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**First Sessional Theory Examination 2019-2020
(EVEN SEM)**

Subject & Subject Code: Biopharm and Pharmacokinetics (BP604T)

Day & Date: Thursday 05/03/2020

Class: TY B. Pharm

Semester: VI

Time: 10.30 am -12.00pm

Max. Marks: 30

*Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks*

QI Multiple Choice Questions (MCQs)

10

- 1. The main mechanism of most drugs absorption in GI tract is:**
 - a. Active transport (carrier-mediated diffusion)
 - b. Filtration (aqueous diffusion)
 - c. Endocytosis and exocytosis
 - d. Passive diffusion (lipid diffusion)
- 2. What does the term "bioavailability" mean?**
 - a. relationship between the physical and chemical properties of a drug and the systemic absorption of the drug
 - b. measurement of the rate and amount of therapeutically active drug that reaches the systemic circulation
 - c. movement of drug into the body tissues over time
 - d. dissolution of a drug in the gastrointestinal tract
- 3. The volume of distribution (Vd) relates:**
 - a. Single to a daily dose of an administered drug
 - b. An administered dose to a body weight
 - c. An uncharged drug reaching the systemic circulation
 - d. The amount of a drug in the body to the concentration of a drug in plasma
- 4. The term "biotransformation" includes the following:**
 - a. Accumulation of substances in a fat tissue
 - b. Binding of substances with plasma proteins
 - c. Accumulation of substances in a tissue
 - d. Process of physicochemical and biochemical alteration of a drug in the body
- 5. Half life ($t_{1/2}$) is the time required to:**
 - a. Change the amount of a drug in plasma by half during elimination
 - b. Metabolize a half of an introduced drug into the active metabolite
 - c. Absorb a half of an introduced drug

- d. Bind a half of an introduced drug to plasma proteins
- 6. Creatinine clearance is used as a measurement for**
- Glomerular filtration rate
 - Renal excretion rate
 - Drug metabolism rate
 - Passive renal excretion
- 7. Total body clearance is**
- the drug elimination rate divided by the plasma drug concentration
 - the drug elimination rate divided by the V_d
 - the amount of drug in body divided by the plasma drug concentration
 - None of the above
- 8. Protein binding of drugs helps to maintain _____ for absorption of drugs.**
- non sink condition
 - sink condition
 - none of the above
 - All of above
- 9. The process in which some drugs stimulate their own metabolism is known as**
- enzyme inhibition
 - auto-induction
 - product inhibition
 - none of the above
- 10 Metabolic transformation (phase 1) is:**
- Acetylation and methylation of substances
 - Transformation of substances due to oxidation, reduction or hydrolysis
 - Glucuronide formation
 - Binding to plasma proteins

QII Long Answers (Answer any 1 out of 2)

10

- Define absorption of drug. Explain mechanism of drug absorption.
- Define bioavailability of drug. Discuss methods for bioavailability enhancement through solubility enhancement or dissolution rate.

QIII Short Answers (Answer any 2 out of 3)

10

- Factors affecting renal excretion
- In Vitro-In Vivo* Correlation (IVIVC)
- Factors affecting protein-drug binding.



**First Sessional Theory Examination 2019-2020
(EVEN SEM)**

Subject & Subject Code: Pharmaceutical Biotechnology (BP 605 T)

Day & Date: Friday; 06/03/2020

Class: Third Year B. Pharmacy

Semester: VI Semester

Time: 10.30 a.m. -12 p.m.

Max. Marks: 30 Marks

*Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks*

QI Multiple Choice Questions (MCQs)

10

1. Which primers are utilized in reverse transcription PCR?

- a. Random primers; b. oligo dT primers;
c. sequence specific primers; d. All of these.

2. Which enzyme is used for conversion of D, L-Acyl amino acids to L-amino acids?

- a. Penicillin acylase; b. Amylase; c. Aminoacylase; d. Aspartase

3. Glucose electrode biosensors utilize immobilized enzyme for detection of glucose level.

- a. Glucose isomerase; b. β -galactosidase
c. Invertase; d. Glucose oxidase.

4. Second and third letters in nomenclatures of plasmids indicate:

- a. First letters of researchers names; b. names of places;
c. Both a and b; d. none.

5. Arthus reaction is the example of..... Hypersensitivity reaction.

- a. Type I; b. Type IV; c. Type II; d. Type III

6. Functional origins of replication of both plasmids and phage λ present in

- a. Phasids; b. cosmids;
c. Human artificial chromosomes; d. Yeast artificial chromosomes

7. enzymes catalyze the hydrolysis of ester bonds.

- a. Protease; b. amylase; c. lipase; d. Catalase

8.biosensors are based on the principle of sound vibrations.

- a. Electrochemical; b. piezoelectric; c. Thermometric; d. optical

9. In insulin synthesis by rDNA technology, A and B chains are detached from β -galactosidase using

- a. sodium disulphonate; b. sodium sulphite;
c. cyanogen bromide (CNBr); d. None.

10. yeast is more suitable for production of interferons.

- a. *saccharomyces cerevisiae*; b. *Lactobacillus Bulgaricus*;
c. *Saccharomycopsis lipolytica*; d. *S. ellipsoideus*

QII Long Answers (Answer any 1 out of 2)

10

1. Explain basic steps of recombinant DNA (rDNA) technology. Elaborate the tools of rDNA technology along with the applications.
2. What is enzyme immobilization? Describe methods of enzyme immobilization along with their applications.

QIII Short Answers (Answer any 2 out of 3)

10

1. Write a note on production of amylase enzyme.
2. Explain the Polymerase Chain Reaction (PCR).
3. Explain the hypersensitivity reactions with examples.

****BEST OF LUCK****



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First Sessional Theory Examination 2021-2022

Subject & Subject Code: Pharmaceutical Biotechnology (BP605T)

Day & Date: Friday; 13/05/2022

Class: Third Year B. Pharmacy

Semester: VI Semester

Time: 10.30 A.M. - 12 P.M.

Max. Marks: 30 Marks

- Instructions:**
1. All questions are compulsory
 2. Draw a well labeled diagram wherever necessary
 3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. Annealing of primers in PCR reaction is carried out at temperature.....°C.
a. 50-65; b. 72; c. 95; d. None of these
2. Following are the properties of MHC class II except.....
a. Found virtually on every cell in the body; b. Class II molecules present antigens to helper T cells;
c. Found only on APCs such as dendritic cells and macrophages, and B cells; d. $\alpha 1$ and $\beta 1$ the two outermost domains form the groove for binding.
3. Following Immunoglobulins exist in monomeric structure except.....
a. IgG; b. IgD; c. IgA; d. IgE
4. To monitor and quantify the PCR reaction ... technique is utilized.
a. Anchored PCR; b. Asymmetric PCR; c. Real time PCR; d. Random amplified polymorphic DNA
5. Second and third letters in nomenclatures of plasmids indicate-
a. First letters of researcher's names; b. names of places; c. Both a and b; d. none.
6. Double helix structure of DNA is discovered by...
a. Watson and Crick; b. Sanger and Coulson; c. Meseleson and Stahl; d. Milstein and kohler
7. Who is said to be founder of modern genetics?
a. Charles Darin; b. Gregor Mendel; c. Robert Koch; d. August Weismann
8.enzyme is utilized for conversion of glucose to high fructose syrup.
a. Glucoamylase, b. Glucose isomerase, c. amylase, d. Invertase
9. Which of the biosensor measures the changes in heat?
a. Optical biosensor; b. piezoelectric biosensor; c. thermometric biosensor; d. electrochemical biosensor.
10.enzyme is used for saccharification of starch.
a. Amylases, b. invertase, c. protease, d. xylanase

QII Long Answers (Answer any 1 out of 2)

10

1. Explain the basic principle of rDNA technology. Elaborate the production of Hepatitis B vaccine by rDNA technology.
2. What is rDNA technology? Explain in detail about molecular tools in rDNA technology.

QIII Short Answers (Answer any 2 out of 3)

10

1. What is enzyme immobilization? Explain any two techniques of enzyme immobilization.
2. Explain the principle of working of biosensors with suitable example.
3. Write a note on protein engineering.



