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**2.6.1: PROGRAMME OUTCOMES (POS)
AND COURSE OUTCOMES (COS) FOR
ALL PROGRAMMES OFFERED BY THE
INSTITUTION ARE STATED AND
DISPLAYED ON WEBSITE**

b) provide link for additional information



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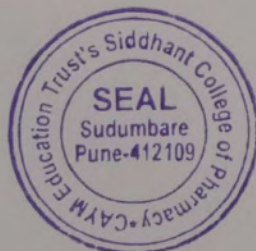
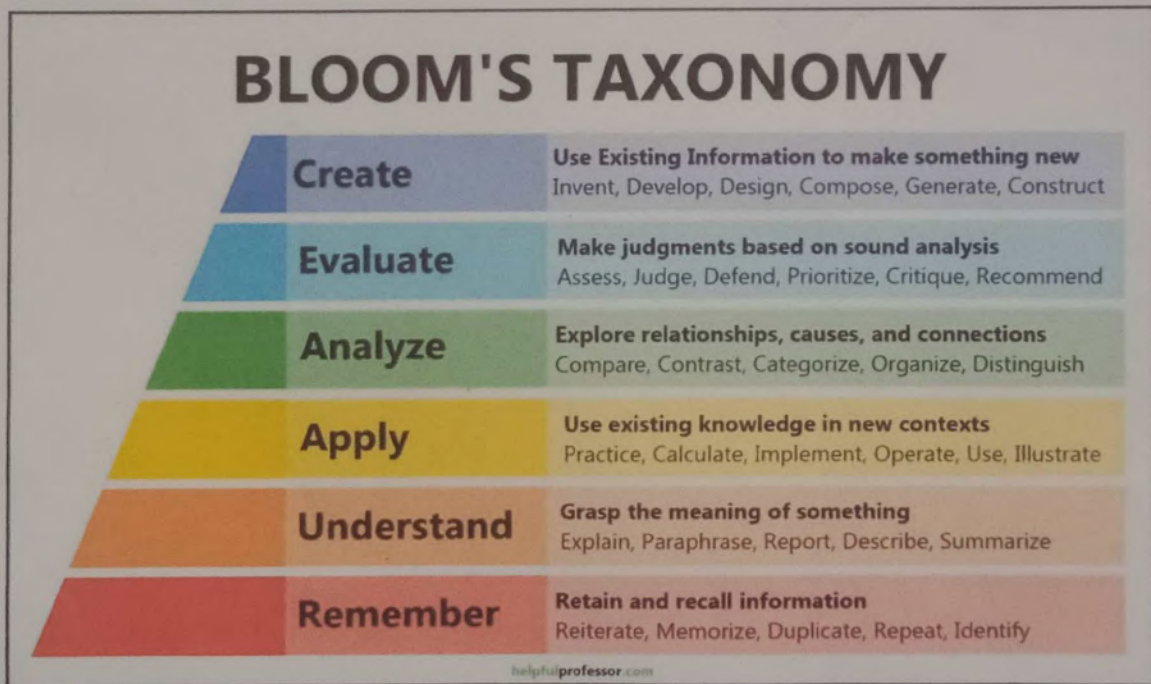
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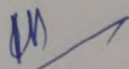
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BLOOMS TAXONOMY AS AN TOOL FOR DEFINING COURSE OUTCOME

Bloom's Taxonomy was created by Benjamin Bloom in 1956, published as a kind of classification of learning outcomes and objectives that have, in the more than half-century since, been used for everything from framing digital tasks and evaluating apps to writing questions and assessments.

The original sequence of cognitive skills was Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. The framework was revised in 2001 by Lorin Anderson and David Krathwohl, yielding the revised Bloom's Taxonomy. The most significant change was the removal of 'Synthesis' and the addition of 'Creation' as the highest-level of Bloom's Taxonomy. And being at the highest level, the implication is that it's the most complex or demanding cognitive skill—or at least represents a kind of pinnacle for cognitive tasks.




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Chaudhary Attarsingh Yadav Memorial Education Trust's Siddhant College Of Pharmacy, Sudumbare

B Pharmacy [2022-23]

Title : Assignment test 1

Subject : Phytopharmacovigilance - Theory

Faculty : Dr. Swati Jogdand

Year : Fourth Year - Sem VII

Date : Mon 13 Feb, 2023

Marks : 10

Duration : 60 Minutes

1] Question : 1. There are basic aims of Pharmacovigilance. [Single Correct] [1 Marks]

- 1) A. To improve public health and safety
- 2) B. To improve patient care and safety
- 3) C. To contribute to the assessment of benefit, harm, effectiveness and risk of medicines
- 4) D. All of above

Explanation :

Bloom's Level: Remember, Understand

2] Question : 2. Types of ADR consists of [Single Correct] [1 Marks]

- 1) A. Non immunological ADR
- 2) B. Immunological ADR
- 3) C. Both
- 4) D. None of above

Explanation :

Bloom's Level: Remember, Understand

3] Question : 3. Cytotoxic hypersensitivity reactions are called as [Single Correct] [1 Marks]

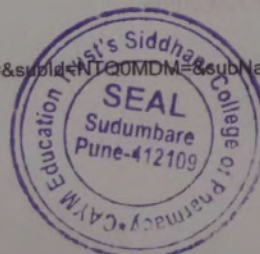
- 1) A. Type I reactions
- 2) B. Type II reactions
- 3) B. Type II reactions
- 4) D. All of above

Explanation :

Bloom's Level: Remember, Understand

4] Question : STEPS OF ADR MONITORING [Single Correct] [1 Marks]

- 1) A. Reporting serious ADRS to PV centers/ADR regulatory authorities
- 2) B. Assessing causality
- 3) C. Documentation of ADR



4) D. Identifying adverse drug reactions

Explanation :

Bloom's Level: Remember, Understand

5] Question : 5. What is/ are methods of causality assessment [Single Correct] [1 Marks]

- 1) A. WHO
- 2) B. Naranjo
- 3) C. Both
- 4) D. None of above

Explanation :

Bloom's Level: Remember, Understand

6] Question : 6. TMF is nothing but [Single Correct] [1 Marks]

- 1) A. Three master file
- 2) B. Turn master file
- 3) C. Trial master file
- 4) C. Trial master file

Explanation :

Bloom's Level: Remember, Understand

7] Question : 7. Assessment of the drug's safety and safe effective dose is the objective of [Single Correct] [1 Marks]

- 1) A. Phase I clinical trial
- 2) B. Phase II clinical trial
- 3) C. Phase III clinical trial
- 4) D. Phase IV clinical trial

Explanation :

Bloom's Level: Remember, Understand

8] Question : The Council for International Organizations of Medical Sciences (CIOMS) is an international, non-governmental, non-profit organization established jointly by WHO and UNESCO in 1949. [Single Correct] [1 Marks]

- 1) A. True
- 2) B. False
- 3) C. May be non relevant
- 4) D. None of above

Explanation :

Bloom's Level: Remember

9] Question : MedDRA is nothing but [Single Correct] [1 Marks]

- 1) A. Medical Dictionary for Regular Activities

- 2) B. Medical Directory for Regulatory Activities
 3) C. Medical Dictionary for Regulatory Activities
 4) D. Medical Distinction for Regulatory Activities

Explanation :

Bloom's Level: Remember, Understand

10] Question : 10. ----- is the transformation of healthcare diagnosis, procedures, medical services, and equipment into universal medical alphanumeric codes. [Single Correct] [1 Marks]

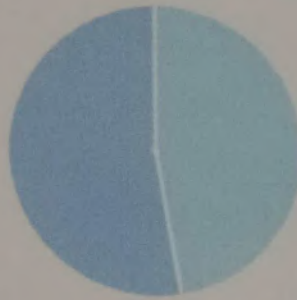
- 1) A. Health coding
 2) B. Medical coding
 3) C. Distinct coding
 4) D. All of above

Explanation :

Bloom's Level: Remember, Understand

Marks distribution as per Bloom's level

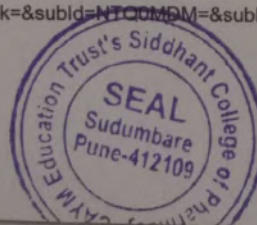
Create Evaluate Analyze Apply Understand Remember



Bloom's Level	Linked Question Count	Marks	Percentage
Create	0	0	0.00
Evaluate	0	0	0.00
Analyze	0	0	0.00
Apply	0	0	0.00
Understand	9	9	90.00
Remember	10	10	100.00

NOTE : Percentage for each Bloom's level is calculated using following formula

$$\text{Percentage} = \left(\frac{\text{Marks per Bloom's level}}{\text{Total marks of all questions}} \right) * 100$$



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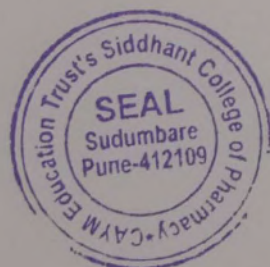
Question Bank and Bloom taxonomy 2022-23

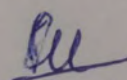
Teacher: Dr. Gita Chaurasia

Subject: MPH 103T Modern Pharmaceutics (Theory) (Sem.I)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Define & explain Optimization techniques in pharmaceutical formulation.	L1,L2
2	Discuss ICH & WHO guidelines for validation of equipments.	L1,L2
3	What is the limit according to USP visible particle size permitted in LVP.	L1,L4
4	Describe about layout of buildings.	L1,L2
5	Discuss Similarity factors – f2 and f1.	L1,L5
6	Explain compression and consolidation.	L1,L5
7	Define cGMP & Industrial Management.	L1,L4
8	Explain in detail Dissolution parameters.	L1,L2
9	Write a short note on Total Quality Management.	L1,L2
10	What is the concept and parameters of optimization.	L1,L2
11	Define Preformulation concepts.	L1,L2
12	Explain Pharmaceutical Validation in detail.	L1,L3
13	Describe Types of process validation.	L1,L2
14	Explain different types of pharmaceutical Dispersions.	L1,L2
15	Write short note on Large and small volume parenterals.	L1,L4
16	Explain stability testing as per ICH.	L1,L2
17	Discuss about Factorial designs and application in formulation.	L1,L6
18	Discuss about zero order and first order kinetics.	L1,L2
19	Discuss about production and planning control.	L1,L2
20	Describe Physics of tablet compression.	L1,L3

Subject Teacher
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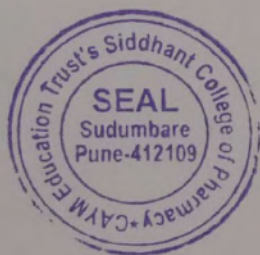
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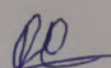
Teacher: Dr. Gita Chaurasia

Subject: MPH 201T Molecular Pharmaceutics (Theory) (Sem. II)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Discuss Intra nasal Drug Delivery Systems.	L1,L2
2	Write short note on- 'Phytosomes'.	L1,L3
3	Differentiate " Normal tissue Vs Tumor tissue".	L1,L6
4	Write short note on- Niosomes	L1,L2
5	Discuss details of Brain specific delivery.	L1,L5
6	Describe Targeted Drug Delivery Systems	L1,L2
7	Explain inherited disorders.	L1,L3
8	Discuss Pulmonary Drug Delivery Systems.	L1,L2
9	Explain evaluation Parameters of Micro Capsules.	L1,L2
10	Write notes on- therapeutic antisense molecules.	L1,L2
11	Classify approaches of Gene therapy.	L1,L4
12	Write about events and biological process involved in drug targeting.	L1,L2
13	write short note on- 'Electrosomes'.	L1,L2
14	write short note on- 'Aquasomes'.	L1,L2
15	Write application of Electrosomes.	L1,L2
16	What do you mean by Gene expression systems?	L1,L3
17	Define Liposomes and classify them.	L1,L2
18	Describe "Monoclonal antibodies".	L1,L2
19	What do you mean by aptamers as drugs of future.	L1,L2
20	Classify Tumor targeting drugs delivery system.	L1,L2

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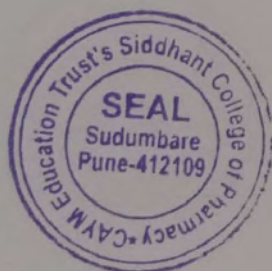
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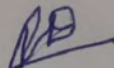
Teacher: Dr. Gita Chaurasia

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)
(Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Enlist mechanism of Tight-Junction Complex.	L1,L3
2	Describe cytochrome p450-based drug interactions.	L1,L3
3	Describe Monoclonal antibodies.	L1,L2
4	Write about compendial methods of dissolution.	L1,L4
5	Describe Application of Pharmacokinetics in pharmacy.	L1,L2
6	Discuss about crossover study designs.	L1,L6
7	What are the pH Partition Hypothesis?	L1,L2
8	Describe one compartment model- IV bolus.	L1,L3
9	Discuss Modified-Release Drug Products.	L1,L2
10	Explain Factors affecting the dissolution rate.	L1,L2
11	Describe clinical significance of bioequivalence studies.	L1,L2
12	Describe non-linear pharmacokinetics.	L1,L2
13	Define Proteins and peptides.	L1,L2
14	What do you mean by bioavailability.	L1,L2
15	Write the Factors affecting drug absorption.	L1,L2
16	Discuss Mechanism of drug absorption.	L1,L3
17	Write mechanism of actions of pH-partition theory of drug absorption.	L1,L2
18	Discuss two compartment - model in brief.	L1,L2
19	Describe Permeability.	L1,L6
20	Explain correlation of in vivo data with in vitro dissolution data.	L1,L2

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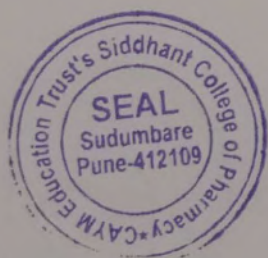
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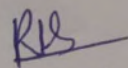
Teacher: Dr. Gita Chaurasia

Subject: MRM 301T Research Methodology & Biostatistics (Theory) (Sem. III)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		BL
Sr. No.	Questions	
1	Enlist General Research Methodology used in research.	L1,L3
2	Describe statistical tests of significance.	L1,L3
3	Describe Correlation coefficient.	L1,L2
4	Write about study design and its types.	L1,L4
5	Describe importance of communication in medical research.	L1,L2
6	Discuss about crossover study designs.	L1,L6
7	What is randomization?	L1,L2
8	Describe non-parametric tests.	L1,L3
9	Discuss autonomy and beneficence.	L1,L2
10	Explain factors influencing sample size.	L1,L2
11	Describe strategies to eliminate errors/bias.	L1,L2
12	Describe informed consent.	L1,L2
13	Define blinding techniques..	L1,L2
14	What do you mean by placebo.	L1,L2
15	Why research is needed?	L1,L2
16	Discuss hypothesis.	L1,L3
17	Write interpretation of P values.	L1,L2
18	Discuss analysis of variance.	L1,L2
19	Describe P values.	L1,L6
20	Explain CPCSEA guidelines for laboratory animal.	L1,L2



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Question Bank and Bloom taxonomy 2022-23

Teacher: Dr. Narendra Gowekar

Subject: Introduction to Indian constitution (Sem. III)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Sr. No.	Questions	BL
1	What is Indian constitution?	L1,L3
2	Describe Role of Dr. B.R. Ambedkar in Constituent Assembly.	L1,L3
3	Describe Justice - Social , Economic and Political.	L1,L2
4	Write about Preamble.	L1,L4
5	Describe importance of Protection and improvement of environment.	L1,L2
6	Discuss about Socialist and Secular .	L1,L2
7	What is Equality?	L1,L2
8	Describe Provision for early childhood, Right to education and SC, ST, weaker section.	L1,L3
9	Discuss Right to constitutional remedies.	L1,L2
10	Explain Right to equality.	L1,L2
11	Describe Fraternity and Human Dignity.	L1,L2
12	Describe Right to work and provisions for just and humane conditions of work.	L1,L2
13	Define Unity and Integrity of the Nation.	L1,L2
14	What do you mean by Liberty.	L1,L2
15	Why Uniform Civil Code is needed?	L1,L2
16	Discuss Standard of Living, nutrition and public health.	L1,L3
17	Write about Right to freedoms.	L1,L2
18	Discuss Cultural and educational rights.	L1,L2
19	Describe Right to property.	L1,L2
20	Explain Right against exploitation.	L1,L2



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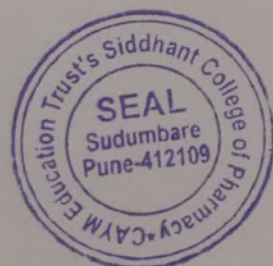
Teacher: Dr. Geeta Chaurasia


