



6th Semester End Term Examination: 2021-22.

Subject : Pharmacology III **Roll No:**

Course : B. Pharmacy

Full Marks : 75 **Time** : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards; **Don't Write On The 1st Page Backside.**
- Question Paper is divided into Three Parts -A, B & C.
- Part-A is containing 20 multiple choice questions.
- Part- B containing THREE questions out of which TWO questions are to be answered.
- Part C containing NINE questions out of which SEVEN questions are to be answered.
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PART - A

Multiple Choice Questions

[20x1=20]

1. Prokinetic drug
a) Metoclopramide
b) Aprepitant
c) Granisetron
d) Dexamcthasone
2. Omeprazole is inactive at neutral pH, but at pH<5 it rearranges to two charged cationic forms
a) A sulphenic acid and a para-amino benzoic acid
b) A sulphenic acid and a sulphenamide
c) A sulphenic acid and a 5-amino salicylic acid
d) A sulphenic acid and a sulfapyridine
3. Gallstone dissolving drugs
a) Phenobarbitone
b) Flumazenil
c) Ursodiol
d) Gabapentin
4. S-enantiomer of omeprazole
a) Pantoprazole
b) Lansoprazole
c) Rabeprazole
d) Esomeprazole
5. Drugs for IBD
a) Sulfasalazine
b) Octreotide
c) Diphenoxylate
d) Loperamide

20. Albendazole is
- Antifungal drugs
 - Antiviral drugs
 - Antimalarial drugs
 - Anthelmintic drugs

PART - B

Answer any TWO out of THREE [2x10=20]

- Define Bronchial Asthma. Write pathophysiology, classification & M.O.A of Bronchodilators.
- Write Major central and visceral structures involved in emesis and the neurohumoral receptors mediating the emetic response. Classify Anti-emetic drugs.
- Classify Anticancer drugs. Write M.O.A. of Antimetabolite and general toxicity of cytotoxic drugs.

PART - C

Answer any SEVEN out of NINE [7x5=35]

- Write notes on M.O.A. of Tetracyclines
- Classification & M.O.A. of Antitubercular drugs.
- Write notes on drugs for Cough.
- Write classification of Drugs used for Peptic Ulcer. Briefly discuss about anti H. Pylori Drugs.
- Write notes on mechanism of action of Antimicrobial drugs.
- Write M.O.A. of Cotrimoxazole.
- Classification of Antifungal drugs & M.O.A. of Amphotericin B.
- Classification of Antiviral drugs.
- Write life cycle of Malaria parasite & classification of Antimalarial drugs.

- Stimulant purgative
 - Liquid paraffin
 - Prucalopride
- Mechanism of action of Theophylline
 - Release of Ca²⁺ from sarcoplasmic reticulum, especially in skeletal and cardiac muscle.
 - Blockade of adenosine receptors
- Nonimidazole (has a furan ring in place of imidazole ring) H2 blocker used for peptic ulcer
 - Ranitidine
 - Sucralfate
 - Noscapine
 - Chlophcdianol
- Mast cell stabilizer
 - Ketotifen
 - Ciclesonide
- Respiratory stimulant is
 - Metoclopramide
 - Doxapram
- Microtubule damaging agent is
 - Etoposide
 - Busulfan
- Fluroquinolones inhibit
 - DHFRase
 - DNA dependent RNA polymerase
- Ritonavir is
 - Protease inhibitor
 - CCR-5 receptor inhobitor
- m-TOR inhibitor is
 - Cyclosporine
 - Anakinra
- Sunitinib is
 - CD20 inhibitors
 - Alkylating agents
- NK1 receptor antagonist
 - Aprepitant
 - Ondansetron
- Probiotics is
 - Ofloxacin
 - Lactobacillus sps
- Cyclosporine is
 - Calcineurin inhibitor
 - Anti-CD3 antibody

- Docusates
- Ispaghula
- Inhibition of phosphodiesterase (PDE)
- All of the above

- Cimetidine
- Omeprazole
- Dextromethorphan
- All of the above

- Flunisolide
- Aminophylline
- Aprepitant
- Dexamthasone

- Paclitaxel
- Cisplatin
- Synthesis of Mycolic acid
- DNA gyrase

- Entry inhibitor
- Integrase inhibitor
- Azathioprine
- Sirolimus

- Aromatase inhibitors
- Angiogenesis inhibitors
- Hyoscine
- Cisapride

- Ispaghula
- Codeine
- Biological agents
- TNF α inhibitors



6th Semester End Term Examination: 2021-22.