First Sessional Theory Examination 2019-2020

(EVEN SEM)

Subject & Subject Code: Herbal Drug Technology (BP603T)

Day & Date: 04.03.2020

Class: T.Y.B. Pharm

Semester: VI

Time: 10.30 am-12.00 noon

Max. Marks: 30

Instructions: 1. All questions are compulsory

2. Draw a well labeled diagram wherever necessary

3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. The siddha science is traditional system generated from ----- culture

- A. Tamil
B. Maharashtra
C. Kerala
D. Gujarat

2. Inner surface of fermentation vessel should be fumigated with -----churna.

- A. Kwatha
B. Pippali
C. Datura
D. Kashya

3. ----- provides vitamins, fats, proteins, carbohydrates necessary for the health of an individual.

- A. Good food
B. Functional food
C. Cooked food
D. None of these

4. Which of the following is used for authentication of medicinal plant.

- A. RAPD
B. PCR (AFLP)
C. Microscopy
D. All of the above

5. In skin care product, Glycerin is used as -----.

- A. Toner
B. Cleansing agent
C. Moisturizing agent
D. All of the above

6. Fundamental concepts of Homeopathy comes from the writing of -----.

- A. Hippocrates
B. Samuel Hahnemann
C. Dr. Christian Frederick
D. Galen

7. Cow horn manure is-----

- A. BD 500
B. BD 501
C. BD 502
D. BD 504

8. In preparation of vati and gutika, parada and gandhaka are converted to -----
-?

- A. Bhasma
B. Kajjali
C. Kasaya
D. None of the above



9. When garlic is taken with birth control pills it----- the effectiveness.
A. Increase B. Decrease C. Random D. Do not alter

10. Asava and arista are prepared by the process of -----.
A. Shodhana B. Marana C. Sandhana D. kalka

QII Long Answers (Answer any 1 out of 2) 10

1. Discuss in detail about processing of herbal drugs.
2. Define Bhasma. Write in detail method of preparation & standardization of Bhasma.

QIII Short Answers (Answer any 2 out of 3) 10

1. Elaborate on Alfalfa and Ginseng as a nutraceutical.
2. Write a note on biodynamic agriculture.
3. Define & classify herbal cosmetics. Explain different fixed oils used in cosmetic preparation

OR

Define drug interaction. Write biological source, chemical constituents, uses and herb drug interaction of *Ginkgo biloba*.

----- BEST OF LUCK -----



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First Sessional Theory Examination 2020-2021
(Even SEM)

Subject & Subject Code: Herbal Drug Technology (BP603T)

Day & Date: Tuesday, 27/4/2021

Class: Third Year B. Pharmacy

Time: 1: 30 pm to 3:00 pm

Semester: VI

Max. Marks: 30

- Instructions:**
1. All questions are compulsory
 2. Draw a well labeled diagram wherever necessary
 3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. Fermented cow dung is the content of _____
a) BD 500 b) BD 502 c) BD 504 d) BD 506
2. An extract of _____ containing secondary compounds limonoid terpenes.
a) Mango b) Lemon c) Margosa d) Marigold
3. Ground quartz crystal is present in _____ aid photosynthesis.
a) BD500 b) BD501 c) BD503 d) BD505
4. The term nutraceuticals was first coined by _____
a) Stephen DeFelice in 1989 b) Stephen DeFelice in 1890
c) Stephen Jackson in 1989 d) Stehen Rudwolf in 1989
5. _____ is known as Buffalo herb
a) Ginseng b) Alaalfa c) Chicory d) Hypericum
6. Allyldisulphide allin present in _____
a) Ginseng b) Ashwagandha c) Garlic d) Chicory
7. _____ is the active constituents of Tartar root
a) Ginsenoside b) Withanolides c) Trigonellin d) Inulin
8. Piperine is known to have _____ activity
a) Hair stimulant b) Cardiotonic c) Bioenhancer d) None of all
9. Which of the following method use for analysis of oils?
a) HPLC b) GCMS c) MSMS d) FTIR
10. Ginkgo and Hypercium along with fluoxetine may cause _____
a) Hypomania b) Liver toxicity c) Hypertension d) Drowsiness

QII Long Answers Question (Answer any 1 out of 2)

10

1. Describe the Process of selection, authentication and collections of herbal Raw material.
2. Elaborate the mechanism and herb-drug interactions with suitable example.

QIII Short Answers Question (Answer any 2 out of 3)

10

1. Write a note on GAP in cultivation of medicinal plants
2. Explain the method of preparations and evaluation of Asava and Aristhta
3. Comment on Role of Ginseng, Garlic and Ashwagandha as health food.



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Second Sessional Theory Examination 2020-2021
(Even SEM)

Subject & Subject Code: Herbal Drug Technology (BP603T)

Day & Date: Wednesday, 30/6/2021

Class: Third Year B. Pharmacy

Time: 1: 30 pm to 3:00 pm

Semester: VI

Max. Marks: 30

- Instructions:**
1. All questions are compulsory
 2. Draw a well labeled diagram wherever necessary
 3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. The excipient property of Chiote tree is ____
a) Binder b) Coloring and coating agent c) bulking agent d) Sweetener
2. Which of the following drug is called as Honey leaf?
a) Stevia b) Mulethi c) Monellins d) Talin
3. Choose the correct disintegrating agent.
a) Gauran b) Irish moss extract c) Chitosan d) Cellulose
4. The general dose of decoction is 3 to 4 times a day upto 500 ml.
a) True b) False
5. Liposomes are microparticle or colloidal carriers, having ____ diameter.
a) 0.5-5.0 μm b) 0.07-5.0 μm c) 0.09-0.5 μm d) 0.05-5.0 μm
6. Which type of phospholipid used in preparation of phytosomes?
a) Phosphatidylcholine b) Paraphosphatidylcholine
c) Isophosphatidylcholine d) Polylactic acid
7. What do you mean by ICH?
a) Indian Council of Harmonization b) International Council of Harmonization
c) International Committee for Harmonization d) International Council for Harmonization
8. WHO guidelines are divided into ____ sections
a) 5 b) 7 c) 9 d) 11
9. Phrases, Symbols and designs can be protected or patented under ____ Act
a) Patent Act b) Copyright Act c) Trademark Act d) Registration and Protection Act.
10. Good Manufacturing Practices of Indian Systems of Medicine under the provision of ____
a) Schedule M b) Schedule T c) Schedule H d) Schedule Z.

QII Long Answers Question (Answer any 1 out of 2)

10

1. Describe WHO and ICH guidelines for assessment of efficacy and stability of herbal drugs.
2. Write a brief account on plant based industries and institutions involved in work on medicinal and aromatic plants in India.

QIII Short Answers Question (Answer any 2 out of 3)

10

1. Define the term: Patent, Intellectual Property Right, Bioprospecting and Biopiracy. Explain the Registration and Protection Act 1999.
2. Define and Classify herbal excipients with suitable examples. Discuss natural sweeteners with suitable example.
3. Explain Conventional and Novel herbal formulations with suitable example.

----- **ALL THE BEST!** -----



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First Sessional Practical Examination 2020-2021

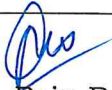
Subject and Subject Code: Herbal Drug Technology BP609P

Semester: VI

Class: Third Year B. Pharmacy

Max. Marks: 40 marks

DATE- 21/4/2021	BATCH: A1, A2, A3, B1 and B2	TIME: 2:00 pm to 5:30 pm
QI. Synopsis 10 marks		
1. _____ test is use for the identification of steroids		
2. Keller killiani test is use to identify _____		
3. Write the qualitative and quantitative identification test for flavonoids		
4. Elaborate Folin Denis method for the quantitative estimation of Tannins		
5. Write the evaluation parameters for marketed Ayurvedic formulation: Churna		
QII. Experiments 25 marks		
Aim: To estimate total Phenolic and flavonoid from the given Plant extract and Alcohol content in Asava and Aristha.		
QIII Viva Voce 05 marks		
1. Explain the phytochemical test for identification of cardiac glycosides and Alkaloids		
2. Write the chromatographic method for the evaluation of Churna		


Dr. Raju Ratan Wadekar
Name ad Signature
Subject In-charge



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First Sessional Theory Examination 2021-2022. (Even Sem)

Subject & Subject Code: Herbal Drug Technology BP603T

Class: T. Y. B. Pharm.

Time: 10:30 am to 12:00 pm

Day & Date: Wednesday, 11/5/2022

Semester: VI

Max. Marks: 30

Instructions

All questions are compulsory.