Subject:-BP-:801Biostatics and research methodology

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate

Sr. No.	Questions	BL
1	Explain regression in detail.	L1,L2
2	Why need for research.	L1,L2
3	Define Dispersion and explain it.	L1,L2
4	What is standard deviation.	L1,L2
5	Discuss probability in details.	L1,L2
6	Describe T test and Friedman test.	L1,L2
7	Explain types of correlation.	L1,L2
8	What is ANOVA.	L1,L2
9	Note on hypothesis testing in simple and multiple regression models.	L1,L2
10	Elaborate non parametric test.	L1,L2
11	Differentiate between Pie chart and Cubic chart.	L1,L2
12	Define protocol and explain it.	L1,L2
13	Which problems arrives in the time of clinical trails.	L1,L2
14	Why need for designing and research of experiments.	L1,L2
15	Describe in details response surface methodology.	L1,L2
16	Define dispersion and explain in it details.	L1,L2
17	Explain wilcoxon rank sum test.	L1,L2
18	Discuss in details sample and theirs importance.	L1,L2
19	Elaborte different phases of clinical trials.	L1,L2
20	Define correlation and explain different types of correlations in details.	L1,L2

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Bloom levels of Taxonomy 2021-22

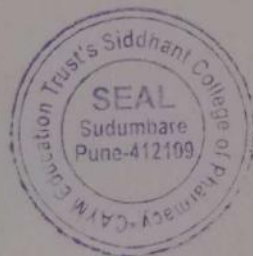
Class: First year M Pharmacy (Sem. I) 2021-22

Name of subject teacher: Dr. Gita Chaurasia

Subject: MPH 103T Modern Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

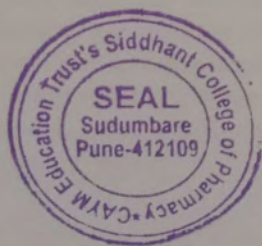
Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	A. Preformulation concepts: Drug Excipients interactions - different methods, kinetics of stability, Stability testing. Theories of dispersion and pharmaceutical Dispersion (Emulsion and Suspension, SMEDDS) preparation and stability Large and small volume parental – physiological and formulation consideration, Manufacturing and evaluation. B. Optimization techniques in Pharmaceutical Formulation: Concept and parameters of optimization, Optimization techniques in pharmaceutical formulation and processing. Statistical design, Response surface method, Contour designs, Factorial designs and application in formulation.	10 Hrs 10 Hrs	L1, L2 L3, L5	1,2,3,4,5,15 1,2,3,4,6,12
2	Validation: Introduction to Pharmaceutical Validation, Scope & merits of Validation, Validation and calibration of Master plan, ICH & WHO guidelines for calibration and validation of equipments, Validation of specific dosage form, Types of validation. Government regulation, Manufacturing Process Model, URS, DQ, IQ, OQ & P.Q. of facilities.	10 Hrs	L2, L3, L4	11, 12, 4, 7, 8
3	cGMP & Industrial Management: Objectives and policies of current good manufacturing practices, layout of buildings, services, equipments and their maintenance Production management: Production organization, , materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management.	10 Hrs	L1, L4	13, 2, 3, 14
4	Compression and compaction: Physics of tablet compression, compression, consolidation, effect of friction, distribution of forces, compaction profiles. Solubility.	10 Hrs	L3, L6	15, 16, 7
5	Study of consolidation parameters; Diffusion parameters, Dissolution parameters and Pharmacokinetic parameters, Heckel plots, Similarity factors – f ₂ and f ₁ , Higuchi and Peppas plot, Linearity Concept of significance, Standard deviation , Chi square test, students T-test , ANOVA test.	10 Hrs	L1, L2	4, 7, 8, 17



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- ES:
1. Theory and Practice of Industrial Pharmacy By Lachmann and Libermann
 2. Pharmaceutical dosage forms: Tablets Vol. 1-3 by Leon Lachmann.
 3. Pharmaceutical Dosage forms: Disperse systems, Vol, 1-2; By L Lachmann.
 4. Pharmaceutical Dosage forms: Parenteral medications Vol. 1-2; By Leon Lachmann.
 5. Modern Pharmaceutics; By Gillbert and S. Banker.
 6. Remington's Pharmaceutical Sciences.
 7. Advances in Pharmaceutical Sciences Vol. 1-5; By H.S. Bean & A.H. Beckett.
 8. Physical Pharmacy; By Alfred martin
 9. Bentley's Textbook of Pharmaceutics – by Rawlins.
 10. Good manufacturing practices for Pharmaceuticals: A plan for total quality control, Second edition; By Sidney H. Willig.
 11. Quality Assurance Guide; By Organization of Pharmaceutical producers of India.
 12. Drug formulation manual; By D.P.S. Kohli and D.H. Shah. Eastern publishers, New Delhi.
 13. How to practice GMPs; By P.P. Sharma. Vandhana Publications, Agra.
 14. Pharmaceutical Process Validation; By Fra. R. Berry and Robert A. Nash.
 15. Pharmaceutical Preformulations; By J.J. Wells.
 16. Applied production and operations management; By Evans, Anderson, Sweeney and Williams.
 17. Encyclopaedia of Pharmaceutical technology, Vol I – III.

**Subject Teacher
Dr. Gita Chaurasia**



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Bloom levels of Taxonomy 2021-22

Class: First year M Pharmacy (Sem. II) 2021-22

Name of subject teacher: Dr. Gita Chaurasia

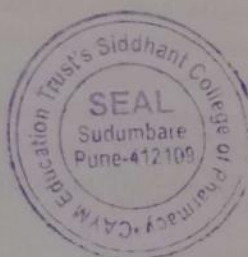
Subject: MPH 201T Molecular Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Targeted Drug Delivery Systems: Concepts, Events and biological process involved in drug targeting. Tumor targeting and Brain specific delivery	12	L1,L3	1
2	Targeting Methods: introduction preparation, evaluation. Nano Particles & Liposomes: Types, preparation evaluation.	12	L1,L3, L4	2,5
3	Micro Capsules / Micro Spheres: Types, preparation and evaluation , Monoclonal Antibodies ; preparation and application, preparation and application of Niosomes, Aquasomes, Phytosomes, Electrosomes	12	L1,L2	3
	Pulmonary Drug Delivery Systems : Aerosols, propellents, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	12	L1,L4	5,7
5	Nucleic acid based therapeutic delivery system : Gene therapy, introduction (ex-vivo & in-vivo gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and nonviral gene transfer). Liposomal gene delivery systems. Biodistribution and Pharmacokinetics. knowledge of therapeutic antisense molecules, aptamers as drugs of future.	12	L1,L2, L5	5,6,7

References:

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. S.P. Vyas and R.K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002.
3. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001)



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Bloom levels of Taxonomy 2021-22

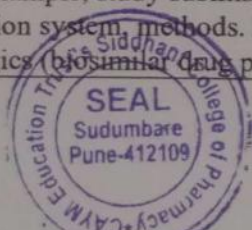
Course: First year M Pharmacy (Sem. II) 2021-22

Name of subject teacher: Dr. Gita Chaurasia

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Drug Absorption from the Gastrointestinal Tract: Gastrointestinal tract, Mechanism of drug absorption, Factors affecting drug absorption, pH-partition theory of drug absorption. Formulation and physicochemical factors: Dissolution rate, Dissolution process, Noyes-Whitney equation and drug dissolution, Factors affecting the dissolution rate. Gastrointestinal absorption: role of the dosage form: Solution (elixir, syrup and solution) as a dosage form, Suspension as a dosage form, Capsule as a dosage form, Tablet as a dosage form, Dissolution methods, Formulation and processing factors, Correlation of in vivo data with in vitro dissolution data. Transport model: Permeability-Solubility-Charge State and the pH Partition Hypothesis, Properties of the Gastrointestinal Tract (GIT), pH Microclimate Intracellular pH Environment, Tight-Junction Complex.	12	L1,L3	3,13,4,5,6
2	Biopharmaceutic considerations in drug product design and In Vitro Drug Product Performance: Introduction, biopharmaceutic factors affecting drug bioavailability, rate-limiting steps in drug absorption, physicochemical nature of the drug formulation factors affecting drug product performance, in vitro: dissolution and drug release testing, compendial methods of dissolution, alternative methods of dissolution testing, meeting dissolution requirements, problems of variable control in dissolution testing performance of drug products. In vitro-in vivo correlation, dissolution profile comparisons, drug product stability, considerations in the design of a drug product.	12	L1,L2	1, 2, 6, 8
3	Pharmacokinetics: Basic considerations, pharmacokinetic models, compartment modeling: one compartment model- IV bolus, IV infusion, extra-vascular. Multi compartment model: two compartment - model in brief, non-linear pharmacokinetics: cause of non-linearity, Michaelis - Menten equation, estimation of k _{max} and v _{max} . Drug interactions: introduction, the effect of protein-binding interactions, the effect of tissue-binding interactions, cytochrome p450-based drug interactions, drug interactions linked to transporters.	12	L1,L4	2,5, 7
4	Drug Product Performance, In Vivo: Bioavailability and Bioequivalence: drug product performance, purpose of bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study designs, crossover study designs, evaluation of the data, bioequivalence example, study submission and drug review process. Biopharmaceutics classification system, methods. Permeability: In-vitro, in-situ and In-vivo methods. generic biologics (biosimilar drug products), clinical significance of	12	L1,L6	3, 8,9,11

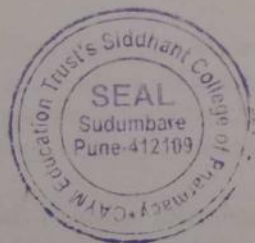


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alence studies, special concerns in bioavailability and bioequivalence studies, e substitution.			
Application of Pharmacokinetics: Modified-Release Drug Products, Targeted Drug Delivery Systems and Biotechnological Products. Introduction to Pharmacokinetics and pharmacodynamic, drug interactions. Pharmacokinetics and pharmacodynamics of biotechnology drugs. Introduction, Proteins and peptides, Monoclonal antibodies, Oligonucleotides, Vaccines (immunotherapy), Gene therapies.	12	L1,L5	5,7,8, 12

References:

1. Biopharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi, 4th edition, Philadelphia, Lea and Febiger, 1991
2. Biopharmaceutics and Pharmacokinetics, A. Treatise, D .M. Brahmkar and Sunil B. Jaiswal., VallabPrakashan, Pitampura, Delhi
3. Applied Biopharmaceutics and Pharmacokinetics by Shargel. Land YuABC, 2nd edition, Connecticut Appleton Century Crofts, 1985
4. Textbook of Biopharmaceutics and Pharmacokinetics, Dr. Shobha Rani R. Hiremath, Prism Book
5. Pharmacokinetics by Milo Gibaldi and D. Perrier, 2nd edition, Marcel Dekker Inc., New York, 1982
6. Current Concepts in Pharmaceutical Sciences: Biopharmaceutics, Swarbrick. J, Lea and Febiger, Philadelphia, 1970
7. Clinical Pharmacokinetics, Concepts and Applications 3rd edition by Malcolm Rowland and Thom~ N. Tozer, Lea and Febiger, Philadelphia, 1995
8. Dissolution, Bioavailability and Bioequivalence, Abdou. H.M, Mack Publishing Company, Pennsylvania 1989
9. Biopharmaceutics and Clinical Pharmacokinetics, An Introduction, 4th edition, revised and expanded by Robert. E. Notari, Marcel Dekker Inc, New York and Basel, 1987.
10. Biopharmaceutics and Relevant Pharmacokinetics by John. G Wagner and M. Pamarowski, 1st edition, Drug Intelligence Publications, Hamilton, Illinois, 1971.
11. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James. G. Boylan, Marcel Dekker Inc, New York, 1996.
12. Basic Pharmacokinetics, 1st edition, Sunil S Jambhekar and Philip J Breen, pharmaceutical press, RPS Publishing, 2009.
13. Absorption and Drug Development- Solubility, Permeability, and Charge State, Alex Avdeef, John Wiley & Sons, Inc, 2003.



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CAYMET'S
SIDDHANT COLLEGE OF PHARMACY, SUDUMBRE

Bloom levels of Taxonomy 2021-22

Class: First year M Pharmacy (Sem. III) 2021-22

Name of subject teacher: Dr. Gita Chaurasia

Subject: MRM 301T Research Methodology & Biostatistics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	General Research Methodology: Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.	06	L1,L3	1,2
2	Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests(students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.	06	L1,L3, L4	2,4
3	Medical Research: History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines, ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.	06	L1,L2	3,1,2
4	CPCSEA guidelines for laboratory animal facility: Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals	06	L1,L4	2,4
	Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care	06	L1,L2, L5	1,3,2

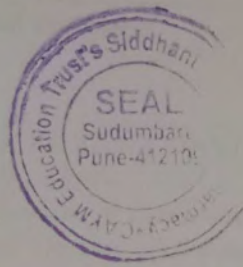


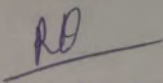
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References:

1. Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton, Marcel Dekker Inc. New York.
2. Fundamental of Statistics – Himalaya Publishing House- S. C. Gupta
3. Design and Analysis of Experiments –PHI Learning Private Limited, R. Pannerselvam.
4. Design and Analysis of Experiments – Wiley Students Edition, Douglas and C. Montgomery

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Bloom levels of Taxonomy 2021-22

Class: First year M Pharmacy (Sem. III) 2021-22

Name of subject teacher: Dr. Gita Chaurasia

Subject: Introduction to Indian constitution

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	PHILOSOPHY OF THE INDIAN CONSTITUTION a) Constitutional History of India b) Role of Dr. B.R. Ambedkar in Constituent Assembly c) Preamble - Source and Objects d) Sovereign and Republic e) Socialist and Secular f) Democratic - Social and Economic Democracy g) Justice - Social, Economic and Political h) Liberty - Thought, Expression, Belief, Faith and worship i) Equality - Status and Opportunity j) Fraternity, Human Dignity, Unity and Integrity of the Nation	05	L1, L2	1, 2, 8
2	FUNDAMENTAL RIGHTS a) Right to equality b) Right to freedoms c) Right against exploitation d) Right to freedom of religion e) Cultural and educational rights f) Right to property g) Right to constitutional remedies	10	L1, L3,	2, 4, 5, 3
3	DIRECTIVE PRINCIPLES OF STATE POLICY a) Equal Justice and free legal aid b) Right to work and provisions for just and humane conditions of work c) Provision for early childhood, Right to education and SC, ST, weaker section d) Uniform Civil Code e) Standard of Living, nutrition and public health f) Protection and improvement of environment g) Separation of Judiciary from executive h) Promotion of International peace and security	10	L1, L2	3, 1, 2, 8
4	FUNDAMENTAL DUTIES a) Duty to abide by the Constitution b) Duty to cherish and follow the noble ideals c) Duty to defend the country and render national service d) Duty to value and preserve the rich heritage of our composite culture e) Duty to develop scientific temper, humanism, the spirit of inquiry & reform f) Duty to safeguard public property and abjure violence g) Duty to strive towards excellence	05	L1, L2	2, 4, 6, 7

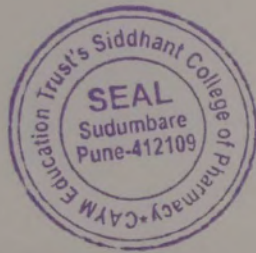


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References:

- 1) D. D. Basu, Introduction to the Constitution of India, LexisNexis
- 2) Granville Austin, The Constitution of India : Corner stone of a Nation, Oxford University Press
- 3) Subhash Kashyap , Our Constitution, National Book Trust
- 4) M . P. Jain, Indian Constitutional Law , Lexis Nexis
- 5) V.N. Smlka, Constitution of India, Eastern Book Company
- 6) P. M. Bakshi, The Constitution of India, Universal Law Publishing
- 7) M.V. Pylee, Constitutional Government in India, S. Chandh
- 8) V. S. Khare, Dr. B.R .Ambedkar and India's National Security

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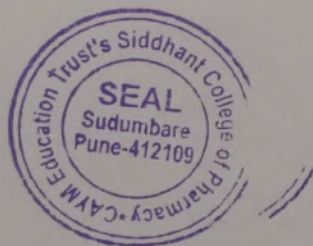
Question Bank and Bloom taxonomy 2021-22

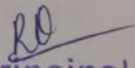
Teacher: Dr. Gita Chaurasia

Subject: MPH 103T Modern Pharmaceutics (Theory) (Sem. I)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Discuss about zero order and first order kinetics.	L1,L2
2	Explain compression and consolidation.	L1,L2
3	What is the limit according to USP visible particle size permitted in LVP.	L1,L4
4	Describe about layout of buildings.	L1,L2
5	Discuss Similarity factors – f ₂ and f ₁ .	L1,L5
6	Discuss ICH & WHO guidelines for validation of equipments.	L1,L5
7	Describe Physics of tablet compression.	L1,L4
8	Explain in detail Dissolution parameters.	L1,L2
9	Write a short note on Total Quality Management.	L1,L2
10	What is the concept and parameters of optimization.	L1,L2
11	Define Preformulation concepts.	L1,L2
12	Explain Pharmaceutical Validation in detail.	L1,L3
13	Describe Types of process validation.	L1,L2
14	Discuss about production and planning control.	L1,L2
15	Write short note on Large and small volume parenterals.	L1,L4
16	Explain stability testing as per ICH.	L1,L2
17	Discuss about Factorial designs and application in formulation.	L1,L6
18	Define & explain Optimization techniques in pharmaceutical formulation.	L1,L2
19	Explain different types of pharmaceutical Dispersions.	L1,L2
20	Define cGMP & Industrial Management.	L1,L3

