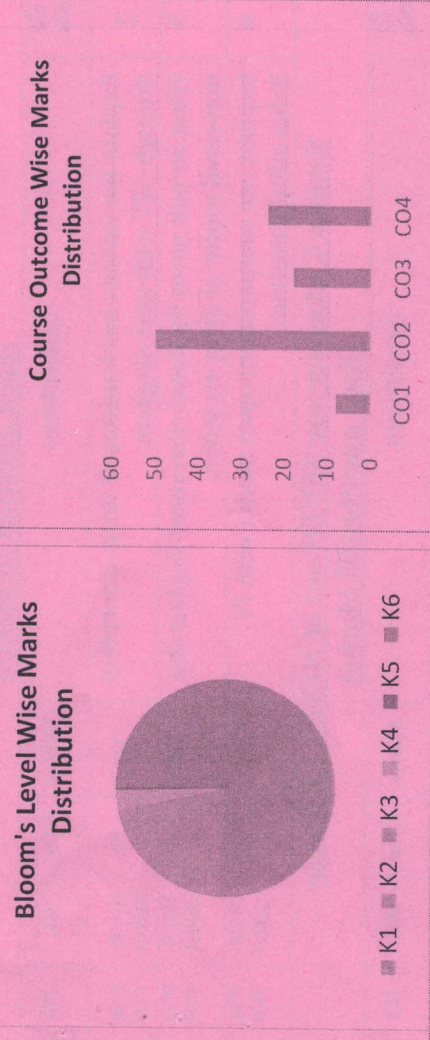
XIX	b) Design of experiments (DOE) c) Failure mode and effects analysis (FMEA) d) Random inspection of products Which of the following is not a TQM element? a) Customer focus b) Employee empowerment c) Product differentiation d) Continuous improvement	01	CO2	K2	PO6
XX	GMP stands for: a) Good Manufacturing Process b) Good Management Practices c) Good Manufacturing Principles d) Good Manufacturing Practice	01	CO2	K2	PO6

v	What is the main purpose of ICH Guidelines? a) To standardize international shipping practices b) To harmonize regulatory requirements for pharmaceuticals c) To regulate the use of industrial chemicals d) To establish guidelines for environmental sustainability	01	CO1	K1	PO1
vi	QbD primarily focuses on: a) Inspecting finished products for defects b) Designing quality into the product from the beginning c) Conducting market research to understand customer needs d) Reducing production costs through automation	01	CO2	K2	PO1
vii	The primary purpose of ICH Guidelines is to: a) Standardize manufacturing practices globally b) Facilitate communication between regulatory authorities c) Maximize profits for pharmaceutical companies d) Eliminate competition among drug manufacturers	01	CO1	K1	PO1
viii	TQM emphasizes: a) Achieving targets within budget constraints b) Continuous improvement and customer satisfaction c) Minimizing production costs at all costs d) Streamlining processes to maximize profits	01	CO2	K1	PO6
ix	Which of the following does not participate in the ICH Guidelines development process? a) Regulatory authorities b) Pharmaceutical companies c) Consumer advocacy groups d) Academia	01	CO1	K1	PO6
x	TQM philosophy is rooted in the idea of: a) Meeting minimum standards b) Maximizing shareholder value c) Continuous improvement and involvement of all employees d) Centralized decision-making	01	CO2	K1	PO1
xi	Which of the following is not a component of NABL accreditation criteria? a) Organization and personnel b) Premises and equipment c) Market share analysis	01	CO3	K2	PO1

xii	d) Measurement traceability Principles and procedures of NABL accreditation include: a) Ignoring personnel training and hygiene b) Establishing a culture of continuous improvement c) Disregarding environmental concerns d) Emphasizing production speed over quality	01	CO3	K2	PO1
xiii	Control of contamination in NABL accreditation involves: a) Ensuring a contaminated workplace b) Minimizing environmental control measures c) Maintaining sterile areas and controlling contamination d) Ignoring environmental concerns	01	CO3	K2	PO1
xiv	Premises design in NABL accreditation emphasizes: a) Ignoring plant layout and construction b) Optimal plant layout, construction, and maintenance c) Minimizing environmental control measures d) Disregarding sanitation practices	01	CO3	K2	PO6
xv	NABL accreditation primarily focuses on: a) Ensuring workplace safety b) Standardizing manufacturing processes c) Accrediting testing and calibration laboratories d) Maximizing shareholder profits	01	CO3	K2	PO6
xvi	QbD tools include all of the following except: a) Statistical process control (SPC) b) Failure mode and effects analysis (FMEA) c) Six Sigma methodology d) Random sampling	01	CO2	K2	PO1
xvii	The process of harmonization in ICH Guidelines involves: a) Aligning regulations among different regions b) Eliminating regulations altogether c) Standardizing manufacturing practices worldwide d) Exclusively focusing on drug safety	01	CO1	K1	PO1
xviii	Which of the following is not an element of a QbD program? a) Quality risk management	01	CO2	K2	PO6