Subject : Quality Assurance

Roll No:

Course : B. Pharmacy

Full Marks : 75

Time : 3 Hours.

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PART - A

Multiple Choice Questions

[20x1=20]

1. Who is Father of Quality Research?
a) J.M.Juran
b) Philip Crosby
c) A V Feigenbaum
d) None of the above
2. The contributions of quality Guru Philip Crosby in TQM
a) PDCA cycle
b) Concept of Zero defects
c) Quality Trilogy
d) PDSA
3. Which of the following does not belong to Joseph Juran's 'The Quality Trilogy'?
a) Quality Planning
b) Quality Control
c) Quality Improvement
d) Quality Assurance
4. ICH Q1 guideline is for _____
a) Stability Testing
b) Animal Testing
c) ADR
d) None of the above
5. Purpose of stability testing is to provide evidence how quality varies with time under influence of _____.
a) Temperature
b) Humidity
c) Light
d) All of the above

19. All decisions and measures taken as a result of a complaint should be recorded and referenced in the corresponding _____ records
- Master Production
 - Batch
 - Labelling
 - None of the above
20. LOD in calibration means
- Limit of detection
 - Loss on drying
 - Loss on defective product
 - None of the above

PART - B

Answer any TWO out of THREE

[2x10=20]

- Discuss in detail about the concepts of Quality Assurance and GMP.
- Discuss in detail the design, construction, plant layout and requirement of environmental control in sterile manufacturing unit.
- Explain the quality control tests for containers used in pharmaceutical packaging.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

- Explain the importance and scope of validation.
- Explain the scope and features of NABL accreditation.
- Write a short note on quality audit and quality review.
- Give reasons for disqualification of testing facilities in GLP.
- How do you handle disposal of waste products in pharmaceutical unit.
- Explain briefly about ICH stability testing
- Discuss the tools and elements of QbD program.
- Write briefly about Master Formula Record.
- Explain the elements of TQM.

6. In which ICH guideline QbD is described?
- Q8
 - Q9
 - Q10
 - All of the above
7. Headquarter of ISO is situated in _____
- Delhi
 - Geneva
 - Mexico
 - London
8. Which of the following methods is used to determine whether a process function properly for its intended use?
- Capacity
 - Inspection
 - Validation
 - Design review
9. If a product has to be formulated with higher dose, it will undertake
- Prospective validation
 - Retrospective validation
 - Revalidation
 - Concurrent validation
10. Which of the following department holds responsibilities for Quality monitoring or audit?
- Quality control
 - Quality assurance
 - Production
 - All of the above
11. The scope of sanitation and hygiene covers
- Personnel
 - Premises
 - Equipments
 - All of the above
12. GMP ensures which of the following Parameters?
- Quality
 - Safety
 - Efficacy
 - All of the above
13. Which of following is Key Person?
- Head of Production
 - Head of quality control
 - Both A and B
 - None of the above
14. HVAC system is used for
- Premises maintenance
 - Aseptic area
 - Environment control
 - Sanitation control
15. A high level of personal hygiene should be maintained by staff working in _____ areas.
- Manufacturing
 - Warehousing
 - Both a and b
 - None of the above
16. The ISO 14000 series of standards effectively address the needs of _____
- Organization
 - Customer
 - Mediator
 - None of the above
17. For the storage of general product room temperature should be _____
- 20°C
 - 30°C
 - 40°C
 - 50°C
18. Water attack test is only used for _____ glass containers
- Type-I
 - Type-II
 - Type-III
 - None of the above



6th Semester End Term Examination: 2021-22.

Subject : Herbal Drug Technology

Roll No:

Course : B. Pharmacy

Time : 3 Hours.