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Question Bank and Bloom taxonomy 2021-22

Teacher: Dr. Gita Chaurasia

Subject: MPH 201T Molecular Pharmaceutics (Theory) (Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Explain evaluation Parameters of Micro Capsules.	L1,L2
2	What do you mean by aptamers as drugs of future.	L1,L3
3	Differentiate “ Normal tissue Vs Tumor tissue”.	L1,L6
4	Write short note on- Niosomes	L1,L2
5	Discuss details of Brain specific delivery.	L1,L5
6	Describe Targeted Drug Delivery Systems	L1,L2
7	Explain inherited disorders.	L1,L3
8	Discuss Pulmonary Drug Delivery Systems.	L1,L2
9	Discuss Intra nasal Drug Delivery Systems.	L1,L2
10	Write notes on- therapeutic antisense molecules.	L1,L2
11	Classify approaches of Gene therapy.	L1,L4
12	Classify Tumor targeting drugs.	L1,L2
13	write short note on- ‘Electrosomes’.	L1,L2
14	write short note on- ‘Aquasomes’.	L1,L2
15	Write application of Electrosomes.	L1,L2
16	What do you mean by Gene expression systems?	L1,L3
17	Define Liposomes and classify them.	L1,L2
18	Describe “Monoclonal antibodies”.	L1,L2
19	Write short note on- ‘Phytosomes’	L1,L2
20	Write about events and biological process involved in drug targeting.	L1,L2

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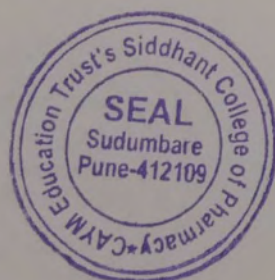
Teacher: Dr. Gita Chaurasia

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)
(Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Discuss about crossover study designs.	L1,L3
2	Explain correlation of in vivo data with in vitro dissolution data.	L1,L3
3	Describe non-linear pharmacokinetics.	L1,L2
4	Write about compendial methods of dissolution.	L1,L4
5	Describe Application of Pharmacokinetics in pharmacy.	L1,L2
6	Enlist mechanism of Tight-Junction Complex.	L1,L6
7	What are the pH Partition Hypothesis?	L1,L2
8	Describe one compartment model- IV bolus.	L1,L3
9	Discuss Modified-Release Drug Products.	L1,L2
10	Explain Factors affecting the dissolution rate.	L1,L2
11	Describe clinical significance of bioequivalence studies.	L1,L2
12	Describe Monoclonal antibodies.	L1,L2
13	Define Proteins and peptides.	L1,L2
14	What do you mean by bioavailability.	L1,L2
15	Write the Factors affecting drug absorption.	L1,L2
16	Discuss Mechanism of drug absorption.	L1,L3
17	Write mechanism of actions of pH-partition theory of drug absorption.	L1,L2
18	Discuss two compartment - model in brief.	L1,L2
19	Describe Permeability.	L1,L6
20	Describe cytochrome p450-based drug interactions.	L1,L2

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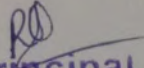
Teacher: Dr. Gita Chaurasia

Subject: MRM 301T Research Methodology & Biostatistics (Theory) (Sem. III)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Explain CPCSEA guidelines for laboratory animal.	L1,L3
2	Describe statistical tests of significance.	L1,L3
3	What do you mean by placebo.	L1,L2
4	Enlist General Research Methodology used in research.	L1,L4
5	Describe importance of communication in medical research.	L1,L2
6	Describe P values.	L1,L6
7	What is randomization?	L1,L2
8	Describe non-parametric tests.	L1,L3
9	Discuss autonomy and beneficence.	L1,L2
10	Explain factors influencing sample size.	L1,L2
11	Describe strategies to eliminate errors/bias.	L1,L2
12	Describe informed consent.	L1,L2
13	Define blinding techniques..	L1,L2
14	Describe Correlation coefficient.	L1,L2
15	What is research?	L1,L2
16	Discuss hypothesis.	L1,L3
17	Write interpretation of P values.	L1,L2
18	Discuss analysis of variance.	L1,L2
19	Discuss about crossover study designs.	L1,L6
20	Write about study design and its types.	L1,L2

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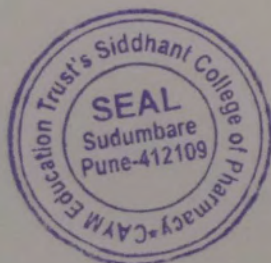
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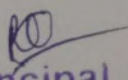
Teacher: Dr. Gita Chaurasia

Subject: Introduction to Indian constitution (Sem. III)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Discuss Cultural and educational rights.	L1,L3
2	Explain Right against exploitation.	L1,L3
3	Describe Justice - Social , Economic and Political.	L1,L2
4	What is Indian constitution?	L1,L4
5	Describe importance of Protection and improvement of environment.	L1,L2
6	Discuss about Socialist and Secular .	L1,L2
7	What is Equality?	L1,L2
8	Describe Provision for early childhood, Right to education and SC, ST, weaker section.	L1,L3
9	Discuss Right to constitutional remedies.	L1,L2
10	Explain Right to equality.	L1,L2
11	Describe Fraternity and Human Dignity.	L1,L2
12	Describe Right to work and provisions for just and humane conditions of work.	L1,L2
13	Define Unity and Integrity of the Nation.	L1,L2
14	What do you mean by Liberty.	L1,L2
15	Describe Right to property.	L1,L2
16	Discuss Standard of Living, nutrition and public health.	L1,L3
17	Write about Right to freedoms.	L1,L2
18	Write about Preamble.	L1,L2
19	Why Uniform Civil Code is needed?	L1,L2
20	Describe Role of Dr. B.R. Ambedkar in Constituent Assembly.	L1,L2

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CAYMET'S
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Bloom levels of Taxonomy 2020-21

Class: First year M Pharmacy (Sem. II) 2020-21

Name of subject teacher: Mrs. Gita Chaurasia

Subject: MPH 201T Molecular Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

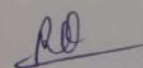
Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Targeted Drug Delivery Systems: Concepts, Events and biological process involved in drug targeting. Tumor targeting and Brain specific delivery	12	L1,L3	1
2	Targeting Methods: introduction preparation, evaluation. Nano Particles & Liposomes: Types, preparation evaluation.	12	L1,L3, L4	2,5
3	Micro Capsules / Micro Spheres: Types, preparation and evaluation , Monoclonal Antibodies ; preparation and application, preparation and application of Niosomes, Aquasomes, Phytosomes, Electrosomes	12	L1,L2	3
4	Pulmonary Drug Delivery Systems : Aerosols, propellents, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	12	L1,L4	5,7
5	Nucleic acid based therapeutic delivery system : Gene therapy, introduction (ex-vivo & in-vivo gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and nonviral gene transfer). Liposomal gene delivery systems. Biodistribution and Pharmacokinetics. knowledge of therapeutic antisense molecules, aptamers as drugs of future.	12	L1,L2, L5	5,6,7

References:

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. S.P. Vyas and R.K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002.
3. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001)

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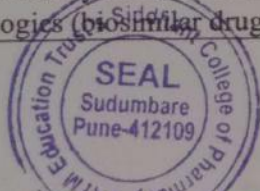
Class: First year M Pharmacy (Sem. II) 2020-21

Name of subject teacher: Mrs. Gita Chaurasia

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Drug Absorption from the Gastrointestinal Tract: Gastrointestinal tract, Mechanism of drug absorption, Factors affecting drug absorption, pH-partition theory of drug absorption. Formulation and physicochemical factors: Dissolution rate, Dissolution process, Noyes-Whitney equation and drug dissolution, Factors affecting the dissolution rate. Gastrointestinal absorption: role of the dosage form: Solution (elixir, syrup and solution) as a dosage form, Suspension as a dosage form, Capsule as a dosage form, Tablet as a dosage form, Dissolution methods, Formulation and processing factors, Correlation of in vivo data with in vitro dissolution data. Transport model: Permeability-Solubility-Charge State and the pH Partition Hypothesis, Properties of the Gastrointestinal Tract (GIT), pH Microclimate Intracellular pH Environment, Tight-Junction Complex.	12	L1,L3	3,13,4, 5,6
2	Biopharmaceutic considerations in drug product design and In Vitro Drug Product Performance: Introduction, biopharmaceutic factors affecting drug bioavailability, rate-limiting steps in drug absorption, physicochemical nature of the drug formulation factors affecting drug product performance, in vitro: dissolution and drug release testing, compendial methods of dissolution, alternative methods of dissolution testing, meeting dissolution requirements, problems of variable control in dissolution testing performance of drug products. In vitro-in vivo correlation, dissolution profile comparisons, drug product stability, considerations in the design of a drug product.	12	L1,L2	1, 2, 6, 8
3	Pharmacokinetics: Basic considerations, pharmacokinetic models, compartment modeling: one compartment model- IV bolus, IV infusion, extra-vascular. Multi compartment model: two compartment - model in brief, non-linear pharmacokinetics: cause of non-linearity, Michaelis - Menten equation, estimation of k_{max} and v_{max} . Drug interactions: introduction, the effect of protein-binding interactions, the effect of tissue-binding interactions, cytochrome p450-based drug interactions, drug interactions linked to transporters.	12	L1,L4	2,5, 7
4	Drug Product Performance, In Vivo: Bioavailability and Bioequivalence: drug product performance, purpose of bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study designs, crossover study designs, evaluation of the data, bioequivalence example, study submission and drug review process. Biopharmaceutics classification system: methods. Permeability: In-vitro, in-situ and In-vivo methods. generic biologics (biosimilar drug products), clinical significance of	12	L1,L6	3, 8,9,11



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ivalence studies, special concerns in bioavailability and bioequivalence studies, generic substitution.			
Application of Pharmacokinetics: Modified-Release Drug Products, Targeted Drug Delivery Systems and Biotechnological Products. Introduction to Pharmacokinetics and pharmacodynamic, drug interactions. Pharmacokinetics and pharmacodynamics of biotechnology drugs. Introduction, Proteins and peptides, Monoclonal antibodies, Oligonucleotides, Vaccines (immunotherapy), Gene therapies.	12	L1,L5	5,7,8, 12

References:

1. Biopharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi, 4th edition, Philadelphia, Lea and Febiger, 1991
2. Biopharmaceutics and Pharmacokinetics, A. Treatise, D .M. Brahmankar and Sunil B. Jaiswal., VallabPrakashan, Pitampura, Delhi
3. Applied Biopharmaceutics and Pharmacokinetics by Shargel. Land YuABC, 2nd edition, Connecticut Appleton Century Crofts, 1985
4. Textbook of Biopharmaceutics and Pharmacokinetics, Dr. Shobha Rani R. Hiremath, Prism Book
5. Pharmacokinetics by Milo Gibaldi and D. Perrier, 2nd edition, Marcel Dekker Inc., New York, 1982
6. Current Concepts in Pharmaceutical Sciences: Biopharmaceutics, Swarbrick. J, Lea and Febiger, Philadelphia, 1970
7. Clinical Pharmacokinetics, Concepts and Applications 3rd edition by Malcolm Rowland and Thom~ N. Tozer, Lea and Febiger, Philadelphia, 1995
8. Dissolution, Bioavailability and Bioequivalence, Abdou. H.M, Mack Publishing Company, Pennsylvania 1989
9. Biopharmaceutics and Clinical Pharmacokinetics, An Introduction, 4th edition, revised and expanded by Robert. E. Notari, Marcel Dekker Inc, New York and Basel, 1987.
10. Biopharmaceutics and Relevant Pharmacokinetics by John. G Wagner and M. Pamarowski, 1st edition, Drug Intelligence Publications, Hamilton, Illinois, 1971.
11. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James. G. Boylan, Marcel Dekker Inc, New York, 1996.
12. Basic Pharmacokinetics, 1st edition, Sunil S Jambhekar and Philip J Breen, pharmaceutical press, RPS Publishing, 2009.
13. Absorption and Drug Development- Solubility, Permeability, and Charge State, Alex Avdeef, John Wiley & Sons, Inc, 2003.

**Subject Teacher
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CAYMET'S
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Bloom levels of Taxonomy 2020-21

Class: First year M Pharmacy (Sem. III) 2020-21

Name of subject teacher: Dr. Gita Chaurasia

Subject: MRM 301T Research Methodology & Biostatistics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	General Research Methodology: Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.	06	L1,L3	1,2
2	Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.	06	L1,L3, L4	2,4
3	Medical Research: History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines, ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.	06	L1,L2	3,1,2
4	CPCSEA guidelines for laboratory animal facility: Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals	06	L1,L4	2,4
5	Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care	06	L1,L2, L5	1,3,2

References:

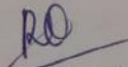
Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton, Marcel Dekker Inc. New York.

Fundamental of Statistics – Himalaya Publishing House- S. C. Gupta

Design and Analysis of Experiments – PHI Learning Private Limited, R. Pannerselvam.

Design and Analysis of Experiments – Wiley Students Edition, Douglas and C. Montgomery




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Bloom levels of Taxonomy 2020-21

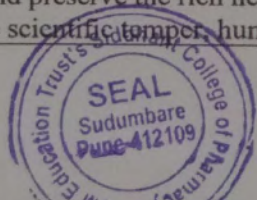
Class: First year M Pharmacy (Sem. III) 2020-21

Name of subject teacher: Dr. Narendra Gowekar

Subject: Introduction to Indian constitution

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	PHILOSOPHY OF THE INDIAN CONSTITUTION a) Constitutional History of India b) Role of Dr. B.R. Ambedkar in Constituent Assembly c) Preamble - Source and Objects d) Sovereign and Republic e) Socialist and Secular f) Democratic - Social and Economic Democracy g) Justice - Social, Economic and Political h) Liberty - Thought, Expression, Belief, Faith and worship i) Equality - Status and Opportunity j) Fraternity, Human Dignity, Unity and Integrity of the Nation	05	L1,L2	1,2,8
2	FUNDAMENTAL RIGHTS a) Right to equality b) Right to freedoms c) Right against exploitation d) Right to freedom of religion e) Cultural and educational rights f) Right to property g) Right to constitutional remedies	10	L1,L3,	2,4,5,3
3	DIRECTIVE PRINCIPLES OF STATE POLICY a) Equal Justice and free legal aid b) Right to work and provisions for just and humane conditions of work c) Provision for early childhood, Right to education and SC, ST, weaker section d) Uniform Civil Code e) Standard of Living, nutrition and public health f) Protection and improvement of environment g) Separation of Judiciary from executive h) Promotion of International peace and security	10	L1,L2	3,1,2,8
4	FUNDAMENTAL DUTIES a) Duty to abide by the Constitution b) Duty to cherish and follow the noble ideals c) Duty to defend the country and render national service d) Duty to value and preserve the rich heritage of our composite culture e) Duty to develop scientific temper, humanism, the spirit of inquiry & reform	05	L1,L2	2,4,6,7



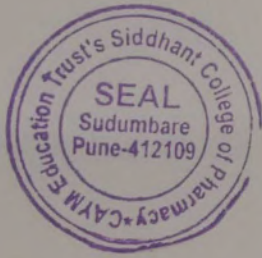
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Duty to safeguard public property and abjure violence
g) Duty to strive towards excellence

References:

- 1) D. D. Basu, Introduction to the Constitution of India, LexisNexis
- 2) Granville Austin, The Constitution of India : Corner stone of a Nation, Oxford University Press
- 3) Subhash Kashyap , Our Constitution, National Book Trust
- 4) M . P. Jain, Indian Constitutional Law , Lexis Nexis
- 5) V.N. Slnkla, Constitution of India, Eastern Book Company
- 6) P. M. Bakshi, The Constitution of India, Universal Law Publishing
- 7) M.V. Pylee, Constitutional Government in India, S. Chandh
- 8) V. S. Khare, Dr. B.R .Ambedkar and India's National Security

Subject Teacher
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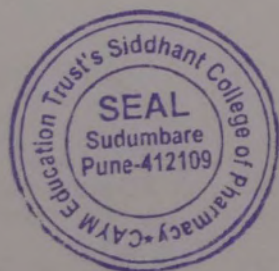
Question Bank and Bloom taxonomy 2020-21