Program	Bachelor of Pharmacy	
Subject Name	Biopharmaceutics and Pharmacokinetics	Semester VI
Time: 3 Hour Max. Marks : 75	Year June 2024	
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Course Outcomes	<p>CO1 Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance.</p> <p>CO2 Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.</p> <p>CO3 Understand the concepts of bioavailability and bioequivalence of drug products and their significance.</p> <p>CO4 Understand various pharmacokinetic parameters, their significance & applications.</p>
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Section A (Each question Carry 01 Mark from Q1-i to Q1-xx) – 20 Marks						
Q. N	QUESTIONS	Marks	COs	KL	PO	
i	Perfusion rate is low in one of the following organs A) Adipose tissue B) bone C) Kidney D) Muscle	1	CO1	KL1 KL3	PO4, PO9	
ii	Drug transfer through placenta is observed by the following factors EXCEPT: A) Foetal sex B) Gestational C) Molecular weight D) Plasma protein binding	1	CO2	KL1	PO4, PO9	
iii	The rate determining step in the absorption of hydrophilic drug is: A) Disintegration B) Dissolution C) Membrane perfusion D) Membrane permeation	1	CO1	KL1,K L2	PO4, PO9	
iv	Which of the following is also known as Uphill transport: A) Passive transport B) Downhill transport C) Active transport D) All of the above	1	CO1, CO2	KL1,K L3	PO4, PO9	
v	The rate of absorption by passive diffusion is generally determined using the equation: A) Noyes Whitney B) Fick's first C) Michaelis Menton D) HandersenHasselbalch	1	CO2	KL1,K L3,KL4	PO4, PO9	
viis defined as rate and extent of drug absorption. A) Bioavailability B) Bioequivalence C) Drug disposition D) Absorption	1	CO2	KL1,K L2,KL3	PO4, PO9	

vii	Formula for volume of distribution is..... A) $V_d = C/X$ B) $V_d = X/C$ C) $V_d = Ke/X$ D) $V_d = Ke/C$	1	CO2	KL1,K L2,KL3	PO4, PO9
viii	The pH partition theory explains the relationship between the two of the following: A) pH and lipophilicity B) pKa and lipophilicity C) pKa and pH of medium D) pKa and salt	1	CO2	KL2,K L1,KL3	PO4, PO9
ix	Passive transport process involve all except..... A) Passive diffusion B) Pore transport C) Ion-pair transport D) Antipport	1	CO1	KL1	PO4, PO9
x	The ratio of rate of elimination upon plasma drug concentration is : A) Excretion B) Pharmacodynamics C) Clearance D) All of the above	1	CO1, CO2	KL1	PO4, PO9
xi	Which of the following in an independent variable in Pharmacokinetic parameter: A) Time B) Weight C) Clearance D) Plasma drug concentration.	1	CO4	KL1,K L2,KL3	PO4, PO9
xii	The Volume of distribution of a drug is: A) A measure of total fluid volume B) A relationship of amount of drug present in the body and that of plasma C) An expression of total body D) Proportional of bioavailability	1	CO1, CO2	KL1, KL3	PO4, PO9
xiii	The molecular weight of Human serum albumin is: A) 40000 B) 25000 C) 800000 D) 65000	1	CO2	KL1,K L2,KL3	PO4, PO9
xiv	The plasma volume can be determined using: A) Antipyrin B) Evans blue C) Heavy water D) Inulin	1	CO2	KL1,K L3	PO4, PO9
xv	According to BCS classification, Class III drugs are: A) High solubility low permeability B) Low permeability High solubility C) Low solubility low permeability D) High solubility high permeability	1	CO2	KL1	PO4, PO9
xvi	Dissolution test apparatus I as per IP A) Basket B) Rotating basket C) Paddle D) Rotating paddle	1	CO1, CO2	KL1,K L2,KL3	PO4, PO9
xvii	Lipid soluble drug is having A) Low Vd B) High Vd C) No Vd D) No effect	1	CO2	KL1,K L3	PO4, PO9