Full Marks : 75

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PART - A

Multiple Choice Questions

[20x1=20]

1. The process helps in ensuring the purity and cleanliness of the harvest material is _____
 a) Garbling
 b) Washing
 c) Parboiling
 d) Leaching
2. Impurities can be removed by subjecting the plant material under running water known as _____
 a) Garbling
 b) Washing
 c) Parboiling
 d) Leaching
3. The plant should be aged for at least one year prior to use in medicinal preparations to reduce its irritant effects.
 a) Cascara bark
 b) Clove
 c) Cinnamon bark
 d) ALL of the above
4. Mechanical method for pest control includes _____
 a) Pesticides
 b) Use of pest traps
 c) Solarisation
 d) Crop rotation
5. Form the followings which is a process of drug heating where the herbal materials is heated in ovens _____
 a) Sweating
 b) Roasting
 c) Streaming
 d) Fumigation

6. Which country invented Ayurveda?

- a) India
- b) Greece
- c) Arab
- d) China

7. Who is the father of Siddha medicine?

- a) Galen
- b) Hippocrates
- c) Agastya
- d) Charaka

8. _____ are the external preparations used in the form of a paste

- a) Churna
- b) Lepas
- c) Ghrita
- d) Gutiika

9. Which of the following is a natural antioxidant?

- a) Vitamin E
- b) Vitamin C
- c) Alpha lipoic acid
- d) All of the above

10. Alfalfa is used to _____

- a) Reduce weight
- b) Help in digestion
- c) Prevent cancer
- d) None of the above

11. Another name of fenugreek is

- a) Garlic
- b) Methi
- c) Saffron
- d) None of the above

12. Ashwagandha is helpful in reducing

- a) Stress
- b) Sugar levels
- c) Weight
- d) None of the above

13. Which of the following is a natural coloring agent?

- a) Henna
- b) Stevia
- c) Orange
- d) Lenolin

14. Which of the following is used as a sweetener and diluents?

- a) Starch
- b) Mannitol
- c) Stevia
- d) Lactose

15. _____ wax is mainly used in the formulation of cold cream

- a) Bees wax
- b) Carnauba wax
- c) Spermaceti
- d) Paraffin wax

16. Characteristic odour of saffron is due to _____

- a) Crocin
- b) Picrocrocin
- c) Pseudocrocin
- d) Psocrocin

17. IPR means

- a) International Property Rights
- b) Intellectual Property Rights
- c) Indian Pharmaceutical Research
- d) Indian Pharmacy Rights

18. DCC means -

- a) Drug consultative case
- b) Drug control case
- c) Drug consultative committee
- d) Drug control committee

19. DTAB means _____

- a) Drug Technical Advisory Board
- b) Drug control case
- c) Drug consultative committee
- d) Drug control committee

20. Central drug research institute is located in India at

- a) Delhi
- b) Lucknow
- c) Mumbai
- d) Pune

PART - B

Answer any TWO out of THREE

[2x10=20]

1. Explain about pest and pest management. Give a detailed account on methods of pest control. Write about advantages of bio pesticides.
2. Explain about the principle, diagnosis and treatment in Ayurvedic system of medicine.
3. What are herbal cosmetics? Classify them with examples and write the pharmacognosy of any three.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

1. Define organic farming. Give a brief note on its effect and applications.
2. Describe in detail about market, growth and scope of nutraceuticals.
3. Explain health benefits and role of nutraceuticals in diabetes.
4. What are herbal cosmetics? Give their advantages and classification.
5. Write the source, constituents and uses of sandalwood and sesame oil.
6. Define natural sweeteners. Write about its advantage and disadvantage.
7. Describe the role of marker compounds in evaluating the quality and stability of herbal drugs.
8. Explain about the requirement of buildings and working space for herbal industries as per GMP.
9. Write current status and future prospects of herbal drug industries in India.



6th Semester End Term Examination: 2021-22.