Draw well labeled diagrams, wherever necessary. Right hand side number indicates full marks.

Q1 Attempt following multiple choice questions:

(10x1=10)

a] **Which of the following is not associated with biodynamic farming?**

- i) BD 500 (cow horn manure) & BD 501(cow horn silica) ii) Cow Pat Pit (CPP) iii) Cosmic forces
iv) None of these

b] **Undesired plant in the field is called**

- i) Pests ii) Weeds iii) Cover crops iv) None of these

c] **-----is a Gram-positive, soil-dwelling bacterium, the most commonly used biological pesticide worldwide.**

- i) *Bacillus thuringiensis* ii) *Taxus brevifolia* iii) *Neemoliana tomatus* iv) None of these

d] **Science of life, panchakarma, tridosha are associated with which Indian System of Medicine?**

- i) Ayurveda ii) Unani iii) Homeopathy iv) a & C

e] **Unani system was originated in**

- i) Greece ii) Ukraine iii) China iv) USA

f] **Ginkgo decreases the effect of**

- i) Paracetamol ii) Efavirenz iii) Diuretics iv) None of these

g] **Kava-Kava interacts with following drugs and causes drowsiness**

- i) Clonazepam ii) Zolpidem iii) Lorazepam iv) All of these

h] **What is the meaning of word cosmetic?**

- i) Relating to treatment intended to restore or improve a person's appearance ii) Affecting only the appearance of something
iii) Both i & ii iv) None of these

i] **Are fixed oil and waxes same?**

- i) Yes ii) No

j] **Allicin is present in**

- i) Ginseng ii) Ashwagandha iii) Garlic iv) Chicory

Q2 Answer following short answer questions: (Any two)

(2x5=10)

A. Explain nutraceuticals with a special focus on diabetes and cancer with appropriate examples.

B. Define the term herb-drug interaction and food-drug interaction with suitable examples.

C. What are biological source, uses and possible side effects and interactions of hypericum, kava-kava and ephedra.

Q3. Answer following long answer questions in detail: (Any one)

(1x10=10)

a. Judge various processes of selection, authentication and collections of herbal raw materials.

b. Reflect your understanding about various basic principles involved in Ayurveda and organic farming.

Prepared By

Verified By

Approved By

Mapping of Course Outcomes with First Sessional Theory Examination (2021-2022)

Subject: Herbal Drug Technology

Course Outcomes (COs)	Question	Marks
CO 603.1: Reflect, enlist and identify differences between various types of preparations of plant origin besides their identification, authentication and processing steps through various quality control guidelines; evaluate good agricultural practices and classical systems of medicine like Ayurveda, Unani and Homeopathy and formulations thereof. (Level 5)	Q.1 MCQs (a to e) & Long Q 3 (a & b)	15
CO 603.2: Reflect basic understanding and analysis of commercially available nutraceuticals (in general and also for major lifestyle related disorders like diabetes, CVS, cancer, IBS, GIT ailments) and herbal cosmetics (skin, hair and oral care), also their market share, raw material used to formulate these types of preparations; analyse and conclude various types of interactions involving herbs and food. (Level 5)	Q.I MCQs (f to j) & Long Q 2 (A, B & C)	15



Max. Marks:30

3. Right hand side number indicates full marks

d. Arabinosyltransferase



a. Streptomycin b. Isoniazid(INH)
c. PAS ✓d. Capreomycin

a. Metabolites b. Antisense drugs
c. Prodrugs ✓ d. Prodrugs

a. Halofantrine b.Amodiaquine
c. Artemether d. Atovaquone

10

1. Classify antibiotics on the basis of chemical nature with eg. Discuss the mechanism of action and structure activity relationship of Tetracycline's
2. Define and classify anti-malarials. Give the synthesis, mechanism of action, structure activity relationship of 8-aminoquinolines

10

1. Define the term “prodrug”. Give the detailed account on the classification of prodrugs with suitable examples from each category
2. Write a short note on SAR and MoA of chloramphenicol
3. Write synthesis, MoA and SAR of Isoniazid

Page 2 of 2



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First Sessional Theory Examination 2020-2021

(Even SEM)

Subject & Subject Code: MC-III (BP 601T) **Day & Date:** Sat. 24/04/2021
Class: T.Y.B. Pharm **Semester:** VI
Time: 1:30pm-3:00pm **Max. Marks:** 30

Instructions: 1. All questions are compulsory

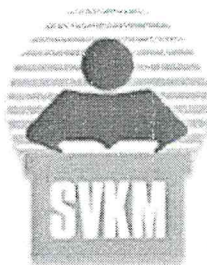
2. Draw a well labeled diagram wherever necessary

3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. ----- is unique macrolide that do not inhibit CYP450
 - a. Erythromycin
 - b. Clarithromycin
 - c. Azithromycin
 - d. Dirithromycin
2. Penicilloaldehyde is formed, when
 - a. pH <3
 - b. pH >3
 - c. pH ≥ 3
 - d. pH ≥ 7
3. Furan ring containing antibacterial is
 - a. Ciprofloxacin
 - b. Norfloxacin
 - c. Nalidixic Acid
 - d. Nitrofurantoin
4. At Ring II, in Kanamycin 1-amino acylation produces semisynthetic Aminoglycoside
 - a. Paromomycin
 - b. Streptomycin
 - c. Spectinomycin
 - d. Amikacin
5. Identify odd
 - a. Atovaquone: Naphthoquinone
 - b. Artemisinin: Dioxane
 - c. Pyrimethamine: DHFR inhibitor
 - d. Lumefantrine: Erythrocytic Schizonticide
6. Target for quinoline antibacterial is
 - a. DNA Gyrase
 - b. Topoisomerase IV
 - c. Topoisomerase II
 - d. Both a and b
7. Conversion of C-1 alcoholic group to keto group in Chloramphenicol has following impact on antibacterial activity
 - a. Activity lost
 - b. Activity increased
 - c. Activity increased by 1.7-fold
 - d. No change in antibacterial activity
8. Position of Fluoro group in Fluroquinolone is
 - a. 5
 - b. 6



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c.7

d.8

9. Hemolytic Uremic syndrome is caused due to

- a. Aminoglycoside
- b. Tetracycline
- c. Fluroquinolones
- d. All of the above

10. Cephalosporin act as antibiotics by

- a. Inhibition of DNA Synthesis
- b. Binds with 30S ribosomal subunit
- c. Interfere with biosynthesis of cell wall
- d. All of the above

QII Long Answers (Answer any 1 out of 2)

10

1. Define Malaria. Write detailed classification of antimalarial drugs with structures from each class. Write detailed SAR of 8-aminoquinolines.

2. Write Nomenclature, stereochemistry, degradation and mode of action of penicillin's

QIII Short Answers (Answer any 2 out of 3)

10

- 1. Write detailed SAR of fluroquinolones with structures
- 2. Write Detailed SAR of Tetracycline with structures
- 3. Describe the following terms with example:
 - a. Bio precursor prodrugs
 - b. Carrier linked prodrug



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**First Sessional Theory Examination 2021-2022
(EVEN SEM)**

Subject & Subject Code: PHARMACOLOGY-III, BP602T

Day & Date: Tuesday, 10.05.2022

Class: T. Y. B. Pharm.

Time: 10:30 am-12.00 noon

Semester: VI

Max. Marks: 30

*Instructions: 1. All questions are compulsory
2. Right hand side number indicates full marks*

QI. Multiple Choice Questions (MCQs)

10

1. Which is a bronchodilator of choice in COPD?
a. Montelukast b. Salbutamol c. Tiotropium d. Beclomethasone
2. Which drug is used to treat wet cough?
a. Ambroxol b. Codeine c. Chlorpheniramine d. Noscipine
3. Which antiobesity drug inhibits intestinal fat absorption?
a. Diethylpropion b. Orlistat c. Topiramate d. Bupropion
4. Which is an ant motility antidiarrheal drug?
a. Norfloxacin b. Prednisolone c. Azathioprine d. Loperamide
5. Which drug is used for hyperemesis gravidarum in pregnancy?
a. Promethazine b. Doxylamine c. Ondansetron d. Metoclopramide
6. Which brain region is called the master circadian clock?
a. Ventral tegmental area b. Nucleus accumbens c. Suprachiasmatic nucleus d. Hippocampus
7. Which immunosuppressant drug is mTOR inhibitor?
a. Cyclophosphamide b. Sirolimus c. Mycophenolate d. Cyclosporine
8. Which is an antidote for organophosphate poisoning?
a. Pralidoxime b. Flumazenil c. EDTA d. N-Acetylcysteine
9. In which toxicity study, the determination LD₅₀ and degree of safety of a test drug are performed?
a. Acute b. Subacute c. Subchronic d. Chronic
10. The study period for subacute toxicity study is:
a. 1 day b. 14 days c. 28 days d. 60 days

QII. Long Answers (Answer any 1 out of 2)

10

1. Classify antiasthmatic drugs. Explain the mechanism of action, uses, side effects and interactions of β_2 agonists.
2. Classify antiulcer agents. Explain the mechanism of action, uses, adverse effects and interactions of PPIs.