xvii	Which route of drug administration shows 100% Bioavailability? A) Oral B) Intravenous C) Rectal D) Topical	1	CO3	KL1,K L2,KL3 KL4,K L5	PO4, PO9
xix	Fick's law is used for study of A) Dissolution Rate B) Disintegration Rate C) Dissociation Rate D) Diffusion Rate	1	CO2	KL1	PO4, PO9
xx	Absorption, distribution, metabolism and excretion is a _____ factor. A) Pharmacokinetic B) Pharmacodynamic C) Biopharmaceutical D) Physicochemical	1	CO1, CO2, CO4	KL1,K L2,KL3	PO4, PO9
Section B (Answer any TWO out of THREE) – 20 Marks					
(Each question 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain the various mechanisms of drug absorption through GIT with neat diagram.	10	CO1	KL1,K L2,KL3	PO4, PO9
3	What do you mean by Renal clearance? Explain the non-renal routes of drug excretion.	10	CO2	KL1,K L2,KL3	PO4, PO9
4	Explain one compartment open model with IV bolus administration.	10	CO4	KL1,K L2,KL3	PO4, PO9
Section C (Answer any SEVEN out of NINE) – 35Marks					
(Each question 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Briefly write the objectives of bioavailability.	5	CO3	KL1,K L2	PO4, PO9
6	Explain Fick's first law of diffusion.	5	CO2	KL1,K L2	PO4, PO9
7	Shortly write about renal clearance.	5	CO2	KL1,K L2	PO4, PO9
8	Briefly write about clinical significance of Drug protein binding.	5	CO2	KL1,K L2	PO4, PO9
9	Briefly explain the one compartment open model.	5	CO4	KL1,K L2	PO4, PO9
10	Shortly explain the loading and maintenance dose with their significance.	5	CO1, CO4	KL1,K L2	PO4, PO9
11	Shortly write about bioequivalence studies.	5	CO3	KL1,K L2,KL3	PO4, PO9
12	Briefly write about the various factors influencing drug absorption.	5	CO2, CO3	KL1,K L2	PO4, PO9
13	Shortly write about absorption half-life and apparent volume of distribution.	5	CO2	KL1,K L2,KL4	PO4, PO9

Section B (Answer any TWO out of THREE) – 20 Marks

(Each question 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Synthesis of the following Drug. i) Miconazole ii) Isoniazid iii) Para amino salicylic acid iv) Nitrofurantoin v) Acyclovir	10	CO2	K1, K2	PO1 0
3	Draw the following Structure. i) Ethambutol ii) Cycloserine iii) Amodiaquine iv) Primaquine v) Nalidixic Acid vi) Norfloxacin vii) Didanosine viii) Amantadine ix) Clotrimazole	10	CO4	K1, K2	PO1 0
4	Draw the Structure of the following. i) Clindamycin ii) 6-APA iii) 7-ACA iv) Aztreonam v) Clavulanic acid vi) Kanamycin-A vii) Streptomycin viii) Minocycline ix) Lincomycin x) Penicillanic acid	10	CO2	K1, K2	PO1 0

Section C (Answer any SEVEN out of NINE) – 35 Marks

(Each question 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Write a brief note on SAR of Quinolines.	5	CO4	K1, K2	PO1
6	Define Ant-helminthic Drug. Write the Synthesis of Metronidazole & Diethylcarbamazine citrate	5	CO3	K1, K2	PO1 0
7	Define Anti-Protozoal Drugs. Write the synthesis of Mebendazole & Sulfacetamide	5	CO3	K1, K2	PO9
8	What is sulphenamides? Write the synthesis of Sulfamethoxazole & Dapsone	5	CO3	K1, K2	PO1 0
9	Define anti-fungal agents. Give the synthesis of Tolnaftate & Ciprofloxacin	5	CO4	K1, K2	PO2
10	What is cephalosporin? Explain how they differ from penicillin chemically & also write the SAR of Cephalosporin	5	CO2	K1, K2	PO1 0
11	Define & classify tetracycline with structures.	5	CO2	K1, K2	PO9
12	Write the MOA, Synthesis, Use, ADR, & Dose of Chloromycetin.	5	CO4	K1, K2	PO2
13	Define antimalarial agents. Give the synthesis of chloroquine & Pamaquine	5	CO4	K1, K2	PO1 0