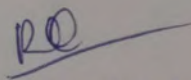
Teacher: Mrs. Gita Chaurasia

Subject: MPH 103T Modern Pharmaceutics (Theory) (Sem. I)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Write a short note on Total Quality Management.	L1,L2
2	Describe Types of process validation.	L1,L2
3	What is the limit according to USP visible particle size permitted in LVP.	L1,L4
4	Describe about layout of buildings.	L1,L2
5	Explain Pharmaceutical Validation in detail.	L1,L5
6	Discuss ICH & WHO guidelines for validation of equipments.	L1,L5
7	Describe Physics of tablet compression.	L1,L4
8	Explain in detail Dissolution parameters.	L1,L2
9	Discuss about zero order and first order kinetics.	L1,L2
10	What is the concept and parameters of optimization.	L1,L2
11	Define Preformulation concepts.	L1,L2
12	Discuss Similarity factors – f2 and f1.	L1,L3
13	Explain compression and consolidation.	L1,L2
14	Discuss about production and planning control.	L1,L2
15	Write short note on Large and small volume parenterals.	L1,L4
16	Define cGMP & Industrial Management.	L1,L2
17	Discuss about Factorial designs and application in formulation.	L1,L6
18	Define & explain Optimization techniques in pharmaceutical formulation.	L1,L2
19	Explain different types of pharmaceutical Dispersions.	L1,L2
20	Explain stability testing as per ICH.	L1,L3

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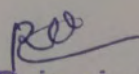
Question Bank and Bloom taxonomy 2020-21

Teacher: Mrs. Gita Chaurasia

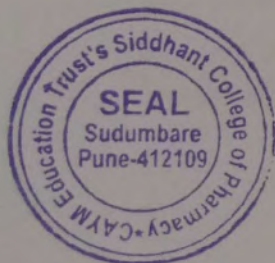
Subject: MPH 201T Molecular Pharmaceutics (Theory) (Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	What do you mean by Gene expression systems?	L1,L2
2	Discuss details of Brain specific delivery.	L1,L3
3	Differentiate “ Normal tissue Vs Tumor tissue”.	L1,L6
4	Write short note on- Niosomes	L1,L2
5	What do you mean by aptamers as drugs of future.	L1,L5
6	Describe Targeted Drug Delivery Systems	L1,L2
7	Explain inherited disorders.	L1,L3
8	Discuss Pulmonary Drug Delivery Systems.	L1,L2
9	Discuss Intra nasal Drug Delivery Systems.	L1,L2
10	Write notes on- therapeutic antisense molecules.	L1,L2
11	Write about events and biological process involved in drug targeting.	L1,L4
12	Classify Tumor targeting drugs.	L1,L2
13	write short note on- ‘Electosomes’.	L1,L2
14	write short note on- ‘Aquasomes’.	L1,L2
15	Write application of Electosomes.	L1,L2
16	Explain evaluation Parameters of Micro Capsules.	L1,L3
17	Define Liposomes and classify them.	L1,L2
18	Describe “Monoclonal antibodies”.	L1,L2
19	Write short note on- ‘Phytosomes’	L1,L2
20	Classify approaches of Gene therapy.	L1,L2

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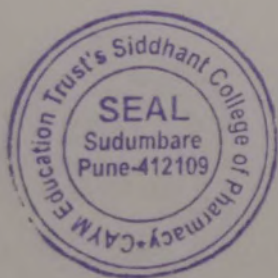
Question Bank and Bloom taxonomy 2020-21

Teacher: Mrs. Shubhangi Thopte

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)
(Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	What do you mean by bioavailability.	L1,L3
2	Describe Permeability.	L1,L3
3	Describe non-linear pharmacokinetics.	L1,L2
4	Write about compendial methods of dissolution.	L1,L4
5	Describe Application of Pharmacokinetics in pharmacy.	L1,L2
6	Enlist mechanism of Tight-Junction Complex.	L1,L6
7	What are the pH Partition Hypothesis?	L1,L2
8	Describe one compartment model- IV bolus.	L1,L3
9	Discuss Modified-Release Drug Products.	L1,L2
10	Explain Factors affecting the dissolution rate.	L1,L2
11	Describe clinical significance of bioequivalence studies.	L1,L2
12	Describe Monoclonal antibodies.	L1,L2
13	Define Proteins and peptides.	L1,L2
14	Discuss about crossover study designs.	L1,L2
15	Describe cytochrome p450-based drug interactions.	L1,L2
16	Discuss Mechanism of drug absorption.	L1,L3
17	Write mechanism of actions of pH-partition theory of drug absorption.	L1,L2
18	Discuss two compartment - model in brief.	L1,L2
19	Explain correlation of in vivo data with in vitro dissolution data.	L1,L6
20	Write the Factors affecting drug absorption.	L1,L2

Subject Teacher
Mrs. Shubhangi Thopte



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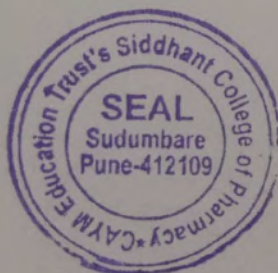
Question Bank and Bloom taxonomy 2020-21

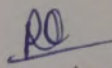
Teacher: Mrs. Gita Chaurasia

Subject: MRM 301T Research Methodology & Biostatistics (Theory) (Sem. III)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Explain CPCSEA guidelines for laboratory animal.	L1,L3
2	Describe statistical tests of significance.	L1,L3
3	What do you mean by placebo.	L1,L2
4	Enlist General Research Methodology used in research.	L1,L4
5	Describe importance of communication in medical research.	L1,L2
6	Describe P values.	L1,L6
7	What is randomization?	L1,L2
8	Describe non-parametric tests.	L1,L3
9	Discuss autonomy and beneficence.	L1,L2
10	Explain factors influencing sample size.	L1,L2
11	Describe strategies to eliminate errors/bias.	L1,L2
12	Describe informed consent.	L1,L2
13	Define blinding techniques..	L1,L2
14	Describe Correlation coefficient.	L1,L2
15	What is research?	L1,L2
16	Discuss hypothesis.	L1,L3
17	Write interpretation of P values.	L1,L2
18	Discuss analysis of variance.	L1,L2
19	Discuss about crossover study designs.	L1,L6
20	Write about study design and its types.	L1,L2

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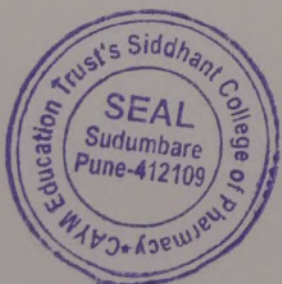
Question Bank and Bloom taxonomy 2020-21

Teacher: Dr. N. Gowekar

Subject: Introduction to Indian constitution (Sem. III)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Discuss Cultural and educational rights.	L1,L3
2	Explain Right against exploitation.	L1,L3
3	Describe Justice - Social , Economic and Political.	L1,L2
4	What is Indian constitution?	L1,L4
5	Describe importance of Protection and improvement of environment.	L1,L2
6	Discuss about Socialist and Secular .	L1,L2
7	What is Equality?	L1,L2
8	Describe Provision for early childhood, Right to education and SC, ST, weaker section.	L1,L3
9	Discuss Right to constitutional remedies.	L1,L2
10	Explain Right to equality.	L1,L2
11	Describe Fraternity and Human Dignity.	L1,L2
12	Describe Right to work and provisions for just and humane conditions of work.	L1,L2
13	Define Unity and Integrity of the Nation.	L1,L2
14	What do you mean by Liberty.	L1,L2
15	Describe Right to property.	L1,L2
16	Discuss Standard of Living, nutrition and public health.	L1,L3
17	Write about Right to freedoms.	L1,L2
18	Write about Preamble.	L1,L2
19	Why Uniform Civil Code is needed?	L1,L2
20	Describe Role of Dr. B.R. Ambedkar in Constituent Assembly.	L1,L2

Subject Teacher
Dr. N. Gowekar



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**CAYMET'S
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Bloom levels of Taxonomy 2019-20

Class: First year M Pharmacy (Sem. II) 2019-20

Name of subject teacher: Dr. Pratima Shinde

Subject: MPH 201T Molecular Pharmaceutics (Theory)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate

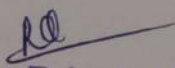
Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Targeted Drug Delivery Systems: Concepts, Events and biological process involved in drug targeting. Tumor targeting and Brain specific delivery	12	L1,L3	1
2	Targeting Methods: introduction preparation, evaluation. Nano Particles & Liposomes: Types, preparation evaluation.	12	L1,L3, L4	2,5
3	Micro Capsules / Micro Spheres: Types, preparation and evaluation , Monoclonal Antibodies ; preparation and application, preparation and application of Niosomes, Aquasomes, Phytosomes, Electrosomes	12	L1,L2	3
4	Pulmonary Drug Delivery Systems : Aerosols, propellents, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	12	L1,L4	5,7
5	Nucleic acid based therapeutic delivery system : Gene therapy, introduction (ex-vivo & in-vivo gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and nonviral gene transfer). Liposomal gene delivery systems. Biodistribution and Pharmacokinetics. knowledge of therapeutic antisense molecules, aptamers as drugs of future.	12	L1,L2, L5	5,6,7

References:

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. S.P. Vyas and R.K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002.
3. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001)

**Subject Teacher
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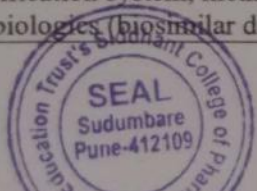
Class: First year M Pharmacy (Sem. II) 2019-20

Name of subject teacher: Dr. Pratima Shinde

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Drug Absorption from the Gastrointestinal Tract: Gastrointestinal tract, Mechanism of drug absorption, Factors affecting drug absorption, pH-partition theory of drug absorption. Formulation and physicochemical factors: Dissolution rate, Dissolution process, Noyes-Whitney equation and drug dissolution, Factors affecting the dissolution rate. Gastrointestinal absorption: role of the dosage form: Solution (elixir, syrup and solution) as a dosage form, Suspension as a dosage form, Capsule as a dosage form, Tablet as a dosage form, Dissolution methods, Formulation and processing factors, Correlation of in vivo data with in vitro dissolution data. Transport model: Permeability-Solubility-Charge State and the pH Partition Hypothesis, Properties of the Gastrointestinal Tract (GIT), pH Microclimate Intracellular pH Environment, Tight-Junction Complex.	12	L1,L3	3,13,4,5,6
2	Biopharmaceutic considerations in drug product design and In Vitro Drug Product Performance: Introduction, biopharmaceutic factors affecting drug bioavailability, rate-limiting steps in drug absorption, physicochemical nature of the drug formulation factors affecting drug product performance, in vitro: dissolution and drug release testing, compendial methods of dissolution, alternative methods of dissolution testing, meeting dissolution requirements, problems of variable control in dissolution testing performance of drug products. In vitro-in vivo correlation, dissolution profile comparisons, drug product stability, considerations in the design of a drug product.	12	L1,L2	1, 2, 6, 8
3	Pharmacokinetics: Basic considerations, pharmacokinetic models, compartment modeling: one compartment model- IV bolus, IV infusion, extra-vascular. Multi compartment model: two compartment - model in brief, non-linear pharmacokinetics: cause of non-linearity, Michaelis - Menten equation, estimation of kmax and v _{max} . Drug interactions: introduction, the effect of protein-binding interactions, the effect of tissue-binding interactions, cytochrome p450-based drug interactions, drug interactions linked to transporters.	12	L1,L4	2,5, 7
4	Drug Product Performance, In Vivo: Bioavailability and Bioequivalence: drug product performance, purpose of bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study designs, crossover study designs, evaluation of the data, bioequivalence example, study submission and drug review process. Biopharmaceutics classification system, methods. Permeability: In-vitro, in-situ and In-vivo methods. generic biologics (biosimilar drug products), clinical significance of	12	L1,L6	3, 8,9,11



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bioequivalence studies, special concerns in bioavailability and bioequivalence studies, generic substitution.

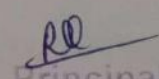
Application of Pharmacokinetics: Modified-Release Drug Products, Targeted Drug Delivery Systems and Biotechnological Products. Introduction to Pharmacokinetics and pharmacodynamic, drug interactions. Pharmacokinetics and pharmacodynamics of biotechnology drugs. Introduction, Proteins and peptides, Monoclonal antibodies, Oligonucleotides, Vaccines (immunotherapy), Gene therapies.	12	L1,L5	5,7,8, 12
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References:

- Biopharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi, 4th edition, Philadelphia, Lea and Febiger, 1991
- Biopharmaceutics and Pharmacokinetics, A. Treatise, D .M. Brahmankar and Sunil B. Jaiswal., VallabPrakashan, Pitampura, Delhi
- Applied Biopharmaceutics and Pharmacokinetics by Shargel. Land YuABC, 2nd edition, Connecticut Appleton Century Crofts, 1985
- Textbook of Biopharmaceutics and Pharmacokinetics, Dr. Shobha Rani R. Hiremath, Prism Book
- Pharmacokinetics by Milo Gibaldi and D. Perrier, 2nd edition, Marcel Dekker Inc., New York, 1982
- Current Concepts in Pharmaceutical Sciences: Biopharmaceutics, Swarbrick. J, Lea and Febiger, Philadelphia, 1970
- Clinical Pharmacokinetics, Concepts and Applications 3rd edition by Malcolm Rowland and Thom~ N. Tozer, Lea and Febiger, Philadelphia, 1995
- Dissolution, Bioavailability and Bioequivalence, Abdou. H.M, Mack Publishing Company, Pennsylvania 1989
- Biopharmaceutics and Clinical Pharmacokinetics, An Introduction, 4th edition, revised and expanded by Robert. E. Notari, Marcel Dekker Inc, New York and Basel, 1987.
- Biopharmaceutics and Relevant Pharmacokinetics by John. G Wagner and M.Pemarowski, 1st edition, Drug Intelligence Publications, Hamilton, Illinois, 1971.
- Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James. G.Boylan, Marcel Dekker Inc, New York, 1996.
- Basic Pharmacokinetics, 1st edition, Sunil S Jambhekar and Philip J Breen, pharmaceutical press, RPS Publishing, 2009.
- Absorption and Drug Development- Solubility, Permeability, and Charge State, Alex Avdeef, John Wiley & Sons, Inc, 2003.

Subject Teacher
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CAYMET'S
SIDDHANT COLLEGE OF PHARMACY, SUDUMBRE

Bloom levels of Taxonomy 2019-20

Class: First year M Pharmacy (Sem. III) 2019-20
Name of subject teacher: Dr. Gita Chaurasia
Subject: MRM 301T Research Methodology & Biostatistics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	General Research Methodology: Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.	06	L1,L3	1,2
2	Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.	06	L1,L3, L4	2,4
3	Medical Research: History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines, ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.	06	L1,L2	3,1,2
4	APCSEA guidelines for laboratory animal facility: Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals	06	L1,L4	2,4
5	Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care	06	L1,L2, L5	1,3,2

References:

1. Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton, Marcel Dekker Inc. New York.
2. Fundamental of Statistics – Himalaya Publishing House- S. C. Guptha
3. Design and Analysis of Experiments – PHI Learning Private Limited, R. Pannerselvam.
4. Design and Analysis of Experiments – Wiley Students Edition, Douglas and C. Montgomery



**Subject Teacher
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Bloom levels of Taxonomy 2020-21

Class: First year M Pharmacy (Sem. I) 2020-21

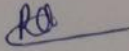
Name of subject teacher: Mrs. Gita Chaurasia

Subject: MPH 103T Modern Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	A. Preformulation concepts: Drug Excipients interactions - different methods, kinetics of stability, Stability testing. Theories of dispersion and pharmaceutical Dispersion (Emulsion and Suspension, SMEDDS) preparation and stability Large and small volume parental – physiological and formulation consideration, Manufacturing and evaluation. B. Optimization techniques in Pharmaceutical Formulation: Concept and parameters of optimization, Optimization techniques in pharmaceutical formulation and processing. Statistical design, Response surface method, Contour designs, Factorial designs and application in formulation.	10 Hrs 10 Hrs	L1, L2 L3, L5	1,2,3,4,5, 15 1,2,3,4,6, 12
2	Validation: Introduction to Pharmaceutical Validation, Scope & merits of Validation, Validation and calibration of Master plan, ICH & WHO guidelines for calibration and validation of equipments, Validation of specific dosage form, Types of validation. Government regulation, Manufacturing Process Model, URS, DQ, IQ, OQ & P.Q. of facilities.	10 Hrs	L2, L3, L4	11, 12, 4, 7, 8
3	cGMP & Industrial Management: Objectives and policies of current good manufacturing practices, layout of buildings, services, equipments and their maintenance Production management: Production organization, , materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management.	10 Hrs	L1, L4	13, 2, 3, 1 4
4	Compression and compaction: Physics of tablet compression, compression, consolidation, effect of friction, distribution of forces, compaction profiles. Solubility.	10 Hrs	L3, L6	15, 16, 7
5	Study of consolidation parameters; Diffusion parameters, Dissolution parameters and Pharmacokinetic parameters, Heckel plots, Similarity factors – f ₂ and f ₁ , Higuchi and Peppas plot, Linearity Concept of significance, Standard deviation, Chi square test, students T-test, ANOVA test.	10 Hrs	L1, L2	4, 7, 8, 17

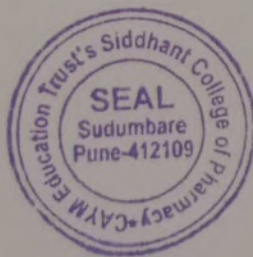


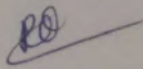

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ences:

1. Theory and Practice of Industrial Pharmacy By Lachmann and Libermann
2. Pharmaceutical dosage forms: Tablets Vol. 1-3 by Leon Lachmann.
3. Pharmaceutical Dosage forms: Disperse systems, Vol, 1-2; By L Lachmann.
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11. Quality Assurance Guide; By Organization of Pharmaceutical producers of India.
12. Drug formulation manual; By D.P.S. Kohli and D.H. Shah. Eastern publishers, New Delhi.
13. How to practice GMPs; By P.P. Sharma. Vandhana Publications, Agra.
14. Pharmaceutical Process Validation; By Fra. R. Berry and Robert A. Nash.
15. Pharmaceutical Preformulations; By J.J. Wells.
16. Applied production and operations management; By Evans, Anderson, Sweeney and Williams.
17. Encyclopaedia of Pharmaceutical technology, Vol I – III.