QIII. Short Answers (Answer any 2 out of 3)

10

1. Define chronopharmacology. Explain the chronotherapeutic approach for the management of arthritis and depression.
2. Explain the mechanism and main symptoms of morphine poisoning, and recommend suitable approaches for its management.
3. Enlist different types of toxicity studies. Explain the Ames test.



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Course Outcome	Question	Marks
CO 602.1: Predict therapeutic targets based on the pathophysiology of respiratory conditions like asthma, COPD, cough, and nasal congestion, and recommend various drugs as therapeutic interventions in accordance with their pharmacological properties - (Level 5).	QI : 1-5	15
	QII	
CO 602.2: Explain the basic principles of chronopharmacology, immunopharmacology and toxicology - (Level 5).	QI : 6-10	15
	Q III	

Prepared by

Verified by

Approved by



First Sessional Theory Examination 2019-2020
(EVEN SEM)

Subject & Subject Code: Pharmacology III (BP-602T)

Day & Date: 03/03/2020 (Tuesday)

Class: T. Y. B Pharm.

Semester: VI

Time: 10:30 am - 12:00 noon

Max. Marks: 30

Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. Which of the following agents is beneficial in NSAID induced gastric ulcer?

- i) PGE1 agonist ii) PGE2 antagonist
- iii) PGD2 agonist iv) None of above

2. Pick out the beta-lactamase inhibitor for co-administration with penicillins:

- i) Clavulanic acid ii) Sulbactam
- iii) Tazobactam iv) All of the above

3. Tick the drug, inhibiting viral reverse transcriptase:

- i) Zidovudine ii) Vidarabine
- iii) Vidarabine iv) Gancyclovir

4. Ethambutol has the following unwanted effect:

- i) Cardiotoxicity ii) Immunotoxicity
- iii) Retrobulbar neuritis with red-green color blindness iv) Hepatotoxicity

5. Tick the drug, inhibiting viral proteases:

- i) Rimantadine ii) Acyclovir
- iii) Saquinavir iv) Zalcitabine

6. Gastric acid secretion is under the control of the following agents except:

- i) PGE2 ii) Acetylcholine
- iii) Gastrin iv) Isoprenaline

7. Which of the following groups of antibiotics demonstrates a bacteristatic effect:

- i) Carbapenems ii) Macrolides
- iii) Aminoglycosides iv) Cephalosporins

8. The statement, that some microorganisms can develop alternative metabolic pathways for rendering reactions inhibited by the drug, is:

- i) True ii) False



9. Mechanism of Isoniazid action is:

- | | |
|------------------------------------|---|
| i) Inhibition of protein synthesis | ii) Inhibition of mycolic acids synthesis |
| iii) Inhibition of RNA synthesis | iv) Inhibition of ADP synthesis |

10. Bone marrow suppression is a side effect of:

- | | |
|-------------------|-----------------|
| i) Piperazine | ii) Albendazole |
| iii) Tetracycline | iv) Ivermectin |

QII Long Answers (Answer any 1 out of 2)

10

1. What do you mean by AIDS. Discuss its treatment in detail.
2. Explain pathophysiology and treatment of asthma.

QIII Short Answers (Answer any 2 out of 3)

10

1. Differentiate expectorants and antitussives. Give their treatments.
2. Write pathophysiology of tuberculosis along with its treatment with special emphasis on DOTS therapy.
3. Write pharmacology of malaria with special emphasis on chloroquine.

****BEST OF LUCK****



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First Sessional Theory Examination 2021-2022 (Even SEM)

Subject: Pharmaceutical Quality Assurance (BP 606 T)

Day & Date: Saturday, 14/05/2022

Class: T. Y. B. Pharm

Time: 10.30 am to 12.00 pm

Semester: VI

Max. Marks: 30

*Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full mark*

Q I Multiple Choice Questions (MCQs)

10 M

- 1) NABL accreditation has a validity period of _____ years.
a) 1 b) 2 c) 3 d) 4
- 2) The different terms of QbD explained in ICH guidelines, except ____
a) ICH Q7 b) ICH Q8 c) ICH Q9 d) ICH Q10
- 3) ISO Certificate is valid for _____ years.
a) 1 b) 2 c) 3 d) 4
- 4) Which guideline stands for evaluation of stability data?
a) Q1B b) Q1C c) Q1D d) Q1E
- 5) P-D-C-A stands for....
a) Proceed-Do-Check-Act b) Plan-Do-Check-Act
c) Plan-Do-Correct-Act d) Prepare-Do-Check-Act
- 6) Physical dimension of equipment and accessories comes under which qualification?
a) Operational qualification (OQ) b) Installation qualification (IQ)
c) Performance qualification (PQ) d) Design qualification (DQ)
- 7) _____ airlock is mainly used in Parenteral manufacturing areas.
a) Cascade airlock b) Sink airlock
c) Bubble airlock d) Hermetical airlock
- 8) For Hydrolytic resistance test, at least _____ number of containers to be used for the 5 ml capacity glass containers.
a) 20 b) 10 c) 5 d) 3
- 9) Fragmentation test applicable to butyl rubber closures, the total number of fragments is NMT _____.
a) 5 b) 10 c) 15 d) 20
- 10) As per USFDA, Microbiological limit for clean area class 1000 is _____ cfu/ft³.
a) <1 b) <2 c) <3 d) <5

Q II Long Answers (Answer any 1 out of 2)

10 M

- 1) Define QA, QC and TQM. Differentiate between QA and QC. Enlist the steps involved in the NABL accreditation.
- 2) Explain the purpose of ICH. Give organization of ICH. Explain the Process of Harmonization and enlist the ICH Stability guidelines.

Q III Short Answers (Answer any 2 out of 3)

10 M

- 1) Explain the quality control test for Rubber closures: Fragmentation test and Self-sealability test.
- 2) Write a note on – Purchase specification and maintenance of stores for Raw materials.
- 3) Enlist the quality control test for glass containers and explain any two.



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First Sessional Theory Examination 2021-2022 (Even SEM)

Subject: Pharmaceutical Quality Assurance (BP 606 T)

Day & Date: Saturday, 14/05/2022

Class: T. Y. B. Pharm

Time: 10.30 am to 12.00 pm

Semester: VI

Max. Marks: 30

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First Sessional Theory Examination 2019-2020
(EVEN SEM)

Subject: Quality Assurance (BP606T)
06/03/2020

Day & Date: Friday &

Class: Third Year B.Pharm

Semester: VI

Time: 10.30 – 12.00 pm

Max. Marks: 30

Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1.Process active phenomenon deals with quality of formulation is

- a. QC b. QA c. GMP d. ICH

2.Quality guidelines deals with Analytical procedure development is

- a. Q1 b. Q8 c. Q14 d. Q6

3. Max. no. of particles per cubic meter is 3520 of 0.5µm is termed as

- a. ISO 5 b. ISO 4 c. ISO 3 d. ISO 7

4. Contamination of undesired Gases and vapors in pharma manufacturing is

- a. Chemical b. Physical
c. Biological d. Physiological

5.Stability testing is performed on no. of batches

- a. 01 b. 03 c. 02 d. 04

6. The founding regulatory members of ICH

- a. EC, Europe b. FDA, USA
c. MHLW Japan d. All of the above

7. The screening of batch manufacturing record for production is reviewed by

- a. QA Head b. QC Head

- c. Production Head d. Sales Head

8. Minimum area in meter square for Warehouse block is

- a. 500 b. 1200 c. 1500 d. 2000

9. Safety guidelines deals with Immunotoxicology studies is

- a. S1 b. S8 c. S12 d. S6

10. A part of quality assurance ensure consistent manufacturing of quality product as per regulatory guideline is known as

- a. QC b. QA c. GMP d. ICH

Q.II Long Answers (Answer any 1 out of 2)

10

1. Define Quality assurance. Draw site map of location & Explain in detail about principle areas of Manufacturing facilities.
2. Give the purpose of ICH and Discuss in details about stability testing guidelines.