ARKA JAIN
University
Jharkhand



END SEM EXAMINATION
School of Health & Allied Science

Program **Bachelor of Pharmacy**

Subject Name **Medicinal Chemistry-III**

Semester **VI**

Year **June 2024**


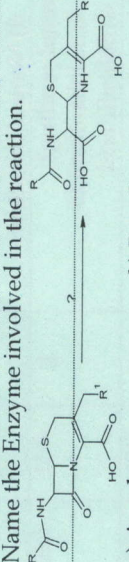
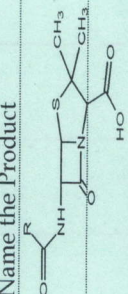
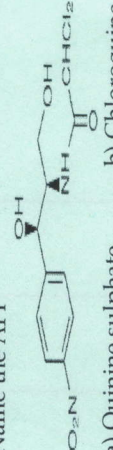
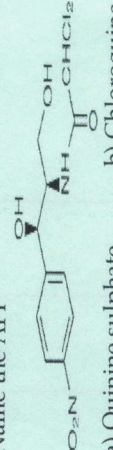
- Start writing from 2nd page onwards; don't Write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Two out of Three of Section B
- Answer Any Seven out of Nine of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator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

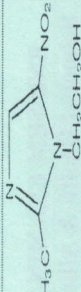
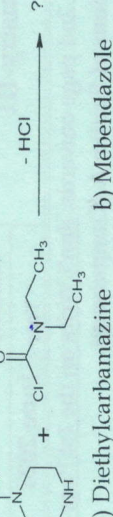
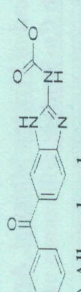
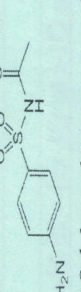
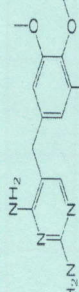
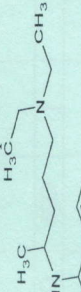
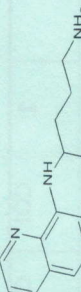
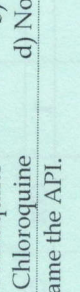
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max. Marks: 75

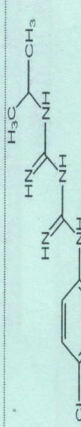

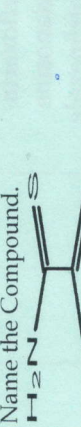
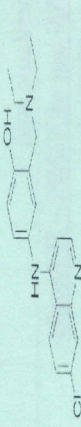
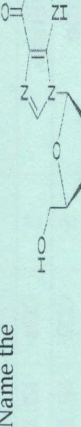
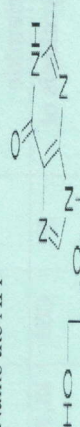
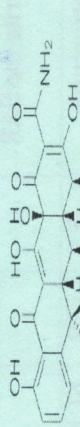
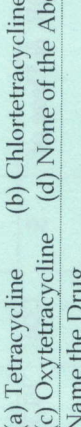
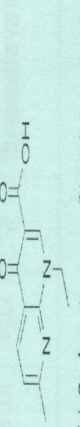
Knowledge Level (KL)

K1 : Remembering
K2 : Understanding
K3 : Applying
K4 : Analysing
K5 : Evaluating
K6 : Creating

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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Name the API 	1	CO1	CO3	K1
ii	a) Nalidixic Acid b) Norfloxacin c) Gancyclovir Name the Enzyme involved in the reaction. 	1	CO1	CO3	K1
iii	a) Acyclase c) Lactonase Name the Product 	1	CO1	CO4	K1
iv	a) Penicilloic acid c) Penicillic acid Name the API 	1	CO1	CO3	K1
v	a) Quinine sulphate c) Amodiaquine Name the API 	1	CO1	CO4	K1