Subject Teacher
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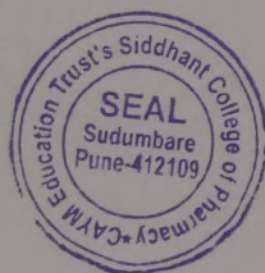
Question Bank and Bloom taxonomy 2019-20

Teacher: Dr. Pratima Shinde

Subject: MPH 103T Modern Pharmaceutics (Theory) (Sem. I)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Discuss Similarity factors – f ₂ and f ₁ .	L1,L3
2	Discuss about Types of process validation.	L1,L2
3	What is the limit according to USP visible particle size permitted in LVP.	L1,L4
4	Describe about layout of buildings.	L1,L2
5	Explain Pharmaceutical Validation in detail.	L1,L5
6	Discuss ICH & WHO guidelines for validation of equipments.	L1,L5
7	Describe Physics of tablet compression.	L1,L2
8	Explain in detail Dissolution parameters.	L1,L2
9	Discuss about zero order and first order kinetics.	L1,L2
10	What is the concept and parameters of optimization.	L1,L2
11	Define Preformulation concepts.	L1,L2
12	Write a short note on Total Quality Management.	L1,L2
13	Explain compression and consolidation.	L1,L2
14	Discuss about production and planning control.	L1,L2
15	Explain stability testing as per ICH.	L1,L4
16	Define cGMP & Industrial Management.	L1,L2
17	Discuss about Factorial designs and application in formulation.	L1,L6
18	Define & explain Optimization techniques in pharmaceutical formulation.	L1,L2
19	Explain different types of pharmaceutical Dispersions.	L1,L2
20	Write short note on Large and small volume parenterals.	L1,L3

Subject Teacher
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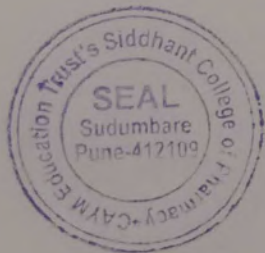
Question Bank and Bloom taxonomy 2019-20

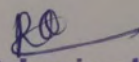
Teacher: Dr. Pratima Shinde

Subject: MPH 201T Molecular Pharmaceutics (Theory) (Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Write short note on- 'Phytosomes'	L1,L2
2	Classify approaches of Gene therapy.	L1,L3
3	Differentiate " Normal tissue Vs Tumor tissue".	L1,L6
4	Write short note on- i) propellents ii) Niosomes iii) Nano capsules.	L1,L2
5	What do you mean by aptamers as drugs of future.	L1,L5
6	Describe Targeted Drug Delivery Systems	L1,L2
7	Explain inherited disorders.	L1,L3
8	Discuss Pulmonary Drug Delivery Systems.	L1,L2
9	Discuss Intra nasal Drug Delivery Systems.	L1,L2
10	Write notes on- therapeutic antisense molecules.	L1,L2
11	Write about events and biological process involved in drug targeting.	L1,L4
12	Classify Tumor targeting drugs.	L1,L2
13	write short note on- 'Electrosomes'.	L1,L2
14	write short note on- 'Aquasomes'.	L1,L2
15	Write application of Electrosomes.	L1,L2
16	Explain evaluation Parameters of Micro Capsules.	L1,L3
17	Define Liposomes and classify them.	L1,L2
18	Describe "Monoclonal antibodies".	L1,L2
19	What do you mean by Gene expression systems.	L1,L2
20	Discuss details of Brain specific delivery.	L1,L2

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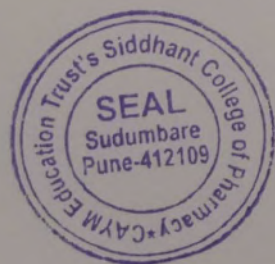
Question Bank and Bloom taxonomy 2019-20

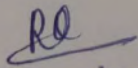
Teacher: Dr. Pratima Shinde

Subject: MPH 202T Advanced Bio pharmaceutics & Pharmacokinetics (Theory)
(Sem. II)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Write a note on Permeability.	L1,L3
2	Describe compendial methods of dissolution.	L1,L3
3	Define and classify Modified-Release Drug Products.	L1,L2
4	Write about bioequivalence studies.	L1,L4
5	Describe Application of Pharmacokinetics in pharmacy.	L1,L2
6	Enlist mechanism of Tight-Junction Complex.	L1,L6
7	What are the pH Partition Hypothesis?	L1,L2
8	Describe one compartment model- IV bolus.	L1,L3
9	Discuss non-linear pharmacokinetics.	L1,L2
10	Explain Factors affecting the dissolution rate.	L1,L2
11	Describe clinical significance of bioequivalence studies.	L1,L2
12	Describe Monoclonal antibodies.	L1,L2
13	Explain the Proteins and peptides.	L1,L2
14	Discuss about crossover study designs.	L1,L2
15	Describe cytochrome p450-based drug interactions.	L1,L2
16	Write the Factors affecting drug absorption.	L1,L3
17	Write mechanism of actions of pH-partition theory of drug absorption.	L1,L2
18	Discuss two compartment - model in brief.	L1,L2
19	Explain correlation of in vivo data with in vitro dissolution data.	L1,L6
20	Discuss Mechanism of drug absorption.	L1,L2

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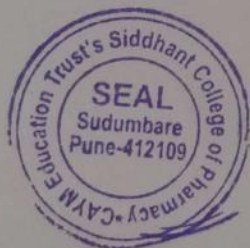
Class: First year M Pharmacy (Sem. I) 2018-19

Name of subject teacher: Dr. Pratima Shinde

Subject: MPH 103T Modern Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

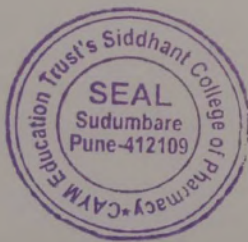
Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	A. Preformulation concepts: Drug Excipients interactions - different methods, kinetics of stability, Stability testing. Theories of dispersion and pharmaceutical Dispersion (Emulsion and Suspension, SMEDDS) preparation and stability Large and small volume parental – physiological and formulation consideration, Manufacturing and evaluation. B. Optimization techniques in Pharmaceutical Formulation: Concept and parameters of optimization, Optimization techniques in pharmaceutical formulation and processing. Statistical design, Response surface method, Contour designs, Factorial designs and application in formulation.	10 Hrs 10 Hrs	L1, L2 L3, L5	1,2,3,4,5, 15 1,2,3,4,6, 12
2	Validation: Introduction to Pharmaceutical Validation, Scope & merits of Validation, Validation and calibration of Master plan, ICH & WHO guidelines for calibration and validation of equipments, Validation of specific dosage form, Types of validation. Government regulation, Manufacturing Process Model, URS, DQ, IQ, OQ & P.Q. of facilities.	10 Hrs	L2, L3, L4	11, 12, 4, 7, 8
3	eGMP & Industrial Management: Objectives and policies of current good manufacturing practices, layout of buildings, services, equipments and their maintenance Production management: Production organization, , materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management.	10 Hrs	L1, L4	13, 2, 3, 14
4	Compression and compaction: Physics of tablet compression, compression, consolidation, effect of friction, distribution of forces, compaction profiles. Solubility.	10 Hrs	L3, L6	15, 16, 7
5	Study of consolidation parameters; Diffusion parameters, Dissolution parameters and Pharmacokinetic parameters, Heckel plots, Similarity factors – f2 and f1, Higuchi and Peppas plot, Linearity Concept of significance, Standard deviation , Chi square test, students T-test , ANOVA test.	10 Hrs	L1, L2	4, 7, 8, 17



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- nces.
1. Theory and Practice of Industrial Pharmacy By Lachmann and Libermann
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 7. Advances in Pharmaceutical Sciences Vol. 1-5; By H.S. Bean & A.H. Beckett.
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 10. Good manufacturing practices for Pharmaceuticals: A plan for total quality control, Second edition; By Sidney H. Willig.
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 12. Drug formulation manual; By D.P.S. Kohli and D.H. Shah. Eastern publishers, New Delhi.
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 15. Pharmaceutical Preformulations; By J.J. Wells.
 16. Applied production and operations management; By Evans, Anderson, Sweeney and Williams.
 17. Encyclopaedia of Pharmaceutical technology, Vol I – III.

Subject Teacher
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CAYMET'S
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Bloom levels of Taxonomy 2018-19

Class: First year M Pharmacy (Sem. II) 2018-19

Name of subject teacher: Dr. Pratima Shinde

Subject: MPH 201T Molecular Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

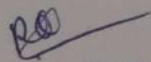
Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Targeted Drug Delivery Systems: Concepts, Events and biological process involved in drug targeting. Tumor targeting and Brain specific delivery	12	L1,L3	1
2	Targeting Methods: introduction preparation, evaluation. Nano Particles & Liposomes: Types, preparation evaluation.	12	L1,L3, L4	2,5
3	Micro Capsules / Micro Spheres: Types, preparation and evaluation , Monoclonal Antibodies ; preparation and application, preparation and application of Niosomes, Aquasomes, Phytosomes, Electrosomes	12	L1,L2	3
4	Pulmonary Drug Delivery Systems : Aerosols, propellents, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	12	L1,L4	5,7
5	Nucleic acid based therapeutic delivery system : Gene therapy, introduction (ex-vivo & in-vivo gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and nonviral gene transfer). Liposomal gene delivery systems. Biodistribution and Pharmacokinetics. knowledge of therapeutic antisense molecules, aptamers as drugs of future.	12	L1,L2, L5	5,6,7

References:

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. S.P. Vyas and R.K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002.
3. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001)



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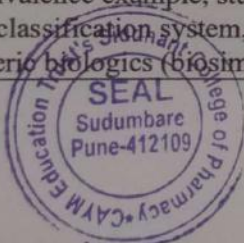
Course: First year M Pharmacy (Sem. II) 2018-19

Name of subject teacher: Dr. Pratima Shinde

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Drug Absorption from the Gastrointestinal Tract: Gastrointestinal tract, Mechanism of drug absorption, Factors affecting drug absorption, pH-partition theory of drug absorption. Formulation and physicochemical factors: Dissolution rate, Dissolution process, Noyes-Whitney equation and drug dissolution, Factors affecting the dissolution rate. Gastrointestinal absorption: role of the dosage form: Solution (elixir, syrup and solution) as a dosage form, Suspension as a dosage form, Capsule as a dosage form, Tablet as a dosage form, Dissolution methods, Formulation and processing factors, Correlation of in vivo data with in vitro dissolution data. Transport model: Permeability-Solubility-Charge State and the pH Partition Hypothesis, Properties of the Gastrointestinal Tract (GIT), pH Microclimate Intracellular pH Environment, Tight-Junction Complex.	12	L1,L3	3,13,4,5,6
2	Biopharmaceutic considerations in drug product design and In Vitro Drug Product Performance: Introduction, biopharmaceutic factors affecting drug bioavailability, rate-limiting steps in drug absorption, physicochemical nature of the drug formulation factors affecting drug product performance, in vitro: dissolution and drug release testing, compendial methods of dissolution, alternative methods of dissolution testing, meeting dissolution requirements, problems of variable control in dissolution testing performance of drug products. In vitro-in vivo correlation, dissolution profile comparisons, drug product stability, considerations in the design of a drug product.	12	L1,L2	1, 2, 6, 8
3	Pharmacokinetics: Basic considerations, pharmacokinetic models, compartment modeling: one compartment model- IV bolus, IV infusion, extra-vascular. Multi compartment model: two compartment - model in brief, non-linear pharmacokinetics: cause of non-linearity, Michaelis - Menten equation, estimation of k_{max} and v_{max} . Drug interactions: introduction, the effect of protein-binding interactions, the effect of tissue-binding interactions, cytochrome p450-based drug interactions, drug interactions linked to transporters.	12	L1,L4	2,5, 7
4	Drug Product Performance, In Vivo: Bioavailability and Bioequivalence: drug product performance, purpose of bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study designs, crossover study designs, evaluation of the data, bioequivalence example, study submission and drug review process. Biopharmaceutics classification system, methods. Permeability: In-vitro, in-situ and In-vivo methods. generic biologics (Biosimilar drug products), clinical significance of	12	L1,L6	3, 8,9,11



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equivalence studies, special concerns in bioavailability and bioequivalence studies, generic substitution.

Application of Pharmacokinetics: Modified-Release Drug Products, Targeted Drug Delivery Systems and Biotechnological Products. Introduction to Pharmacokinetics and pharmacodynamic, drug interactions. Pharmacokinetics and pharmacodynamics of biotechnology drugs. Introduction, Proteins and peptides, Monoclonal antibodies, Oligonucleotides, Vaccines (immunotherapy), Gene therapies.

12

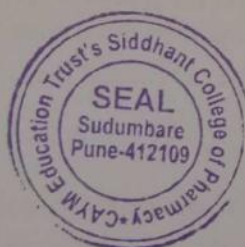
L1,L5

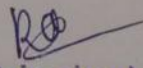
5,7,8, 12

References:

1. Biopharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi, 4th edition, Philadelphia, Lea and Febiger, 1991
2. Biopharmaceutics and Pharmacokinetics, A. Treatise, D .M. Brahmankar and Sunil B. Jaiswal., Vallab Prakashan, Pitampura, Delhi
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6. Current Concepts in Pharmaceutical Sciences: Biopharmaceutics, Swarbrick. J, Lea and Febiger, Philadelphia, 1970
7. Clinical Pharmacokinetics, Concepts and Applications 3rd edition by Malcolm Rowland and Thom~ N. Tozer, Lea and Febiger, Philadelphia, 1995
8. Dissolution, Bioavailability and Bioequivalence, Abdou. H.M, Mack Publishing Company, Pennsylvania 1989
9. Biopharmaceutics and Clinical Pharmacokinetics, An Introduction, 4th edition, revised and expanded by Robert. E. Notari, Marcel Dekker Inc, New York and Basel, 1987.
10. Biopharmaceutics and Relevant Pharmacokinetics by John. G Wagner and M. Pamarowski, 1st edition, Drug Intelligence Publications, Hamilton, Illinois, 1971.
11. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James. G. Boylan, Marcel Dekker Inc, New York, 1996.
12. Basic Pharmacokinetics, 1st edition, Sunil S Jambhekar and Philip J Breen, pharmaceutical press, RPS Publishing, 2009.
13. Absorption and Drug Development- Solubility, Permeability, and Charge State, Alex Avdeef, John Wiley & Sons, Inc, 2003.