Q.III Short Answers (Answer any 2 out of 3)

10

1. Describe in brief about Total Quality Management (TQM).
2. Explain the purchase specification for Equipment **or** Raw materials.
3. Discuss in brief about Elements of QbD **or** Personnel Hygiene and Sanitation.

****BEST OF LUCK****

First Sessional Theory Examination 2020-2021

Subject: Quality Assurance (BP606T)

Day & Date: Friday & 30/04/2021

Class: Third Year B.Pharm

Semester: VI

Time: 1.30 pm – 3.00 pm

Max. Marks: 30

Instructions: 1. All questions are compulsory

2. Draw a well labeled diagram wherever necessary

3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. The scope of sanitation and hygiene covers.....
a. Premises b. Personal c. Equipment d. All
2. Principles of quality by design (QbD) include in
a. ICH Q7 b. Q8 c. Q5 d. Q6
3. Which of the following are the principles of TQM?
a. Focus on Customer b. Continuous Improvement
c. Employee Empowerment d. All
4. Contamination of undesired Gases and vapors in pharma manufacturing is
a. Chemical b. Physical c. Biological d. Physiological
5. Stability testing is performed on no. of batches
a. 01 b. 03 c. 02 d. 04
6. The founding regulatory members of ICH
a. EC, Europe b. FDA, USA c. MHLW Japan d. All of the above
7. Concept of QbD is based on _____
a. Validation b. Calibration c. Quality risk management d. None
8. Minimum area in meter square for Warehouse block is
a. 500 b. 1200 c. 1500 d. 2000
9. To approve or reject starting, packaging material is responsibility of _____
a. QA Head b. QC Head c. Production Head d. Sales Head
10. The premises/ building shall conform to all condition laid down in ____
a. Pharmacy Act b. Factory Act c. Drug and Cosmetic Act d. All

Q.II Long Answers (Answer any 1 out of 2)

10

1. What is NABL? Discuss process of NABL accreditation.
2. Give the purpose of ICH and Discuss in details about stability testing guidelines.

Q.III Short Answers (Answer any 2 out of 3)

10

1. What is ISO 9000? Give benefits of ISO 9000.
2. Describe in brief about Total Quality Management (TQM).
3. Discuss in brief about Elements of QbD or Personnel Hygiene and Sanitation.

Second Sessional Theory Examination 2020-2021

Subject: Quality Assurance (BP606T)

Day & Date: Saturday & 03/07/2021

Class: Third Year B.Pharm

Semester: VI

Time: 1.30 pm – 3.00 pm

Max. Marks: 30

Instructions: 1. All questions are compulsory

2. Draw a well labeled diagram wherever necessary

3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

- In powdered glass test leached alkali is titrated with _____ N sulphuric acid.
A) 2 B) 0.02 C) 0.01 D) 1
- Sub part B of GLP deals with
A) General provisions B) Organization & Personnel
C) Disqualification of testing facilities D) Records & Reports
- Complaint about product is an indicator of the product _____
A) Quality B) Efficacy C) Safety D) None of these
- Which if the following department holds responsibilities for quality Audit?
A) Production B) R & D C) Quality Control D) Quality Assurance
- _____ is responsible for defining the accuracy of any measurement.
A) Validation B) Qualification C) Calibration D) None of these
- Person handling complaint should be from Department.
A) Quality management B) Production C) R&D D) None of these
- Storage of goods on a large scale in a systemic and orderly manner is a function of _____ department
A) Production B) Warehouse C) Quality Control D) Quality Assurance
- Water attack test is only used for _____ glass containers.
A) Type I B) Type II C) Type III D) None
- _____ is the validation which is based on the historical data analysis.
A) Perspective validation B) Concurrent validation
C) Retrospective Validation D) Revalidation
- To approve or reject the starting material, packaging material, intermediate and finished products is responsibility of which department?
A) Production B) R & D C) Quality Control D) Quality Assurance

Q.II Long Answers (Answer any 1 out of 2)

10

- What is qualification? Describe types of qualification.
- What is SOP? Write in detail elements of SOP.

Q.III Short Answers (Answer any 2 out of 3)

10

- Define GLP? Explain the Subpart-C of the GLP.
- Enlist various quality control tests for Glass. Describe any one test in brief.
- What is complaint handling system. Give steps involved in the complaint handling.



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Second Sessional Theory Examination 2020-2021
(EVEN SEM)

Subject & Subject Code: Pharmaceutical Biotechnology (BP 605 T)

Day & Date: Friday; 02/07/2021

Class: Third Year B. Pharmacy

Time: 1.30 P.M. - 3.00 P.M.

Semester: VI Semester

Max. Marks: 30 Marks

Instructions: 1. All questions are compulsory

2. Draw a well labeled diagram wherever necessary

3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. Following are the examples of killed bacterial vaccines except...

a. Cholera, b. Pertussis, c. Rubella, d. Plague

2. Which of the following is/are example(s) of type II hypersensitivity?

a. Rh-incompatibility, b. Blood Transfusion reactions, c. Drug induced immune haemolytic anaemia, d. All of the above.

3. Prokaryotes are....

a. Haploid, b. multiploid, c. diploid, d. none.

4. A sequence DNA that can move from one location to another location in the genome is called as...

a. Spontaneous mutation, b. Transposons, c. plasmids, d. specialized transduction

5. Estrone is produced from 19-hydroxy-4-androstene-3, 17-dione with Nocardia Restricta by aromatization of ring

a. A, b. C, c. B, d. D

6. External loop reactor system is a type of fermenter.

a. Air-lift, b. tray, c. stirred-tank, d. packed bed

7. is the naturally occurring anticoagulant made by the mast cells.

a. citrates, b. heparin, c. disodium edetate, d. none of these

8. The size of the inoculum is normally% added into the production tank.

a. 0.1-1, b. 20-30, c. 10-20, d. 1-10



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9. Which is one of the major requirements of aerobic fermentation?
a. Agitation, b. Aeration, c. Both A and B, c. D. None of these
10. The breakdown of fibrin is catalyzed by...
a. Plasmin, b. urokinase, c. protease, d. renin

QII Long Answers (Answer any 1 out of 2)

10

1. What is hybridoma technology? Explain the steps involved in monoclonal antibodies production and their applications.
2. What are blotting techniques? Explain in detail about various blotting techniques.

QIII Short Answers (Answer any 2 out of 3)

10

1. Explain the production of penicillin by fermentation method.
2. Write a note on types of mutation and mutants with suitable examples.
3. Give details about collection, processing and storage of blood and its products.
Add a note on dried human plasma.

*Pratibha
Tulsidas Patil*



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Second Sessional Theory Examination 2020-2021
(Even SEM)

Subject & Subject Code: Herbal Drug Technology (BP603T)

Day & Date: Wednesday, 30/6/2021

Class: Third Year B. Pharmacy

Time: 1: 30 pm to 3:00 pm

Semester: VI

Max. Marks: 30

Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. The excipient property of Chiote tree is _____
a) Binder b) Coloring and coating agent c) bulking agent d) Sweetener
2. Which of the following drug is called as Honey leaf?
a) Stevia b) Mulethi c) Monellins d) Talin
3. Choose the correct disintegrating agent.
a) Gauran b) Irish moss extract c) Chitosan d) Cellulose
4. The general dose of decoction is 3 to 4 times a day upto 500 ml.
a) True b) False
5. Liposomes are microparticle or colloidal carriers, having _____ diameter.
a) 0.5-5.0 μm b) 0.07-5.0 μm c) 0.09-0.5 μm d) 0.05-5.0 μm
6. Which type of phospholipid used in preparation of phytosomes?
a) Phosphatidylcholine b) Paraphosphatidylcholine
c) Isophosphatidylcholine d) Polylactic acid
7. What do you mean by ICH?
a) Indian Council of Harmonization b) International Council of Harmonization
c) International Committee for Harmonization d) International Council for Harmonization
8. WHO guidelines are divided into _____ sections
a) 5 b) 7 c) 9 d) 11
9. Phrases, Symbols and designs can be protected or patented under _____ Act
a) Patent Act b) Copyright Act c) Trademark Act d) Registration and Protection Act.
10. Good Manufacturing Practices of Indian Systems of Medicine under the provision of ____
a) Schedule M b) Schedule T c) Schedule H d) Schedule Z.