vi	 a) Metronidazole b) Tinidazole c) Ornidazole d) None of the above Name the Product	1	CO1	CO4	K1
vii	 a) Diethylcarbamazine b) Mebendazole c) Albendazole d) Niclosamide Name the API	1	CO1	CO3	K1
viii	 a) Albendazole b) Niclosamide c) Oxamniquine d) None of the above Name the Sulphonamide	1	CO1	CO4	K1
ix	 a) Sulphamethizine c) Sulphapyridine Name the API  b) Sulfacetamide d) Sulfamethoxazole	1	CO1	CO3	K1
x	Which is the earliest discovered prodrug? a) Prontosil b) Sulphanilamide c) Aspirin d) Salicylic acid	1	CO1	CO3	K1
xi	Name the Compound.  a) Sontoqueine c) Hydroxy chloroquine d) Chloroquine Name the Compound.	1	CO1	CO4	K1
xiii	 a) Primaquine c) Chloroquine Name the API.  b) Pamaquine d) None of the Above	1	CO1	CO3	K1

xiv	 a) Quinacrine c) Mefloquine Name the Anti-TB Antibiotic.  a) INH c) Cycloserine Name the Compound.  a) INH c) Cycloserine Name the API	1	CO1	CO3	K1
xv	b) Proguanil d) None of the Above b) PASA d) Rifabutin b) PASA d) Ethionamide	1	CO1	CO3	K1
xvi	 a) Amodiaquine c) Nalidixic Acid Name the Drug.  b) Primaquine d) None of the above	1	CO1	CO2	K1
xviii	Name the API  a) Amantadine c) Clotrimazole Name the API (a) Didanosine (c) Acyclovir Name the API  (b) Gancyclovir (d) None of the Above	1	CO1	CO3	K1
xix	Name the API  (a) Tetracycline (c) Oxytetracycline Name the Drug.  (b) Chlorotetracycline (d) None of the Above (a) Cycloserine (c) Amodiaquine	1	CO1	CO4	K1
xx	Name the Drug. (b) Nalidixic Acid (d) Primaquine	1	CO1	CO4	K1

Branch	Bachelor of Pharmacy	Program	Pharmacy
Subject Name	Pharmaceutical Biotechnology	Semester	VI
		Year	June 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

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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. N	QUESTIONS	Marks	COs	KL	PO
i	Which of the following immunoglobulins are secretory and present in the milk? a) IgG b) IgM c) IgE d) IgA	1	CO3	K1	PO1
ii	The specificity of an antibody is due to a) Its valence b) The heavy chains c) The Fc portion d) The variable portion of the heavy and light chain	1	CO3	K1	PO2
iii	The class of antibodies, which can cross placenta is a) IgD b) IgA c) IgG d) IGM	1	CO3	K1	PO1
iv	Name the class of immunoglobulin which takes part in hypersensitivity reaction? a) IgG b) IgE c) IgA d) IgM	1	CO3	K2	PO1
v	Which of the following is considered as a disadvantage to the adsorption method of immobilization? a) The enzymes are not usually deactivated by adsorption	1	CO1	K2	PO1

7	Define Immunoglobulin, Explain type and Structure of Immunoglobulin	5	CO3	K2	PO1
8	Write down the Storage condition and stability of official vaccines	5	CO1	K1	PO1
9	Briefly explain the Production of Penicillin	5	CO1	K1	PO2
10	Describe Protein engineering and its application	5	CO2	K1	PO1
11	Describe enzyme immobilization and its application?	5	CO1	K1	PO1
12	Discuss Cloning Vectors and its principle?	5	CO1	K1	PO1
13	Define Biotechnology along with its application and advantages, disadvantages	5	CO1	K1	PO2

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

CO1	Understanding the importance of Immobilized enzymes in Pharmaceutical Industries
CO2	Genetic engineering applications in relation to production of pharmaceuticals
CO3	Importance of Monoclonal antibodies in Industries
CO4	Appreciate the use of microorganisms in fermentation technology

GRAPHICAL REPRESENTATION

BLOOM'S LEVEL WISE MARKS DISTRIBUTION

■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome Wise Marks Distribution