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CAYMET'S
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Bloom levels of Taxonomy 2018-19

Class: First year M Pharmacy (Sem. III) 2018-19

Name of subject teacher: Dr. Pratima Shinde

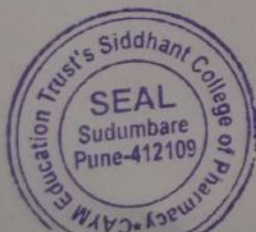
Subject: MRM 301T Research Methodology & Biostatistics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Sl. No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	General Research Methodology: Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.	06	L1,L3	1,2
2	Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.	06	L1,L3, L4	2,4
3	Medical Research: History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines, ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.	06	L1,L2	3,1,2
4	CPCSEA guidelines for laboratory animal facility: Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals	06	L1,L4	2,4
5	Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care	06	L1,L2, L5	1,3,2

References:

1. Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton, Marcel Dekker Inc. New York.
2. Fundamental of Statistics – Himalaya Publishing House- S. C. Gupta
3. Design and Analysis of Experiments – PHI Learning Private Limited, R. Pannerselvam.
4. Design and Analysis of Experiments – Wiley Students Edition, Douglas and C. Montgomery



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Bloom levels of Taxonomy 2019-20

Class: First year M Pharmacy (Sem. I) 2019-20

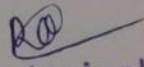
Name of subject teacher: Dr. Pratima Shinde

Subject: MPH 103T Modern Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	A. Preformulation concepts: Drug Excipients interactions - different methods, kinetics of stability, Stability testing. Theories of dispersion and pharmaceutical Dispersion (Emulsion and Suspension, SMEDDS) preparation and stability Large and small volume parental – physiological and formulation consideration, Manufacturing and evaluation. B. Optimization techniques in Pharmaceutical Formulation: Concept and parameters of optimization, Optimization techniques in pharmaceutical formulation and processing. Statistical design, Response surface method, Contour designs, Factorial designs and application in formulation.	10 Hrs 10 Hrs	L1, L2 L3, L5	1,2,3,4,5,15 1,2,3,4,6,12
2	Validation: Introduction to Pharmaceutical Validation, Scope & merits of Validation, Validation and calibration of Master plan, ICH & WHO guidelines for calibration and validation of equipments, Validation of specific dosage form, Types of validation. Government regulation, Manufacturing Process Model, URS, DQ, IQ, OQ & P.Q. of facilities.	10 Hrs	L2, L3, L4	11, 12, 4, 7, 8
3	cGMP & Industrial Management: Objectives and policies of current good manufacturing practices, layout of buildings, services, equipments and their maintenance Production management: Production organization, , materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management.	10 Hrs	L1, L4	13, 2, 3, 14
4	Compression and compaction: Physics of tablet compression, compression, consolidation, effect of friction, distribution of forces, compaction profiles. Solubility.	10 Hrs	L3, L6	15, 16, 7
5	Study of consolidation parameters; Diffusion parameters, Dissolution parameters and Pharmacokinetic parameters, Heckel plots, Similarity factors – f2 and f1, Higuchi and Peppas plot, Linearity Concept of significance, Standard deviation , Chi square test, students T-test , ANOVA test.	10 Hrs	L1, L2	4, 7, 8, 17

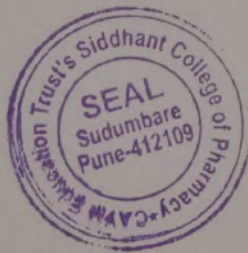


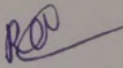

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nces:

1. Theory and Practice of Industrial Pharmacy By Lachmann and Libermann
2. Pharmaceutical dosage forms: Tablets Vol. 1-3 by Leon Lachmann.
3. Pharmaceutical Dosage forms: Disperse systems, Vol, 1-2; By L Lachmann.
4. Pharmaceutical Dosage forms: Parenteral medications Vol. 1-2; By Leon Lachmann.
5. Modern Pharmaceutics; By Gillbert and S. Banker.
6. Remington's Pharmaceutical Sciences.
7. Advances in Pharmaceutical Sciences Vol. 1-5; By H.S. Bean & A.H. Beckett.
8. Physical Pharmacy; By Alfred martin
9. Bentley's Textbook of Pharmaceutics – by Rawlins.
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11. Quality Assurance Guide; By Organization of Pharmaceutical producers of India.
12. Drug formulation manual; By D.P.S. Kohli and D.H. Shah. Eastern publishers, New Delhi.
13. How to practice GMPs; By P.P. Sharma. Vandhana Publications, Agra.
14. Pharmaceutical Process Validation; By Fra. R. Berry and Robert A. Nash.
15. Pharmaceutical Preformulations; By J.J. Wells.
16. Applied production and operations management; By Evans, Anderson, Sweeney and Williams.
17. Encyclopaedia of Pharmaceutical technology, Vol I – III.

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Question Bank and Bloom taxonomy 2018-19

Teacher: Dr. Pratima Shinde

Subject: MPH 103T Modern Pharmaceutics (Theory) (Sem. I)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Sr. No.	Questions	BL
1	Define Preformulation concepts.	L1,L3
2	Define & explain Optimization techniques in pharmaceutical formulation.	L1,L2
3	What is the limit according to USP visible particle size permitted in LVP.	L1,L4
4	Explain stability testing as per ICH.	L1,L2
5	Explain Pharmaceutical Validation in detail.	L1,L5
6	Discuss ICH & WHO guidelines for validation of equipments.	L1,L5
7	Describe Physics of tablet compression.	L1,L2
8	Explain in detail Dissolution parameters.	L1,L2
9	Discuss about zero order and first order kinetics.	L1,L2
10	What is the concept and parameters of optimization.	L1,L2
11	Discuss Similarity factors – f2 and f1.	L1,L2
12	Write a short note on Total Quality Management.	L1,L2
13	Explain compression and consolidation.	L1,L2
14	Discuss about production and planning control.	L1,L2
15	Describe about layout of buildings.	L1,L4
16	Define cGMP & Industrial Management.	L1,L2
17	Discuss about Factorial designs and application in formulation.	L1,L6
18	Discuss about Types of process validation.	L1,L2
19	Explain different types of pharmaceutical Dispersions.	L1,L2
20	Write short note on Large and small volume parentals.	L1,L3

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Question Bank and Bloom taxonomy 2018-19

Teacher: Dr. Pratima Shinde

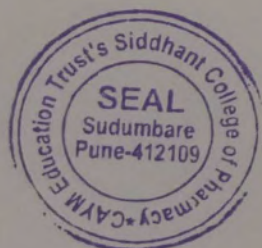
Subject: MPH 201T Molecular Pharmaceutics (Theory) (Sem. II)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Define Liposomes and classify them.	L1,L2
2	Describe Targeted Drug Delivery Systems	L1,L3
3	Explain evaluation Parameters of Micro Capsules.	L1,L6
4	Define the following i) propellents ii) Niosomes iii) Nano Particles	L1,L2
5	What do you mean by aptamers as drugs of future.	L1,L5
6	Classify approaches of Gene therapy.	L1,L2
7	Explain inherited disorders.	L1,L3
8	Discuss Pulmonary Drug Delivery Systems.	L1,L2
9	Discuss Intra nasal Drug Delivery Systems.	L1,L2
10	Write notes on- therapeutic antisense molecules.	L1,L2
11	Write about events and biological process involved in drug targeting.	L1,L4
12	Classify Tumor targeting drugs.	L1,L2
13	Discuss details of Brain specific delivery.	L1,L2
14	write short note on- 'Aquasomes'.	L1,L2
15	Write application of Electrosomes.	L1,L2
16	Differentiate " Normal tissue Vs Tumor tissue".	L1,L3
17	write short note on- 'Phytosomes'	L1,L2
18	Describe "Monoclonal antibodies".	L1,L2
19	What do you mean by Gene expression systems.	L1,L2
20	write short note on- 'Electrosomes'.	L1,L2

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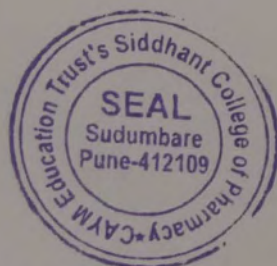
Question Bank and Bloom taxonomy 2018-19

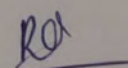
Teacher: Dr. Pratima Shinde

Subject: MPH 202T Advanced Bio pharmaceutics & Pharmacokinetics (Theory)
(Sem. II)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Write the Factors affecting drug absorption.	L1,L3
2	Discuss Mechanism of drug absorption.	L1,L3
3	Define and classify Modified-Release Drug Products.	L1,L2
4	Write about bioequivalence studies.	L1,L4
5	Describe Application of Pharmacokinetics in pharmacy.	L1,L2
6	Enlist mechanism of Tight-Junction Complex.	L1,L6
7	What are the pH Partition Hypothesis?	L1,L2
8	Describe one compartment model- IV bolus.	L1,L3
9	Discuss non-linear pharmacokinetics.	L1,L2
10	Explain Factors affecting the dissolution rate.	L1,L2
11	Describe clinical significance of bioequivalence studies.	L1,L2
12	Describe Monoclonal antibodies.	L1,L2
13	Explain the Proteins and peptides.	L1,L2
14	Discuss about crossover study designs.	L1,L2
15	Describe cytochrome p450-based drug interactions.	L1,L2
16	Write a note on Permeability.	L1,L3
17	Write mechanism of actions of pH-partition theory of drug absorption.	L1,L2
18	Discuss two compartment - model in brief.	L1,L2
19	Explain correlation of in vivo data with in vitro dissolution data.	L1,L6
20	Describe compendial methods of dissolution.	L1,L2

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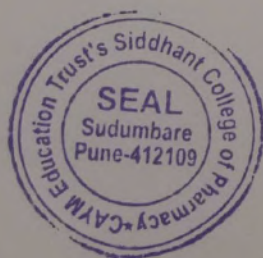
Question Bank and Bloom taxonomy 2018-19

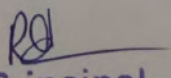
Teacher: Dr. Pratima Shinde

Subject: MRM 301T Research Methodology & Biostatistics (Theory) (Sem. III)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Explain CPCSEA guidelines for laboratory animal.	L1,L3
2	Describe statistical tests of significance.	L1,L3
3	What do you mean by placebo.	L1,L2
4	Enlist General Research Methodology used in research.	L1,L4
5	Describe importance of communication in medical research.	L1,L2
6	Describe P values.	L1,L6
7	What is randomization?	L1,L2
8	Describe non-parametric tests.	L1,L3
9	Discuss autonomy and beneficence.	L1,L2
10	Explain factors influencing sample size.	L1,L2
11	Describe strategies to eliminate errors/bias.	L1,L2
12	Describe informed consent.	L1,L2
13	Define blinding techniques..	L1,L2
14	Describe Correlation coefficient.	L1,L2
15	What is research?	L1,L2
16	Discuss hypothesis.	L1,L3
17	Write interpretation of P values.	L1,L2
18	Discuss analysis of variance.	L1,L2
19	Discuss about crossover study designs.	L1,L6
20	Write about study design and its types.	L1,L2

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CAYMET'S
SIDDHANT COLLEGE OF PHARMACY, SUDUMBRE

Bloom levels of Taxonomy 2022-23

Class: First year M Pharmacy (Sem. I) 2022-23

Name of subject teacher: Dr. Gita Chaurasia

Subject: MPH 103T Modern Pharmaceutics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Sl. No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Preformulation concepts: Drug Excipients interactions - different methods, kinetics of stability, Stability testing. Theories of dispersion and pharmaceutical Dispersion (Emulsion and Suspension, SMEDDS) preparation and stability Large and small volume parental – physiological and formulation consideration, Manufacturing and evaluation.	12	L1, L2	1,2,3,4,5, 15
2	Optimization techniques in Pharmaceutical Formulation: Concept and parameters of optimization, Optimization techniques in pharmaceutical formulation and processing. Statistical design, Response surface method, Contour designs, Factorial designs and application in formulation.	10	L3, L5	1,2,3,4,6, 12
3	Validation: Introduction to Pharmaceutical Validation, Scope & merits of Validation, ICH & WHO guidelines for validation of equipments, Validation of cone blender, mixer, granulator and tablet compression machine, URS, DQ, IQ, OQ & P.Q. of facilities, Types of process validation. Process validation of any one dosage form, Technology transfer from R and D to pilot plant to Plant scale.	12	L2, L3, L4	11, 12,4, 7, 8
4	cGMP & Industrial Management: Objectives and policies of current good manufacturing practices, layout of buildings, services, equipments and their maintenance Production management: Production organization, , materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management.	10	L1, L4	13,2,3,1 4
5	Compression and compaction: Physics of tablet compression, compression, consolidation, effect of friction, distribution of forces, compaction profiles. Study of consolidation parameters. Heckel plots.	10	L3, L6	15,16.7
6	Diffusion parameters: Dissolution parameters and Pharmacokinetic parameters, Similarity factors – f2 and f1, Dissolution models including Higuchi, Peppas plot, zero order, first order and Hixson crowell.	06	L1, L2	4,7,8, 17

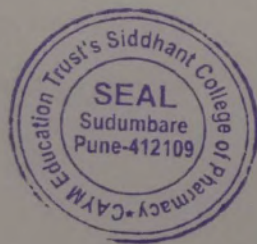


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References:

1. Theory and Practice of Industrial Pharmacy By Lachmann and Libermann
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3. Pharmaceutical Dosage forms: Disperse systems, Vol, 1-2; By L Lachmann.
4. Pharmaceutical Dosage forms: Parenteral medications Vol. 1-2; By Leon Lachmann.
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7. Advances in Pharmaceutical Sciences Vol. 1-5; By H.S. Bean & A.H. Beckett.
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12. Drug formulation manual; By D.P.S. Kohli and D.H. Shah. Eastern publishers, New Delhi.
13. How to practice GMPs; By P.P. Sharma. Vandhana Publications, Agra.
14. Pharmaceutical Process Validation; By Fra. R. Berry and Robert A. Nash.
15. Pharmaceutical Preformulations; By J.J. Wells.
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CAYMET'S
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Bloom levels of Taxonomy 2022-23

Class: First year M Pharmacy (Sem. II) 2022-23

Name of subject teacher: Dr. Gita Chaurasia

Subject: MPH 201T Molecular Pharmaceutics (Theory)

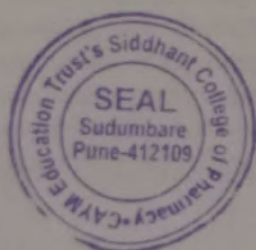
Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

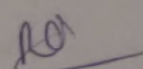
Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Targeted Drug Delivery Systems: Concepts, Events and biological process involved in drug targeting. Tumor targeting and Brain specific delivery	12	L1,L3	1
2	Targeting Methods: introduction preparation, evaluation. Nano Particles & Liposomes: Types, preparation evaluation.	12	L1,L3, L4	2,5
3	Micro Capsules / Micro Spheres: Types, preparation and evaluation , Monoclonal Antibodies ; preparation and application, preparation and application of Niosomes, Aquasomes, Phytosomes, Electrosomes	12	L1,L2	3
4	Pulmonary Drug Delivery Systems : Aerosols, propellents, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	12	L1,L4	5,7
5	Nucleic acid based therapeutic delivery system : Gene therapy, introduction (ex-vivo & in-vivo gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and nonviral gene transfer). Liposomal gene delivery systems. Biodistribution and Pharmacokinetics. knowledge of therapeutic antisense molecules, aptamers as drugs of future.	12	L1,L2, L5	5,6,7

References:

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. S.P. Vyas and R.K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002.
3. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001)

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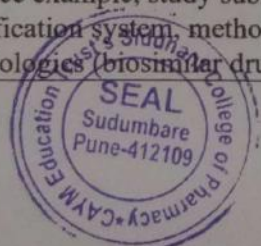
Course: First year M Pharmacy (Sem. II) 2022-23

Name of subject teacher: Dr. Gita Chaurasia

Subject: MPH 202T Advanced Bio pharmaceuticals & Pharmacokinetics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Sl. No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Drug Absorption from the Gastrointestinal Tract: Gastrointestinal tract, Mechanism of drug absorption, Factors affecting drug absorption, pH-partition theory of drug absorption. Formulation and physicochemical factors: Dissolution rate, Dissolution process, Noyes-Whitney equation and drug dissolution, Factors affecting the dissolution rate. Gastrointestinal absorption: role of the dosage form: Solution (elixir, syrup and solution) as a dosage form, Suspension as a dosage form, Capsule as a dosage form, Tablet as a dosage form, Dissolution methods, Formulation and processing factors, Correlation of in vivo data with in vitro dissolution data. Transport model: Permeability-Solubility-Charge State and the pH Partition Hypothesis, Properties of the Gastrointestinal Tract (GIT), pH Microclimate Intracellular pH Environment, Tight-Junction Complex.	12	L1,L3	3,13,4, 5,6
2	Biopharmaceutic considerations in drug product design and In Vitro Drug Product Performance: Introduction, biopharmaceutic factors affecting drug bioavailability, rate-limiting steps in drug absorption, physicochemical nature of the drug formulation factors affecting drug product performance, in vitro: dissolution and drug release testing, compendial methods of dissolution, alternative methods of dissolution testing, meeting dissolution requirements, problems of variable control in dissolution testing performance of drug products. In vitro-in vivo correlation, dissolution profile comparisons, drug product stability, considerations in the design of a drug product.	12	L1,L2	1, 2, 6, 8
3	Pharmacokinetics: Basic considerations, pharmacokinetic models, compartment modeling: one compartment model- IV bolus, IV infusion, extra-vascular. Multi compartment model: two compartment - model in brief, non-linear pharmacokinetics: cause of non-linearity, Michaelis - Menten equation, estimation of k_{max} and v_{max} . Drug interactions: introduction, the effect of protein-binding interactions, the effect of tissue-binding interactions, cytochrome p450-based drug interactions, drug interactions linked to transporters.	12	L1,L4	2,5, 7
4	Drug Product Performance, In Vivo: Bioavailability and Bioequivalence: drug product performance, purpose of bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study designs, crossover study designs, evaluation of the data, bioequivalence example, study submission and drug review process. Biopharmaceutics classification system, methods. Permeability: In-vitro, in-situ and In-vivo methods. generic biologics (biosimilar drug products), clinical significance of	12	L1,L6	3, 8,9,11