QII Long Answers Question (Answer any 1 out of 2)

10

1. Describe WHO and ICH guidelines for assessment of efficacy and stability of herbal drugs.
2. Write a brief account on plant based industries and institutions involved in work on medicinal and aromatic plants in India.

QIII Short Answers Question (Answer any 2 out of 3)

10

1. Define the term: Patent, Intellectual Property Right, Bioprospecting and Biopiracy. Explain the Registration and Protection Act 1999.
2. Define and Classify herbal excipients with suitable examples. Discuss natural sweeteners with suitable example.
3. Explain Conventional and Novel herbal formulations with suitable example.



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Second Sessional Theory Examination 2019-2020

(EVEN SEM)

Subject & Subject Code: Biopharm and Pharmacokinetics BP 604T Day & Date: Sunday 17/05/2020

Class: TY B. Pharm Semester: VI

Time: 10.00 am - 11.00 am

QI Multiple Choice Questions (MCQs)

(1X30)

1. In which model compartments are joined in series?
a. Onset of time b. Onset of action c. Duration of drug of action d. Therapeutic range
2. In which model compartments are joined in series?
a. Compartment model b. Catenary model c. Physiologic model d. Mammillary model
3. In noncompartmental analysis, Mean residence time is equal to _____
a. The area under the first moment curve/area under the zero moment curve
b. The area under the zero moment's curve/area under the first moment curve
c. $1 / \text{Area under the first-moment curve}$
d. $1 / \text{Area under the zero moment curve}$
3. The area under the serum concentration time curve of the drug represents:
a. The biological half life of the drug b. The amount of drug in the original dosage form
c. The amount of drug absorbed d. The amount of drug excreted in the urine
4. The loading dose of a drug is based upon the
a. time taken for complete elimination
b. percentage of drug excreted unchanged in urine
c. percentage of drug bound to plasma protein
d. apparent volume of distribution and the desired drug concentration in plasma
5. In one compartment open model the term open indicates input and output are
a. unidirectional b. bidirectional c. non directional d. none of the above
6. The characteristic of non-linear pharmacokinetics include
a. Area under the curve is proportional to the dose b. Elimination half-life remains constant
c. Area under the curve is not proportional to the dose d. Amount of drug excreted through remains constant
7. The drug concentration between MEC and MSC represents the _____
a. Therapeutic Index b. Therapeutic range c. Therapeutic outcome d. Therapeutic ratio
8. Half life of zero-order process is proportional to _____ of drug
a. Initial concentration b. Final concentration c. Both a & b d. None of the above
9. The kinetics of capacity-limited process is best described by _____.
a. First order kinetics b. Zero order kinetics c. Michaelis-Menten equation d. none of the above
10. _____ is nothing but manner in which drug should be taken.
a. Dosing frequency b. Dosage regimen c. Dose adjustment d. none of the above
11. Constant rate infusion prevent _____ in blood levels.
a. prevents fluctuations b. useful when drug has narrow TI c. a and b d. none of the above
12. Nonlinear pharmacokinetics is also known as _____.
a. dose dependent b. enzyme capacity limited c. saturation pharmacokinetics d. All of the above
13. Which organs comprise the central compartment in a two compartment model?
a. Muscles b. Skin c. Adipose d. Liver
14. Which of the following is not a category of 2 compartment model?
a. Two compartment model with elimination from the central compartment
b. Two compartment model with elimination from the peripheral compartment
c. Two compartment model with elimination from only plasma and blood
d. Two compartment model with elimination from both the compartments
15. Which of the following creates nonlinearity in drug distribution and not in drug absorption?
a. When absorption is solubility or dissolution rate-limited
b. When absorption involves carrier-mediated transport systems
c. When a presystemic gut wall or hepatic metabolism attains saturation



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- d. Saturation of binding sites on plasma proteins
16. Which one of these are correct Michaelis-Menten equation?
- $-dC/dt = V_{max} C / K_m + C$
 - $dC/dt = V_{max} C / K_m + C$
 - $-dC/dt = V_{max} C / K_m$
 - $-dC/dt = K_m + C / V_{max} C$
17. Which of the following is not an important parameter of plasma level time studies?
- C_{max}
 - T_{max}
 - The area under the plasma level-time curve
 - Steady state level
18. The urinary excretion of the unchanged drug is directly proportional to the plasma concentration of a drug.
- True
 - False
19. Which of the following is not measured in acute pharmacological response study?
- ECG
 - EEG
 - Pupil diameter
 - Serum drug level
20. In which of the following models the body is considered to be composed of several compartments?
- Compartment model
 - Noncompartment model
 - Physiologic model
 - Human model
21. The term "biotransformation" includes the following:
- Accumulation of substances in a fat tissue
 - Binding of substances with plasma proteins
 - Accumulation of substances in a tissue
 - Process of physicochemical and biochemical alteration of a drug in the body
22. Which of the following is not a characteristic of the compartment model?
- It gives a visual representation of various rate processes in drug disposition
 - It shows how many rate constants are necessary
 - Compartments and parameters bear a relationship with physiologic functions
 - Useful in predicting drug
23. Which of the following will not be a parameter that should be examined for urinary excretion data?
- $(dX_u/dt)_{max}$
 - $(t_u)_{max}$
 - X_u
 - C_{max}
24. Which pharmacokinetic model is drawn on the basis of anatomic and physiologic data?
- Compartment model
 - Compartment model
 - Physiologic model
 - Mammillary model
25. The half life of a drug eliminated by first order elimination kinetics will be LONGER in individuals who have an:
- increased volume of distribution or increased clearance
 - increased volume of distribution or decreased clearance
 - decreased volume of distribution or increased clearance
 - decreased volume of distribution or decreased clearance
26. IV route of drug administration does not involve ____
- absorption step
 - biotransformation step
 - All of the above
27. What is the equation to find out the apparent volume of distribution?
- Amount of drug in the body / plasma drug concentration
 - Plasma drug concentration / amount of drug in the body
 - $1 / \text{plasma drug concentration}$
 - $1 / \text{Amount of drug in the body}$
28. The primary pharmacokinetic parameter clearance can be calculated by ____
- $Cl = K / V_b$
 - $Cl = (dx/dt) / AUC$
 - $Cl = (dx/dt) / C_d$
 - none of the above
29. Which of the following drug shows nonlinearity in hepatic excretion.
- Carbamazepine
 - Propranolol
 - Penicillin
 - Thiopental
30. Elimination rate constant (K_{elim}) is defined by the following parameter
- Rate of absorption
 - Maximal concentration of a substance in plasma
 - Highest single dose
 - Half life ($t_{1/2}$)
- None of the above



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Second Sessional Theory Examination 2020-2021

(EVEN SEM)

Subject & Subject Code: Biopharmaceutics & Pharmacokinetics ((BP 604T)

Day & Date: Thursday 1 July 2021

Class: T. Y B. Pharm

Semester: VI

Time: 1.30pm-3.00pm

Max: 30 Marks

*Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks*

QI Multiple Choice Questions (MCQs):

10

1. What is bioavailability?
 - a) The time of absorption of the drug from its dosage form
 - b) The rate of absorption of the unchanged drug from its dosage form
 - c) The time of absorption of the unchanged drug from its dosage form
 - d) The rate of absorption of the drug from its dosage form

2. Which of the following will not be a parameter that should be examined for urinary excretion data?
 - a) $(dX_u/dt)_{\max}$
 - b) $(t_u)_{\max}$
 - c) X_u
 - d) C_{\max}

3. What is bioequivalence?
 - a) Drug substance reaches the systemic circulation at the same rate in two or more identical dosage
 - b) Two or more drug products contain the same labeled chemical substance in different quantity
 - c) Two or more drug products contain different labeled chemical substance giving the same therapeutic effect
 - d) Two or more drug products contain the same labeled chemical substance giving a different therapeutic effect