Subject : **Pharmaceutical Biotechnology** **Roll No:**

Course : **B. Pharmacy**

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Multiple Choice Questions

PART - A

[20x1=20]

1. Fusion between a plasma cell and a tumor cell creates a
a) Lymphoblast
b) Myeloma cell
c) Hybridoma cell
d) Lymphoma cell
2. Which immunoglobulin can pass through placenta?
a) IgD
b) IgE
c) IgM
d) IgG
3. Fermentation is
a) Aerobic reaction
b) Anaerobic reaction
c) Both of the above
d) Oxidative Phosphorylation
4. Sterilisation can be achieved by
a) Heating
b) IR radiation
c) Filtration
d) All of the above
5. Enzyme immobilisation can be done by
a) Covalent binding
b) Adsorption
c) Entrapment
d) All of the above
6. The PCR Cycle have following steps
a) Annealing, Denaturation, Elongation
b) Denaturation, Annealing, Elongation

7. Enzyme immunoassays is widely use for molecular diagnosis because
- Safe
 - High- throughput
 - High Sensitivity
 - All of these
8. The pair of restriction endonuclease that recognize the same recognition site and cut in the same location are called
- Isocaudomers
 - Isoschizomers
 - Neoschizomers
 - None of these
9. Which of the following enzymes in bacteria are responsible for restricting the growth of viruses?
- Restriction endonuclease
 - Topoisomerase
 - Gyrase
 - Ligase
10. Genetically synthesized proteins which have enzymatic activity is known as
- Apoenzyme
 - Synzyme
 - Bi-functional enzyme
 - None of these
11. Thermus aquaticus is the source of _____.
- Vent polymerase
 - Taq polymerase
 - Cyanogen bromide split the protein chains at Valine residue
 - Cysteine residue
12. In one of the techniques of recombinant insulin production the genes for α and β polypeptides were inserted into the plasmid by the side of
- Restriction endonuclease gene
 - Antibiotic resistant gene
 - MHC-I
 - Both of these
13. pBR 322 has/have which of the following selection marker(s)?
- Ampicilin resistant
 - Both a & b
 - Tetracycline resistant
 - Kanamycin resistant
14. The process by which foreign DNA is introduced into bacteria from environment directly is called
- Transduction
 - Replication
 - Transformation
 - Conjugation
15. Source of enzyme alkaline phosphatase is
- Horseradish
 - E. coli
 - Calf intestine
 - Aspergillus niger
16. Western blotting is the technique for the detection of
- Specific glycolipid in a sample
 - Specific Protein in a sample
 - Specific DNA in a sample
 - Specific RNA in a sample
17. Which of the following is not the product of fermentation?
- Oxygen
 - Ethanol
 - Carbon dioxide
 - Lactate

20. The immobilized enzyme produced by microencapsulation technique provides
- An extremely large surface area
 - Smaller surface area
 - Relatively smaller surface area
 - High amount of solvent

PART - B

Answer any TWO out of THREE

[2x10=20]

- What is mutation? Describe the different types of mutations.
- What is ELISA? Describe different types of ELISA.
- What is Biosensor? Write the instrumentation and application of Biosensor.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

- Write short notes on
 - Conjugation
 - MHC
- What is enzyme immobilization? Write different methods of enzyme immobilization.
- What is polymerase chain reaction? Write the steps and applications of PCR.
- What is monoclonal antibody? Write the applications of monoclonal antibody.
- Different methods of sterilization in bioprocess industry.
- Describe the production of hepatitis B vaccine using genetic engineering.
- Describe the characteristics of cloning vector pBR322.
- What is transformation? Describe the mechanism of transformation in gram positive bacteria.
- What are ideal characteristics of bioreactor?



6th Semester End Term Examination: 2021-22.

Subject : Medicinal Chemistry III **Roll No:**

Course : B. Pharmacy

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PART - A

Multiple Choice Questions

[20x1=20]

1. Chemically cephalosporin is _____?
a) 7- Aminocephalosporic acid
c) 5- cephalosporic acid
b) 7- Amino acid
d) 6- Amino acid
2. Basic Nucleus of penicillin and cephalosporins is _____?
a) Lactone
c) Lactam ring
b) Thiazole ring
d) Beta lactam ring
3. Basic nucleus of macrolide antibiotics is _____?
a) Macrocylic Lactone
c) Lactam Ring
b) Mycrocylic Lactone
d) β -Lactam Ring
4. Which of the following antibiotics is a macrolide?
a) Chloramphenicol
c) Erythromycin
b) Doxycycline
d) Streptomycin
5. Aminoglycoside agents useful in management of tuberculosis?
a) Ethambutol
c) Isoniazide
b) Streptomycine
d) Cycloserine
6. Basic nucleus present in Nalidixic acid is _____?
a) Quinolone
c) Isoquinoline
b) 17- Naphthyridine
d) 1,8- Naphthyridine