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equivalence studies, special concerns in bioavailability and bioequivalence studies, generic substitution.			
Application of Pharmacokinetics: Modified-Release Drug Products, Targeted Drug Delivery Systems and Biotechnological Products. Introduction to Pharmacokinetics and pharmacodynamic, drug interactions. Pharmacokinetics and pharmacodynamics of biotechnology drugs. Introduction, Proteins and peptides, Monoclonal antibodies, Oligonucleotides, Vaccines (immunotherapy), Gene therapies.	12	L1,L5	5,7,8, 12

References:

1. Biopharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi, 4th edition, Philadelphia, Lea and Febiger, 1991
2. Biopharmaceutics and Pharmacokinetics, A. Treatise, D .M. Brahmankar and Sunil B. Jaiswal., VallabPrakashan, Pitampura, Delhi
3. Applied Biopharmaceutics and Pharmacokinetics by Shargel. Land YuABC, 2nd edition, Connecticut Appleton Century Crofts, 1985
4. Textbook of Biopharmaceutics and Pharmacokinetics, Dr. Shobha Rani R. Hiremath, Prism Book
5. Pharmacokinetics by Milo Gibaldi and D. Perrier, 2nd edition, Marcel Dekker Inc., New York, 1982
6. Current Concepts in Pharmaceutical Sciences: Biopharmaceutics, Swarbrick. J, Lea and Febiger, Philadelphia, 1970
7. Clinical Pharmacokinetics, Concepts and Applications 3rd edition by Malcolm Rowland and Thom~ N. Tozer, Lea and Febiger, Philadelphia, 1995
8. Dissolution, Bioavailability and Bioequivalence, Abdou. H.M, Mack Publishing Company, Pennsylvania 1989
9. Biopharmaceutics and Clinical Pharmacokinetics, An Introduction, 4th edition, revised and expanded by Robert. E. Notari, Marcel Dekker Inc, New York and Basel, 1987.
10. Biopharmaceutics and Relevant Pharmacokinetics by John. G Wagner and M.Pemarowski, 1st edition, Drug Intelligence Publications, Hamilton, Illinois, 1971.
11. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James. G.Boylan, Marcel Dekker Inc, New York, 1996.
12. Basic Pharmacokinetics, 1st edition, Sunil S Jambhekar and Philip J Breen, pharmaceutical press, RPS Publishing, 2009.
13. Absorption and Drug Development- Solubility, Permeability, and Charge State, Alex Avdeef, John Wiley & Sons, Inc, 2003.

**Subject Teacher
Dr. Gita Chaurasia**



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Bloom levels of Taxonomy 2022-23

Class: First year M Pharmacy (Sem. III) 2022-23
Name of subject teacher: Dr. Gita Chaurasia
Subject: MRM 301T Research Methodology & Biostatistics (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	General Research Methodology: Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.	06	L1,L3	1,2
2	Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.	06	L1,L3, L4	2,4
3	Medical Research: History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines, ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.	06	L1,L2	3,1,2
4	CPCSEA guidelines for laboratory animal facility: Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals	06	L1,L4	2,4
5	Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care	06	L1,L2, L5	1,3,2

References:

1. Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton, Marcel Dekker Inc. New York.
2. Fundamental of Statistics – Himalaya Publishing House- S. C. Gupta
3. Design and Analysis of Experiments – PHI Learning Private Limited, R. Pannerselvam.
4. Design and Analysis of Experiments – Wiley Students Edition, Douglas and C. Montgomery



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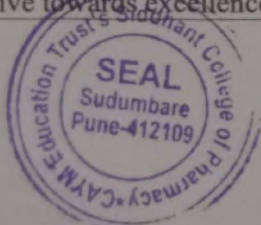
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Bloom levels of Taxonomy 2022-23

Class: First year M Pharmacy (Sem. III) 2022-23
Name of subject teacher: Dr. Narendra Gowekar
Subject: Introduction to Indian constitution

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
	PHILOSOPHY OF THE INDIAN CONSTITUTION a) Constitutional History of India b) Role of Dr. B.R. Ambedkar in Constituent Assembly c) Preamble - Source and Objects d) Sovereign and Republic e) Socialist and Secular f) Democratic - Social and Economic Democracy g) Justice - Social, Economic and Political h) Liberty - Thought, Expression, Belief, Faith and worship i) Equality - Status and Opportunity j) Fraternity, Human Dignity, Unity and Integrity of the Nation	05	L1,L2	1,2,8
	FUNDAMENTAL RIGHTS a) Right to equality b) Right to freedoms c) Right against exploitation d) Right to freedom of religion e) Cultural and educational rights f) Right to property g) Right to constitutional remedies	10	L1,L3,	2,4,5,3
	DIRECTIVE PRINCIPLES OF STATE POLICY a) Equal Justice and free legal aid b) Right to work and provisions for just and humane conditions of work c) Provision for early childhood, Right to education and SC, ST, weaker section d) Uniform Civil Code e) Standard of Living, nutrition and public health f) Protection and improvement of environment g) Separation of Judiciary from executive h) Promotion of International peace and security	10	L1,L2	3,1,2,8
	FUNDAMENTAL DUTIES a) Duty to abide by the Constitution b) Duty to cherish and follow the noble ideals c) Duty to defend the country and render national service d) Duty to value and preserve the rich heritage of our composite culture e) Duty to develop scientific temper, humanism, the spirit of inquiry & reform f) Duty to safeguard public property and abjure violence g) Duty to strive towards excellence	05	L1,L2	2,4,6,7

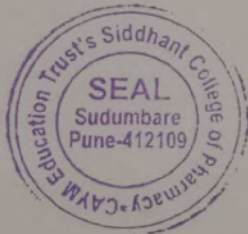


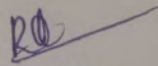
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References:

- 1) D. Basu, Introduction to the Constitution of India, LexisNexis
- 2) Granville Austin, The Constitution of India : Corner stone of a Nation, Oxford University Press
- 3) Subhash Kashyap , Our Constitution, National Book Trust
- 4) M . P. Jain, Indian Constitutional Law , Lexis Nexis
- 5) V.N. Smlkla, Constitution of India, Eastern Book Company
- 6) P. M. Bakshi, The Constitution of India, Universal Law Publishing
- 7) M.V. Pylee, Constitutional Government in India, S. Chandh
- 8) V. S. Khare, Dr. B.R .Ambedkar and India's National Security

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Question Bank and Bloom taxonomy 2022-23

Teacher: Dr. Swati Jogdand

Subject- BP602T Pharmacology III (Sem VI)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Define Biological rhythm & give application of chronopharmacology.	L1,L2
2	Define Immunosuppressants, Classify it & give MOA of Tacrolimus.	L1,L2
3	Discuss about nasal decongestant.	L1,L2
4	What is peptic ulcer & classify antiulcer drugs.	L1,L2
5	Write a short note on clinical symptoms and management of lead poisoning	L1,L2
6	Define following term with examples. i) Appetite stimulant ii) Carminative iii) Analeptics Give mechanism of action of oxymetazoline	L1,L2
7	Describe in detail mechanism of action, Antibacterial spectrum, adverse effect and uses of sulphonamide.	L1,L2
8	Classify drugs used in the treatment of UTI & give MOA, pharmacological action, Adverse effect & therapeutic uses of cotrimoxazole.	L1,L2
9	What are clinical manifestations of malaria? Discuss treatment options and non-pharmacological approach for its prevention.	L1,L2
10	Define Asthma. Discuss mechanism of Action, Pharmacological action, therapeutic uses and adverse effects of salbutamol.	L1,L2
11	Write a note on pharmacotherapy of COPD.	L1,L2
12	Classify drugs used for constipation and differentiate between laxative	L1,L2
13	Explain Immunostimulators & Immunodepressants.	L1,L2
14	Discuss drug treatment of amoebiasis.	L1,L2
15	Classify anti tubercular drug. Give Adverse effect & therapeutic uses of INH.	L1,L2
16	Define Helminthiasis, classify anthelmintic drugs & give MOA of Albendazole.	L1,L2
17	Give the application of monoclonal Antibodies.	L1,L2
18	Classify β -Lactam Antibiotics, write in detail pharmacology of ampicillin.	L1,L2
19	Write a short note on pharmacotherapy of Tuberculosis.	L1,L2

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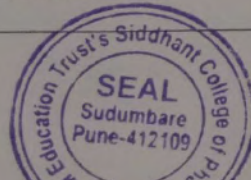
Class: Third year B Pharmacy (Sem VI) 2022-23

Name of subject teacher: Dr. Swati Jogdand

Subject: BP 602T Pharmacology III (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	UNIT-I 1. Pharmacology of drugs acting on Respiratory system a. Anti-asthmatic drugs b. Drugs used in the management of COPD c. Expectorants and antitussives d. Nasal decongestants e. Respiratory stimulants 2. Pharmacology of drugs acting on the Gastrointestinal Tract a. Antiulcer agents. b. Drugs for constipation and diarrhoea. c. Appetite stimulants and suppressants. d. Digestants and carminatives. e. Emetics and anti-emetics.	10	L1,L2	1
2	UNIT-II 3. Chemotherapy a. General principles of chemotherapy. b. Sulfonamides and cotrimoxazole. c. Antibiotics-Penicillins, cephalosporins, chloramphenicol, macrolides, quinolones and fluoroquinolins, tetracycline and aminoglycosides	10	L1,L2	2,5
3	UNIT-III 3. Chemotherapy a. Antitubercular agents b. Antileprotic agents 131 c. Antifungal agents d. Antiviral drugs e. Anthelmintics f. Antimalarial drugs g. Antiamoebic agents	10	L1,L2	2,5
4	UNIT-IV 3. Chemotherapy 1. Urinary tract infections and sexually transmitted diseases. Chemotherapy of malignancy.	8	L1,L2	3



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	4. Immunopharmacology a. Immunostimulants b. Immunosuppressant Pro drugs, monoclonal antibodies, target drugs to antigen, biosimilars			
5	UNIT-V 5. Principles of toxicology a. Definition and basic knowledge of acute, subacute and chronic toxicity. b. Definition and basic knowledge of genotoxicity, carcinogenicity, teratogenicity and mutagenicity c. General principles of treatment of poisoning d. Clinical symptoms and management of barbiturates, morphine, organophosphorus compound and lead, mercury and arsenic poisoning. 6. Chronopharmacology a. Definition of rhythm and cycles. b. Biological clock and their significance leading to chronotherapy.	7	L1,L2	5,7

References:

1. Goodman and Gilman; Pharmacological Basis of Therapeutics, McGraw-Hill
2. Katzung, B.G; Basic and Clinical Pharmacology, Lange Medical Publisher, USA
3. Rang, H.P. and Dale, M.M.; Pharmacology, Churchill Livingstone, UK
4. Satoskar, R.S. and Bhandarkar S.D. Pharmacology and Pharmacotherapeutics (Popular Prakashan, Bombay).
5. Tripathi K. D. Medical Pharmacology, Jaypee Publication
6. Harrison's Principle and Practice of Medicine, 18th Edition, Churchill, Livingstone, London
7. FSK Barar, Essentials of Pharmacotherapeutics, S. Chand and Company, Ninth edition

Jogdand
Subject Teacher

Dr. Swati Jogdand





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Bloom levels of Taxonomy 2021-22

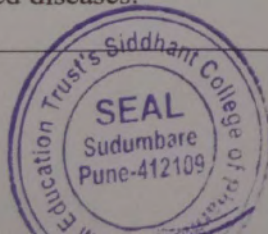
Class: Third year B Pharmacy (Sem VI) 2021-22

Name of subject teacher: Ms. Shubhangi Thopate

Subject: BP 602T Pharmacology III (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	UNIT-I 1. Pharmacology of drugs acting on Respiratory system a. Anti-asthmatic drugs b. Drugs used in the management of COPD c. Expectorants and antitussives d. Nasal decongestants e. Respiratory stimulants 2. Pharmacology of drugs acting on the Gastrointestinal Tract a. Antiulcer agents. b. Drugs for constipation and diarrhoea. c. Appetite stimulants and suppressants. d. Digestants and carminatives. e. Emetics and anti-emetics.	10	L1,L2	1
2	UNIT-II 3. Chemotherapy a. General principles of chemotherapy. b. Sulfonamides and cotrimoxazole. c. Antibiotics-Penicillins, cephalosporins, chloramphenicol, macrolides, quinolones and fluoroquinolins, tetracycline and aminoglycosides	10	L1,L2	2,5
3	UNIT-III 3. Chemotherapy a. Antitubercular agents b. Antileprotic agents 131 c. Antifungal agents d. Antiviral drugs e. Anthelmintics f. Antimalarial drugs g. Antiamoebic agents	10	L1,L2	2,5
	UNIT-IV 3. Chemotherapy 1. Urinary tract infections and sexually transmitted diseases. Chemotherapy of malignancy.	8	L1,L2	3




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	a. Immunostimulants b. Immunosuppressant Pro drugs, monoclonal antibodies, target drugs to antigen, biosimilars			
5	UNIT-V 5.Principles of toxicology a. Definition and basic knowledge of acute, subacute and chronic toxicity. b. Definition and basic knowledge of genotoxicity, carcinogenicity, teratogenicity and mutagenicity c. General principles of treatment of poisoning d. Clinical symptoms and management of barbiturates, morphine, organophosphorus compound and lead, mercury and arsenic poisoning. 6. Chronopharmacology a. Definition of rhythm and cycles. b. Biological clock and their significance leading to chronotherapy.	7	L1,L2	5,7

References:

1. Goodman and Gilman; Pharmacological Basis of Therapeutics, McGraw-Hill
2. Katzung, B.G; Basic and Clinical Pharmacology, Lange Medical Publisher, USA
3. Rang, H.P. and Dale, M.M.; Pharmacology, Churchill Livingstone, UK
4. Satoskar, R.S. and Bhandarkar S.D. Pharmacology and Pharmacotherapeutics (Popular Prakashan, Bombay).
5. Tripathi K. D. Medical Pharmacology, Jaypee Publication
6. Harrison's Principle and Practice of Medicine, 18th Edition, Churchill, Livingstone, London
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Subject Teacher
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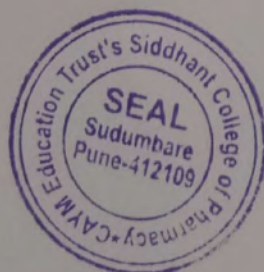
Question Bank and Bloom taxonomy 2021-22

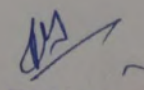
Teacher: Ms. Shubhangi Thopate

Subject- BP503T Pharmacology II (Sem V)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Justify the role of diuretics in the treatment of congestive heart failure.	L1,L2
2	Write mechanism of action of ACTH.	L1,L2
3	Enlist the hormones secreted by Anterior pituitary with physiological role.	L1,L2
4	Define and classify thyroid drugs.	L1,L2
5	Explain mechanism of action and therapeutic uses of vasopressin.	L1,L2
6	Classify anti histaminics with examples.	L1,L2
7	Classify and coagulant. Write mechanism of actions of warfarin	L1,L2
8	Discuss biosynthesis, mechanism of action, pharmacological actions and therapeutic uses of estrogen.	L1,L2
9	Write advantages, disadvantages and types of the bioassay. Add a note on bioassay of insulin.	L1,L2
10	Classify oral hypoglycaemic agents. Explain pharmacotherapy of type 2 diabetes.	L1,L2
11	Classify NSAIDs and write pharmacological details of Aspirin.	L1,L2
12	Explain the role of gonadotropins in male.	L1,L2
13	Write note on sulfasalazines.	L1,L2
14	Define and classify the drug acting on uterus.	L1,L2
15	Write a note on β - blockers.	L1,L2
16	Write a note on corticosteroids.	L1,L2
17	Write mechanism, adverse effect and uses of diltiazem, verapamil and nifedipine?	L1,L2
18	Explain pharmacology of thiazide diuretics?	L1,L2
19	Discuss pharmacological action of digitalis for the treatment of congestive heart failure.	L1,L2
20	Classify antianginal drug. Describe the therapeutic utility of vasodilators in angina pectoris.	L1,L2

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Bloom levels of Taxonomy 2020-21