4. In which model compartments are joined in series?
 - a) Compartment model
 - b) Catenary model
 - c) Physiologic model
 - d) Mamillary model



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5. In Non-compartmental analysis, Mean residence time is equal to
- a) The area under the first moment curve/area under the zero moment curve
b) The area under the zero moment's curve/area under the first moment curve
c) $1 / \text{Area under the first-moment curve}$
d) $1 / \text{Area under the zero moment curve}$
6. What does the word "open" mean in the one compartment open model?
- a) The drug easily enters
b) The drug readily mixes with the blood
c) Unidirectional input and output
d) Easy absorption
7. What is the equation to find out the apparent volume of distribution?
- a) Amount of drug in the body/plasma drug concentration
b) Plasma drug concentration/amount of drug in the body
c) $1 / \text{plasma drug concentration}$
d) $1 / \text{Amount of drug in the body}$
8. Which organs comprise the central compartment in a two compartment model?
- a) Muscles
b) Skin
c) Adipose
d) Liver
9. Which of the following creates nonlinearity in drug distribution and not in drug absorption?
- a) When absorption is solubility or dissolution rate-limited
b) When absorption involves carrier-mediated transport systems
c) When a pre-systemic gut wall or hepatic metabolism attains saturation
d) Saturation of binding sites on plasma proteins



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10. Which one of these are correct Michaelis-Menten equation?

- a) $-dC/dt = V_{max} C / K_m + C$
- b) $dC/dt = V_{max} C / K_m + C$
- c) $-dC/dt = V_{max} C / K_m$
- d) $-dC/dt = K_m + C / V_{max} C$

QII Long Answers (Answer any 1 out of 2)

10

1. Explain method to measure pharmacokinetic parameters in one compartment open model IV bolus administration.
2. Explain causes of Non-linearity and Michaelis-Menton equation according to different situation.

QIII Short Answers (Answer any 2 out of 3)

10

1. Write note on In- vitro In- vivo correlation
2. Write the application of Pharmacokinetic models
3. write note on Non-Compartment Analysis method



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Second sessional Theory Examination 2019-2020

Subject and subject code: Pharmaceutical Biotechnology (BP 605T)

Day & Date: 18/05/2020; Monday

Class: Third year B. Pharm

Semester: VI

Time: 10:00 am to 11:00 am

Max. Marks: 30

Instructions: All questions are compulsory

Q.I. Multiple Choice Questions (MCQs) (30×1 = 30 Marks)

1. Prednisolone is produced from cortisone with *Corynebacterium simplex* by dehydrogenation at position
a. Δ^1 , b. Δ^{13} , c. Δ^7 , d. Δ^{16}
2. Sparger is used in the fermenter for the addition of
a. sterile medium, b. sterile air, c. Antifoaming agent, d. Antimicrobial agent
3. Antibiotics are mainly produced by microorganisms in phase
a. Lag, b. log, c. death, d. stationary
4. Freezing point of normal human plasma is
a. 4 °C, b. -4 °C, c. 0.54 °C, d. -0.54 °C
5. A sequence DNA that can move from one location or position to another location in the genome is called as...
a. Spontaneous mutation, b. Transposons, c. plasmids, d. specialized transduction
6. The main limitation of an attenuated vaccine is...
a. Stability, b. storage, c. recombination, d. reversal of virulence
7. Production of grisiofulvin is carried out byfermentation with medium rich in.....
a. submerged, fructose, b. solid, glucose, c. submerged, glucose, d. solid, fructose
8. Raw materials mainly used for commercial production of penicillin
a. Corn steep liquor, b. Soya meal, c. Glucose, d. Peptone.
9. In eukaryotic cells, DNA is coiled around small proteins called....
a. Nucleosomes, b. solenoid, c. chromatin, d. histones
10. Kingdom monera include...
a. Unicellular eukaryotic cell, b. Multicellular and multinucleate eukaryotic organisms, c. Unicellular prokaryotes, d. None.
11. Class I MHC molecules display antigens to.....
a. Helper T cells, b. Suppressor T cells, c. cytotoxic T cells, d. B cells
12. B cells bind to...
a. Action of antigen, b. Specific intact antigen, c. both a and b, d. none
13. Fab and Fc fragments are produced after digestion of IgG with the enzyme.
a. Pepsin, b. papain, c. mercaptoethanol, d. none of these
14. Helper T cells produce..... Surface proteins that enhances their binding to class.... MHC molecules.
a. CD8; class I, b. CD4; class II, c. CD4; class I, d. CD8; class II
15. Vaccines should be stored in the of the refrigerator.
a. Door Shelve, b. Middle shelve, c. Both a and b, d. none.
16. Which enzyme is involved in salvage pathway of pyrimidines?
a. Thymidine kinase (TK), b. HGPRT, c. Both a and b, d. None
17. Commercially monoclonal antibodies are produced by...
a. Mouse ascitic fluids (in-vivo), b. Tissue culture method (in-vitro), c. both a and b, d. none
18. ELISA test is used for detection of ...
a. Hepatitis B-antigen, b. Rotavirus, c. HIV, d. All of above
19. Fermenters are mainly used for growth of..... cells.
a. Eukaryotic, b. Prokaryotic, c. Both a and b, d. None



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20. mainly present in prokaryotic cell.
a. Mitochondria, b. Golgi apparatus, c. Endoplasmic reticulum, d. Mesosomes
21. Read the following sentences.
A. Prokaryotic DNA found in nucleus.
B. Eukaryotic DNA found in cytoplasm.
a. Both A and B are true, b. both A and B are false, c. A is true B is false, d. A is false and B is true
22. Killed bacterial vaccine is ...
a. MMR, b. small pox, c. rabies, d. pertussis.
23. The highest rate of conjugation and recombination is associated with...
a. F-plasmid, b. C-plasmid, c. R-plasmid, d. M-plasmid
24. Now a days, penicillin is produced from...
a. *Penicillium notatum*, b. *Penicillium griseofulvum*, c. *Penicillium chrysogenum*, d. all of the above.
25. The breakdown of fibrin is catalyzed by...
a. Plasmin, b. Urokinase, c. Protease, d. Renin
26. Drug resistance in tuberculosis is due to...
a. Transformation, b. Transduction, c. Mutation, d. Conjugation
27.is used in industrial production of glutamic acid.
a. *Pseudomonas*, b. *Corynebacterium*, c. *Mycobacterium*, d. *Bacillus*
28. Insulin is made up of....amino acids.
a. 119, b. 86, c. 35, d. 51
29. Identification of a specific protein in a complex mixture of proteins can be done by..... technique.
a. Northern blotting, b. Western blotting, c. southern blotting, d. ELISA
30. The transfer of foreign gene into another cell is done by.....
a. Microinjection, b. Transformation, c. Transduction, d. all of the above.



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**Second Sessional Theory Examination 2020-2021
(EVEN SEM)**

Subject & Subject Code: Medicinal Chemistry-III (BP607 P) **Day & Date:** Mon. 28/06/2021

Class: T.Y.B. Pharm

Semester: VI

Time: 1:30PM -3:00PM

Max. Marks: 30

Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. Sulfur containing anti-TB drugs
 - a. Pyrazinamide
 - b. Ethambutol
 - c. Isoniazide
 - d. Ethionamide
2. Identify the pyrimidine analogue that interfere with viral nucleic acid
 - a. Trifluridine
 - b. Didanoside
 - c. Ganciclovir
 - d. Indinavir
3. Capreomycin isolated from
 - a. *Streptomyces capreolus*
 - b. *Streptomyces orchidaceus*
 - c. *Streptomyces kanamyceticus*
 - d. None of the above
4. All of the following antiviral drugs are analogues of nucleosides except
 - a. Zidovudine
 - b. Acyclovir
 - c. Didanosine
 - d. Saquinavir
5. QSAR stands for
 - a. Quantitative structure activity relationship
 - b. Qualitative structure activity relationship
 - c. Quality of Structure activity relationship
 - d. Both a and b
6. Imidazole ring containing antiprotozoal drug
 - a. Fluconazole
 - b. Metronidazole
 - c. Terconazole
 - d. Eiconazole
7. Dapsone is given in combination with -----drug in treatment of lepromatous and tuberculoid leprosy