7. Which is an inhibitor of viral protease?

- a) Saquinavir
- c) Nevirapine

8. What is the causative organism of tuberculosis?

- a) Mycobacterium Bacillus
- c) Mycobacterium infections

9. Starting material for synthesis of antimalaria drug chloroquine?

- a) 3-Chloro aniline
- c) Phenol

10. _____ is the 8-amino quinolone derivative antimalaria drug?

- a) Doxycycline
- c) Chloroquine

11. Starting material for synthesis of antimalarial drug primaquine?

- a) 4-amino 6-methoxy quinoline
- c) Phenol

12. Sulphonamides are the derivatives of _____?

- a) Sulphacetamide
- c) Sulphamethoxazole

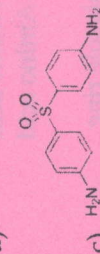
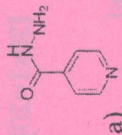
13. Antibiotic used as antifungal agents _____?

- a) Amphotericin B
- c) Nystatin

14. Which one is not a nitroimidazole derivatives of antiamoebic agent?

- a) Tinidazole
- c) Ornidazole

15. Which of the following one is a structure of isoniazide?



16. Which of the following is not a imidazole derivatives?

- a) Econazole
- c) Ketoconazole

17. Chemically Cephalosporin is _____?

- a) 7-Amino acid
- c) 5-cephalosporic acid

18. Prodrug with two active compounds are known as?

- a) Mixed Type Prodrugs
- c) Bioprecursors

19. Mitomycin C is an example of _____?

- a) Mutual Prodrug
- c) Bioprecursor

20. Amphotericin -B, Nystatin and Hamycin are _____ type of antifungal drugs?

- a) Polyene
- b) Antimetabolite
- c) Azole
- d) Allylamine

PART - B

Answer any TWO out of THREE

[2x10=20]

1. What are beta lactam antibiotics? Write structure and uses of any two drugs. Discuss in detail SAR of tetracycline?

2. What are antimalarial agents? Classify them with examples. Give the mechanism of action of quinolone and outline the synthesis of pamaquine?

3. What are anti-tubercular drugs? Classify them with examples. Write the synthesis of any two anti-tubercular drugs?

PART - C

Answer any SEVEN out of NINE

[7x5=35]

1. Write a short note on aminoglycoside antibiotics?

2. Define and classify antifungal agents. write structure and use of any three drugs?

3. Name any four antiamoebic drugs. Write the synthesis of metronidazole?

4. Explain modern concept of rational drug design?

5. What are antiviral agents and classify them with suitable examples?

6. What are first line anti-tubercular drug? write the synthesis of para amino salicylic acid?

7. Write chemistry and mechanism of action of macrolide antibiotics?

8. Write note on urinary tract anti-infectives. outline the synthesis of ciprofloxacin?

9. Write structure, MOA and synthesis of sulfamethoxazole?

- b) Acyclovir
- d) Zalcitabine

- b) Mycobacterium Tuberculosis
- d) Mycobacterium leprae

- b) Pentamine
- d) Hexamine

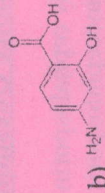
- b) Quinidine
- d) Primaquine

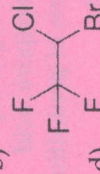
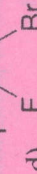
- b) Pentamine
- d) Hexamine

- b) Sulphadiazine
- d) Sulphanilides

- b) Griseoflavin
- d) All of these

- b) Metronidazole
- d) Emetine



- b) 
- d) 

- b) Miconazole
- d) Fluconazole

- b) 7-Aminocephalosporic acid
- d) 6-amino acid

- b) Pro-prodrugs
- d) Mutual Prodrug

- b) Pro-prodrug
- d) Polymeric prodrug



6th Semester End Term Examination: 2021-22.