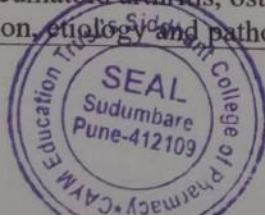
Class: First year B Pharmacy (Sem II) 2020-21

Name of subject teacher: Mrs. Avisha Shirsale

Subject: BP 204T Pathophysiology(Theory)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	<p>UNIT-I</p> <p>Basic principles of Cell injury and Adaptation: Introduction, definitions, Homeostasis, Components and Types of Feedback systems, Causes of cellular injury, Pathogenesis (Cell membrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage), Morphology of cell injury – Adaptive changes (Atrophy, Hypertrophy, hyperplasia, Metaplasia, Dysplasia), Cell swelling, Intra cellular accumulation, Calcification, Enzyme leakage and Cell Death Acidosis & Alkalosis, Electrolyte imbalance</p> <p>Basic mechanism involved in the process of inflammation and repair: Introduction, Clinical signs of inflammation, Different types of Inflammation, Mechanism of Inflammation – Alteration in vascular permeability and blood flow, migration of WBC's, Mediators of inflammation, Basic principles of wound healing in the skin, Pathophysiology of Atherosclerosis</p>	10 Hours	L1.L2	2,4,7
2	<p>UNIT-II</p> <ul style="list-style-type: none"> ➤ Cardiovascular System: Hypertension, congestive heart failure, ischemic heart disease (angina, myocardial infarction, atherosclerosis and arteriosclerosis) ➤ Renal system: Acute and chronic renal failure ➤ Respiratory system: Asthma, Chronic obstructive airways diseases. 	10 Hours	L1.L2	2,4,7,8
3	<p>UNIT-III</p> <ul style="list-style-type: none"> ➤ Haematological Diseases: Iron deficiency, megaloblastic anemia (Vit B12 and folic acid), sickle cell anemia, thalassemia, hereditary acquired anemia, hemophilia ➤ Endocrine system: Diabetes, thyroid diseases, disorders of sex hormones ➤ Nervous system: Epilepsy, Parkinson's disease, stroke, psychiatric disorders depression, schizophrenia and Alzheimer's disease. ➤ Gastrointestinal system: Peptic Ulcer 	10 Hours	L1.L2	1,2,3,4
4	<p>UNIT-IV</p> <ul style="list-style-type: none"> ➤ Inflammatory bowel diseases, jaundice, hepatitis (A,B,C,D,E,F) alcoholic liver disease. ➤ Diseases of bones and joints: Rheumatoid Arthritis, Osteoporosis, Gout ➤ Disease of bones and joints: Rheumatoid arthritis, osteoporosis and gout ➤ Principles of cancer: classification, etiology and pathogenesis of cancer 	08 Hours	L1.L2	2,4,5,6



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5	UNIT-V ➤ Infectious diseases: Meningitis, Typhoid, Leprosy, Tuberculosis, Urinary tract infections ➤ Sexually transmitted diseases: AIDS, Syphilis, Gonorrhoea	07 Hours	L1.L2	4,7,8
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References:

1. Vinay Kumar, Abul K. Abas, Jon C. Aster; Robbins & Cotran Pathologic Basis of Disease; South Asia edition India; Elsevier; 2014.
2. Harsh Mohan; Text book of Pathology; 6th edition; India; Jaypee Publications; 2010.
3. Laurence B, Bruce C, Bjorn K. ; Goodman Gilman's The Pharmacological Basis of Therapeutics; 12th edition New York; McGraw-Hill; 2011.
4. Jogdand Swati and Dahsputre Neelam, Pathophysiology, First edition, Technical Publication, 2019
5. Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston; Davidson's Principles and Practice of Medicine; 21st edition; London; ELBS/Churchill Livingstone; 2010.
6. Guyton A, John .E Hall; Textbook of Medical Physiology; 12th edition; WB Saunders Company; 2010.
7. V. Kumar, R. S. Cotran and S. L. Robbins; Basic Pathology; 6th edition; Philadelphia; WB Saunders Company; 1997.
8. Roger Walker, Clive Edwards; Clinical Pharmacy and Therapeutics; 3rd edition; London; Churchill Livingstone publication; 2003.

Subject Teacher
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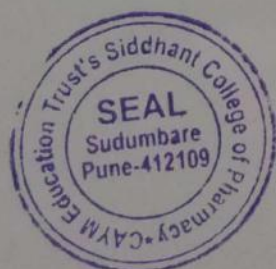
Question Bank and Bloom taxonomy 2020-21

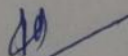
Teacher: Mrs. Avisha Shirsale

Subject- BP602T Pharmacology III (Sem VI)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Define following term with examples. i) Appetite stimulant ii) Carminative iii) Analeptics	L1,L2
2	Classify drugs used for constipation and differentiate between laxative	L1,L2
3	Discuss about nasal decongestant.	L1,L2
4	What is peptic ulcer & classify antiulcer drugs.	L1,L2
5	Write a short note on clinical symptoms and management of lead poisoning	L1,L2
6	Give mechanism of action of oxymetazoline	L1,L2
7	Describe in detail mechanism of action, Antibacterial spectrum, adverse effect and uses of sulphonamide.	L1,L2
8	Classify drugs used in the treatment of UTI & give MOA, pharmacological action, Adverse effect & therapeuticses of cotrimoxazole.	L1,L2
9	What are clinical manifestations of malaria? Discuss treatment options and non-pharmacological approach for its prevention.	L1,L2
10	Define Asthma. Discuss mechanism of Action, Pharmaological action, therapeutic uses and adverse effects of salbutamol.	L1,L2
11	Write a note on pharmacotherapy of COPD.	L1,L2
12	Define Biological rhythm & give application of chronopharmacology.	L1,L2
13	Explain Immunostimulators & Immunodepressants.	L1,L2
14	Discuss drug treatment of amoebiasis.	L1,L2
15	Classify anti tubercular drug. Give Adverse effect & therapeutic uses of INH.	L1,L2
16	Define Helminthiasis, classify anthelmintics drugs of give MOA of Albendazole.	L1,L2
17	Give the application of monoclonal Antibodies.	L1,L2
18	Classify β -Lactam Antibiotics, write in detail pharmacology of ampicillin.	L1,L2
19	Write a short note on pharmacotherapy of Tuberculosis.	L1,L2

Subject Teacher
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Bloom levels of Taxonomy 2019-20

Class: Third year B Pharmacy (Sem V) 2019-20

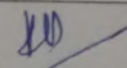
Name of subject teacher: Mrs. Swati Vinod Jogdand

Subject: BP 354T Pharmacology II (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
1	Autonomic Nervous system: General Considerations: Sympathetic and Parasympathetic Nervous system with neurotransmitters and their receptors with Signal Transduction mechanisms	3	L1,L2	1
2	Cholinergic system and drugs: Biosynthesis, Storage, Release and Metabolism of Acetylcholine (ACh), Parasympathomimetics: Pharmacology of ACh and Anticholinesterases, Organophosphorus Poisoning and its treatment, Pharmacotherapy of Glaucoma and Myasthenia gravis.	6	L1,L2	2,5
3	Anti-cholinergic drugs: Pharmacology of Atropine and other antimuscarinic drugs, Antimuscarinic poisoning and its treatment.	3	L1,L2	3
4	Introduction to Ganglion Stimulating and Blocking agents	1	L1,L2	5,7
5	Pharmacology of Peripherally and centrally acting muscle relaxants	2	L1,L2	5,6,7
6	Adrenergic system and drugs: Biosynthesis, Storage, Release, Metabolism of catecholamines, Pharmacology of Catecholamines and indirectly acting Sympathomimetics	5	L1,L2	7
7	Anti-adrenergic drugs: Pharmacology of Adrenoceptor blocking agents, reversible, irreversible, nonselective and selective antagonists.	3	L1,L2	5,7
8	Diuretics and anti-diuretics	3	L1,L2	6,7
9	Pharmacotherapy of Cardiovascular disorders Congestive heart failure, Hypertension, Angina including Myocardial infarction and ischemia, Atherosclerosis and Arrhythmia. Drugs used in treatment of Cardiovascular Shock	16	L1,L2	7
10	Drugs Used in Respiratory tract disorders: Pharmacology of drugs used in Bronchial asthma, COPD and Cough	3	L1,L2	4,7




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References:

1. Goodman and Gilman; Pharmacological Basis of Therapeutics, McGraw-Hill
2. Katzung, B.G; Basic and Clinical Pharmacology, Lange Medical Publisher, USA
3. Rang, H.P. and Dale, M.M.; Pharmacology, Churchill Livingstone, UK
4. Satoskar, R.S. and Bhandarkar S.D. Pharmacology and Pharmacotherapeutics (Popular Prakashan, Bombay).
5. Tripathi K. D. Medical Pharmacology, Jaypee Publication
6. Harrison's Principle and Practice of Medicine, 18th Edition, Churchill, Livingstone, London
7. FSK Barar, Essentials of Pharmacotherapeutics, S. Chand and Company, Ninth edition

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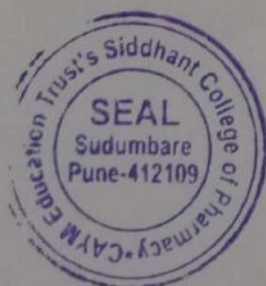
Question Bank and Bloom taxonomy 2019-20

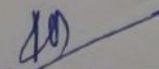
Teacher: Mrs. Jyoti Kadam

Subject- Bioorganic chemistry & Drug Design (Sem VI)

Bloom levels: 1.Remember, 2. Understand, 3. Apply, 4. Create, 5.Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Explain Hansch Analysis.	L1,L5
2	Explain free-wilson method in QSAR	L1,L2
3	Write a note on drug discovery	L1,L4
4	Explain lead discovery & methods of lead optimization	L1,L2
5	Write about programs used in molecular docking	L1,L2
6	Write a note on Nitrogen mustards DNA alkylating agents.	L1,L2
7	Give basic objective of produrg design & explain need of developing produrg	L1,L2
8	How molecular modelling is useful in new drug discovery & development	L1,L2
9	Write a note on Adenosine receptors	L1,L2
10	Explain pharmacophere modelling	L1,L2
11	Write physiological role of enzyme HMGCOA reductase. Write inhibitors of enzyme HMGCOA reductase along with its medicinal application.	L1,L3
12	Explain Molecular Recognition. Write types of molecular recognition.	L1,L2
13	Write mechanism of action of Thymidylate synthase inhibitor along with medicinal applications	L1,L2
14	Write mechanism of action of drugs acting by intercalation of DNA.	L1,L2
15	Describe structure of Cholinergic receptors. Write medicinal applications of Cholinergic agonist and antagonist.	L1,L2
16	Explain estrogen receptors and mechanism of estrogenic action.	L1,L2
17	write about programs used in molecular docking.	L1,L2
18	Define the term "Prodrug". Give detailed account on types of produrg design with suitable examples	L1,L2
19	Write about success stories of structure based drug design.	L1,L2
20	Define the term "Prodrug". Give detailed account on types of produrg design with suitable examples.	L1,L2

Subject Teacher
Mrs. Jyoti Kadam




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Bloom levels of Taxonomy 2018-19

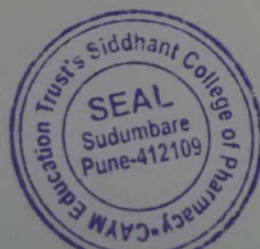
Class: Third year B Pharmacy (Sem VI) 2018-19

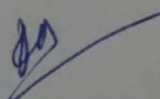
Name of subject teacher: Mrs. Swati Vinod Jogdand

Subject: BP 602T Pharmacology III (Theory)

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate

Lesson No.	Name of the topic and contents	No. of lectures Prescribed	Bloom levels	References
SECTION I				
1	General Anesthesia: Stages and Principles of Anesthesia, Pharmacology of Intravenous and Inhalational Anesthetics	2	L1,L2	1
2	Local Anesthetics: Pharmacology of injectable and surface anesthetics, Clinical Uses and techniques of administration of local anesthetics	2	L1,L2	2,5
3	Alcohols and alcoholism: Pharmacology of Alcohol, and management of chronic alcoholism. Treatment for alcoholic liver diseases	3	L1,L2	3
4	Psychopharmacological drugs: Antipsychotic, anti-anxiety, Sedative, Hypnotics, Antidepressant, Antimanic drugs	8	L1,L2	5,7
5	Antiepileptic Drugs: Classification of epileptic Seizure, Pharmacology of one prototype drug from each class of antiepileptic drugs used in Grand Mal, Petit Mal epilepsies	4	L1,L2	5,6,7
6	Pharmacotherapy of Parkinson's disease and Alzheimer's disease	4	L1,L2	7
SECTION II				
7	Opioid Analgesics and antagonist: Classification and Pharmacology of opioid Analgesics (Morphine), opioid Antagonists.	4	L1,L2	5,7
8	Pharmacology of Non-steroidal anti-inflammatory drugs	3	L1,L2	6,7
9	Pharmacotherapy of Rheumatoid Arthritis, Osteoarthritis and Gout	3	L1,L2	7
10	Drugs Used in Respiratory tract disorders: Pharmacology of drugs used in Bronchial asthma, COPD and Cough	4	L1,L2	4,7



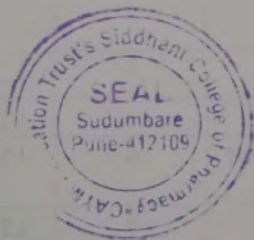

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5	UNIT-V ➤ Infectious diseases: Meningitis, Typhoid, Leprosy, Tuberculosis, Urinary tract infections ➤ Sexually transmitted diseases: AIDS, Syphilis, Gonorrhoea	07 Hours	L1.L2	4,7,8

References:

1. Vinay Kumar, Abul K. Abas, Jon C. Aster; Robbins & Cotran Pathologic Basis of Disease; South Asia edition; India; Elsevier; 2014.
2. Harsh Mohan; Text book of Pathology; 6th edition; India; Jaypee Publications; 2010.
3. Laurence B, Bruce C, Bjorn K. ; Goodman Gilman's The Pharmacological Basis of Therapeutics; 12th edition; New York; McGraw-Hill; 2011.
4. Jogdand Swati and Dahsputre Neelam, Pathophysiology, First edition, Technical Publication, 2019
5. Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston; Davidson's Principles and Practice of Medicine; 21st edition; London; ELBS/Churchill Livingstone; 2010.
6. Guyton A, John .E Hall; Textbook of Medical Physiology; 12th edition; WB Saunders Company; 2010.
7. V. Kumar, R. S. Cotran and S. L. Robbins; Basic Pathology; 6th edition; Philadelphia; WB Saunders Company; 1997.
8. Roger Walker, Clive Edwards; Clinical Pharmacy and Therapeutics; 3rd edition; London; Churchill Livingstone publication; 2003.

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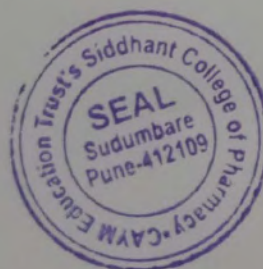
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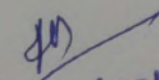
Teacher: Mrs. Swati Jogdand

Subject- BP204T Pathophysiology

Bloom levels: 1. Remember, 2. Understand, 3. Apply, 4. Create, 5. Analyse, 6. Evaluate		
Sr. No.	Questions	BL
1	Define homeostasis and give it's five mechanism parts.	L1,L2
2	Define & explain pathophysiology of schizophrenia.	L1,L2
3	Enlist sexually transmitted disorders and discuss in detail pathophysiology of AIDS.	L1,L2
4	Explain its etiology and pathogenesis of amenorrhea.	L1,L2
5	Explain pathogenesis of malaria in detail.	L1,L2
6	Discuss pathophysiology and clinical manifestations of diabetes mellitus.	L1,L2
7	Describe the factor affecting wound healing	L1,L2
8	Enlist ischemic heart diseases. Explain in detail pathophysiology of angina	L1,L2
9	Discuss about causative organism, types, spread and pathogenesis of TB	L1,L2
10	Give symptoms and treatment of typhoid	L1,L2
11	Discuss pathophysiology of urinary tract infection.	L1,L2
12	Write a short note on pathogenesis of leprosy.	L1,L2
13	Explain etiology of polycystic ovarian syndrome.	L1,L2
14	Discuss about mechanism of inflammation	L1,L2
15	Describe about calcification during cell injury.	L1,L2
16	Define cell injury and different events of cell injury.	L1,L2
17	Discuss about irreversible feedback mechanism along with it's example.	L1,L2
18	Discuss about reversible feedback mechanism along with it's example.	L1,L2
19	Explain different types of feedback mechanism of cell injury.	L1,L2
20	Write short note on pathogenesis of meningitis.	L1,L2

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