	<p>b) The adsorption is a reversible process</p> <p>c) It is possible to separate and purify the enzymes while being immobilized</p> <p>d) State of immobilization is very sensitive to solution pH, ionic strength and temperature</p>				
vi	<p>Glucose Biosensor is an example of biosensor</p> <p>a) Thermal b) Optical</p> <p>c) Amperometric d) Conductometric</p>	1	CO2	K2	PO2
vii	<p>Which biosensors work on the principle of change in mass</p> <p>a) Optical b) Calorimetric</p> <p>c) Colorimetric d) Piezoelectric</p>	1	CO2	K1	PO1
viii	<p>Plasmid is the circular piece of DNA present in</p> <p>a) Virus b) Fungi</p> <p>c) Bacteria d) Algae</p>	1	CO1	K2	PO1
ix	<p>Introduction of recombinant DNA into the bacterial cell by using current is called</p> <p>a) Transformation b) Electroporation</p> <p>c) Transduction d) Transduction</p>	1	CO1	K1	PO2
x	<p>B cells that produce and release large amounts of antibody are called</p> <p>a) Memory cells b) Basophils</p> <p>c) Plasma cells d) Killer cells</p>	1	CO3	K1	PO1
xi	<p>Type IV hypersensitivity is also called as</p> <p>a) Immediate hypersensitivity</p> <p>b) Cytotoxic hypersensitivity</p> <p>c) Immune complex hypersensitivity</p> <p>d) Delayed hypersensitivity</p>	1	CO3	K2	PO1
xii	<p>A positive tuberculin test is an example of</p> <p>a) Delayed type hypersensitivity</p> <p>b) Acute contact dermatitis</p> <p>c) Type I hypersensitivity</p> <p>d) Eczema</p>	1	CO3	K2	PO1
xiii	<p>Naturally acquired active immunity would be most likely acquired through which of the following processes?</p> <p>a) Vaccination</p> <p>b) Drinking colostrum</p> <p>c) Natural birth</p> <p>d) Infection with disease causing organism followed by recovery.</p>	1	CO2	K1	PO1
xiv	<p>Antigen binding sites are present in</p> <p>a) Fab regions of an antibody</p> <p>b) Fc region of an antibody</p>	1	CO3	K2	PO2

xv	<p>c) only in the light chain</p> <p>d) only in the heavy chain</p> <p>Which enzyme is used to join together two different types of DNA molecules?</p> <p>a) ligase b) endonuclease</p> <p>c) exonuclease d) protease</p>	1	CO1	K2	PO1
xvi	<p>Excision and insertion of a gene is called</p> <p>a) Biotechnology b) Genetic engineering</p> <p>c) Cytogenetics d) Gene therapy</p>	1	CO2	K1	PO2
xvii	<p>Which of the following is the first transgenic crop?</p> <p>a) Flax b) Tobacco</p> <p>c) Plastic d) Cotton</p>	1	CO4	K2	PO1
xviii	<p>The first transgenic plant to be produced is</p> <p>a) Brinjal b) Tobacco</p> <p>c) Rice d) Cotton</p>	1	CO4	K2	PO1
xix	<p>Chain termination is a type of</p> <p>a) Sequencing b) Vector generation</p> <p>c) Antibiotic production d) Gene manipulation</p>	1	CO4	K2	PO1
xx	<p>Antibodies are</p> <p>a) Prostaglandins b) Steroids</p> <p>c) lipoprotein d) Glycoprotein</p>	1	CO3	K2	PO1

Section B (Answer any TWO out of THREE) – 20 Marks

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	What is recombinant DNA technology? Write the various process involve in production of protein through r DNA technology	10	CO1	K1 K2	PO1
3	Define immunity. Describe the various types of immunity along with its application.	10	CO2	K1 K2	PO1
4	Discuss hybridoma technology. Write its production, purification and application	10	CO4	K2 K4	PO2

Section C (Answer any SEVEN out of NINE) – 35 Marks

(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Write a brief introduction to PCR.	5	CO2	K1	PO1
6	Write down the Structure and functions of MHC.	5	CO2	K2 K6	PO1

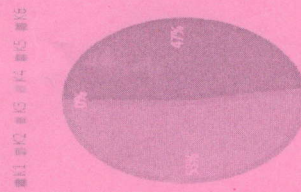
12	What considerations are essential in the construction of manufacturing plants?	05	CO1	K1	PO1
13	Describe the importance of premises design in ensuring product quality	05	CO1	K2	PO2

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

CO1	Understand the importance of quality in pharmaceutical products.
CO2	Know the importance of Good manufacturing practices and the factors affecting the quality of pharmaceuticals
CO3	Know the importance of Good laboratory practices and its documentation
CO4	Understand the various documentation processes
CO5	Understand calibration and validation and predict the errors and analyse the root cause.

GRAPHICAL REPRESENTATION

BLOOM'S LEVEL WISE MARKS DISTRIBUTION



Course Outcome Wise Marks Distribution