Subject : Biopharmaceutics and Pharmacokinetics Roll No:

Course : B. Pharmacy

Full Marks : 75

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PART - A

Multiple Choice Questions

[20x1=20]

1. Which is the driving force for pore transport?
a) Concentration gradient
c) Hydrostatic pressure
2. Phagocytosis is known as:
a) Digestion
c) Drinking
3. Metastable polymorphs represent high energy state and exhibits one of the following characteristics?
a) Absolute surface area is always lower than effective surface area
c) Effective surface area is improved by the aid of hydrophobic substance
4. The rate of absorption by passive diffusion is generally determined using the equation
a) Noyes Whitney
c) Michaelis Menton
b) Electrical gradient
d) Osmotic pressure
b) Division
d) Eating
b) Absolute surface area is the surface area of the particle itself
d) Effective surface area is relevant for improved dissolution
b) Fick's First
d) Handersen Hasselbalch

5. Size reduction enhances the absorption of a drug of type:
 a) Hydrophilic
 b) Weak acid
 c) Weak base
 d) Lipophilic
6. The pH partition theory explains the relationship between the two of the following:
 a) pKa and lipophilicity
 b) pKa and pH of medium
 c) pKa and pH of stomach
 d) pKa and pH of intestine
7. Absorption mechanism that bypasses first pass hepatic metabolism is:
 a) Active transport
 b) Facilitated diffusion
 c) Endocytosis
 d) Ion-pair transport
8. The rate determining step in the absorption of hydrophilic drug is:
 a) Disintegration
 b) Dissolution
 c) Membrane Perfusion
 d) Membrane permeation
9. The drug should be present in aqueous solution for absorption by all mechanism EXCEPT:
 a) Ion-pair transport
 b) Endocytosis
 c) Facilitated diffusion
 d) Pore transport
10. At least how much (in percent) drug should be non-ionized for optimum passive absorption
 a) 0.1 to 1
 b) 2
 c) Greater than 5
 d) 3 to 5
11. The Volume of distribution of a drug is:
 a) A measure of total fluid volume
 b) A relationship of amount of drug present in the body and that of plasma.
 c) An expression of total body volume
 d) Proportional of bioavailability
12. Which organ has high blood perfusion rate?
 a) Brain
 b) Kidney
 c) Lung
 d) Muscle
13. Total body water is high in:
 a) Adults
 b) Elders
 c) Infants
 d) Obese
14. The Plasma volume can be determined using:
 a) Antipyrin
 b) Evans blue
 c) Heavy water
 d) Inulin
15. Extracellular fluid volume can NOT be determined by:
 a) I-131 albumin
 b) Inulin
 c) Raffinose
 d) Sodium ions
16. Total body water (in liters) is approximately:
 a) 3
 b) 6
 c) 15
 d) 42
17. In pharmacokinetic models the term "compartment" means
 a) Blood
 b) Extracellular fluid
 c) Hypothetical tool of tissue
 d) Individual organ

18. An important protein that binds most of the basic drugs is:

- a) α -Acid glycoprotein
 b) Albumin
 c) Globulin
 d) Lipoprotein

19. How many sites are identified in the albumin for drug binding?

- a) 1
 b) 2
 c) 3
 d) 4

20. The rate of bioavailability is fairly high when it is formulated as:

- a) Hard gelatin capsule
 b) Solution
 c) Suspension
 d) Tablet

PART - B

Answer any TWO out of THREE

[2x10=20]

- Enumerate the physicochemical factors influencing drug absorption.
- Discuss briefly the influence of pharmaceutical excipients on drug bioavailability
- Classify the body components to which drugs normally bind and explain briefly.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

- What is non-ionic diffusion? State the principle of non-ionic diffusion.
- Explain the salient features of pH partition hypothesis in drug absorption.
- Define the rate determining step. What are the two RDSs in the absorption of orally administered drugs?
- Name the various drug binding sites on HAS with examples.
- Define "bioavailability". What are the objectives of bioavailability studies?
- Define the following terms:
 a. Apparent volume of distribution
 b. Extraction ratios
 c. Absorption window
 d. Absolute bioavailability
 e. AUC
- What is MRT? Explain the relevant equation of MRT as per non compartment models.
- Name the physiological barriers to distribution of drugs and write their significance briefly.
- What is the significance of tissue drug binding from distribution point of view?