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- a. Rifampicin
 - b. Clofazimine
 - c. Pyrimethamine
 - d. Trimethoprim
8. Roundworm infections mainly caused by
- a. *Ascaris lumbricoids*
 - b. *Trichuris trichiura*
 - c. *Trichenella spiralis*
 - d. *Schistosoma haematobium*
9. Identify odd
- a. *Streptomyces nodosus*: Amphotricin B
 - b. *Streptomyces griseofulvum* : Grieseofulvin
 - c. *Streptomyces noursei* : Nystatin
 - d. *Streptomyces natalensis* :Natamycin
10. Substituent Hydrophobicity constant is denoted by
- a. Pie (π)
 - b. Sigma (σ)
 - c. Infinity (∞)
 - d. Log/P

QII Long Answers (Answer any 1 out of 2)

10

1. Define TB. Write detailed classification of anti-TB drugs with structures. Write SAR, MoA and Synthesis of Isoniazid
2. What is sulfonamide? Explain Trimethoprim and Cotrimoxazole as a folate reductase inhibitor

QIII Short Answers (Answer any 2 out of 3)

10

1. Define antivirals classify them with example and highlight the SAR and synthesis of amantadine
2. Write a note on benzimidazole as anthelmintics
3. Explain the partition coefficient as physicochemical descriptor used in QSAR



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**Second Sessional Theory Examination 2020-2021
(EVEN SEM)**

Subject & Subject Code: PHARMACOLOGY-III, BP602

Day & Date: Tuesday, 29.06.2021

Class: B. Pharm. Third Year

Semester: 6th

Time: 01:30-03.00 pm

Max. Marks: 30

Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

10

1. _____ is a drug of choice in neurocysticercosis.
 - a. Levamisole
 - b. Ivermectin
 - c. Diethyl carbamazine
 - d. Albendazole
2. Metallic taste is a common side effect of _____.
 - a. Emetine
 - b. Quiniodochlor
 - c. Metronidazole
 - d. Diloxanide
3. Which drug is effective against relapsing malaria?
 - a. Chloroquine
 - b. Primaquine
 - c. Tetracycline
 - d. Artemether
4. Which drug inhibits dihydrofolate reductase enzyme?
 - a. Cisplatin
 - b. 5-Fluorouracil
 - c. Methotrexate
 - d. 6-Mercaptopurine
5. Which drug is mTOR inhibitor?
 - a. Sirolimus
 - b. Cyclophosphamide
 - c. Mycophenolate
 - d. Cyclosporine
6. Ames test is used to study:
 - a. Teratogenicity
 - b. Mutagenicity
 - c. Hepatotoxicity
 - d. Nephrotoxicity
7. Pin point pupil is a sign of which poisoning?
 - a. Morphine
 - b. Barbiturates
 - c. Bezodiazepines



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- d. Paracetamol
- 8. Pralidoxime is used as antidote in:
 - a. Arsenic poisoning
 - b. Morphine poisoning
 - c. Barbiturate poisoning
 - d. Organophosphate poisoning
- 9. Which brain region is called master circadian clock?
 - a. Ventral tegmental area
 - b. Nucleus accumbens
 - c. Suprachiasmatic nucleus
 - d. Hippocampus
- 10. Study of the effect of biological rhythms on the sensitivity of the target system to a drug is called _____
 - a. Chronotherapeutics
 - b. Chronopharmacokinetics
 - c. Chronesthesia
 - d. Chronergy

QII Long Answers (Answer any 1 out of 2)

10

- 1. Classify cytotoxic anticancer drugs. Explain general adverse effects of anticancer drugs.
- 2. Classify antimalarial drugs. Explain mechanism of action, therapeutic uses and adverse effects of chloroquine.

QIII Short Answers (Answer any 2 out of 3)

10

- 1. Enlist various preclinical toxicity studies. Explain acute toxicity study.
- 2. Explain signs and symptoms, and treatment of morphine poisoning.
- 3. Define chronopharmacology. Explain different branches of chronopharmacology.

Subject-in-charge

Dr. Kartik Nakhate



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**Second Sessional Theory Examination 2020-2021
(EVEN SEM)**

Subject & Subject Code: PHARMACOLOGY-III, BP602

Day & Date: Tuesday, 29.06.2021

Class: B. Pharm. Third Year

Semester: 6th

Time: 01:30-03.00 pm

Max. Marks: 30

*Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks*

QI Multiple Choice Questions (MCQs)

10

1. _____ is a drug of choice in neurocysticercosis.
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 - d. 6-Mercaptopurine
5. Which drug is mTOR inhibitor?
 - a. Sirolimus
 - b. Cyclophosphamide
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 - d. Cyclosporine
6. Ames test is used to study:
 - a. Teratogenicity
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 - c. Hepatotoxicity
 - d. Nephrotoxicity
7. Pin point pupil is a sign of which poisoning?
 - a. Morphine
 - b. Barbiturates
 - c. Benzodiazepines



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- d. Paracetamol
8. Pralidoxime is used as antidote in:
- Arsenic poisoning
 - Morphine poisoning
 - Barbiturate poisoning
 - Organophosphate poisoning
9. Which brain region is called master circadian clock?
- Ventral tegmental area
 - Nucleus accumbens
 - Suprachiasmatic nucleus
 - Hippocampus
10. Study of the effect of biological rhythms on the sensitivity of the target system to a drug is called _____
- Chronotherapeutics
 - Chronopharmacokinetics
 - Chronesthesia
 - Chronergy

QII Long Answers (Answer any 1 out of 2)

10

- Classify cytotoxic anticancer drugs. Explain general adverse effects of anticancer drugs.
- Classify antimalarial drugs. Explain mechanism of action, therapeutic uses and adverse effects of chloroquine.

QIII Short Answers (Answer any 2 out of 3)

10

- Enlist various preclinical toxicity studies. Explain acute toxicity study.
- Explain signs and symptoms, and treatment of morphine poisoning.
- Define chronopharmacology. Explain different branches of chronopharmacology.

Subject-in-charge


Dr. Kartik Nakhate

Second Sessional Theory Examination 2019-2020

Subject: Quality Assurance (BP606T)

Day & Date: Tuesday & 19/05/2020

Class: Third Year B.Pharm

Semester: VI

Time: 10.30 – 12.00 pm

Max. Marks: 30

Instructions: 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Right hand side number indicates full marks

QI Multiple Choice Questions (MCQs)

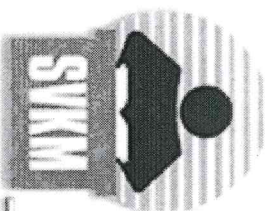
30

1. Type of Glass container with a high hydrolytic resistance, suitable for most preparations whether or not for parenteral use
 - a. Type I
 - b. Type II
 - c. Type III
 - d. Type IV
2. Water Vapor Permeability is performed on plastic container at Relative Humidity
 - a. 65 %
 - b. 70 %
 - c. 60 %
 - d. 75 %
3. Maximum hydraulic pressure withstand by secondary packaging material applied at right angle is known as
 - a. Tensile strength
 - b. Burst strength
 - c. Tear strength
 - d. Puncture resistance
4. Which test is performed to determine water absorbency by paper or board
 - a. Moisture content
 - b. Pick test
 - c. Cobb test
 - d. Ink absorbency
5. Fragmentation test is performed on rubber closure by piercing hypodermic needle for no of times
 - a. 10
 - b. 15
 - c. 20
 - d. 05
6. UV light absorb by extract of rubber closure in the range of 220 to 360 nm should not be more than
 - a. 1
 - b. 2
 - c. 3
 - d. 0.5
7. Any material derived from a test system for examination or analysis is called as

- a. **Specimen**
 - b. Test material
 - c. Reagent
 - d. Control standard
8. The individual responsible for the overall conduct of a nonclinical laboratory study
- a. Study Executive
 - b. **Study officer**
 - c. Analyst
 - d. Study director
9. Records are retained by nonclinical laboratory in support of application for research or marketing to FDA is for
- a. **05 years**
 - b. 03 years
 - c. 06 years
 - d. 01 years
10. Testing to be performed on Mixtures of test articles with carriers in laboratories includes
- a. Stability
 - b. Uniformity
 - c. Concentration
 - d. **All of the above**
11. As per Good laboratory practices Act means
- a. Pharmacist Act
 - b. **Food, Drug and Cosmetic Act**
 - c. Drug and Cosmetic Act
 - d. Narcotic Act
12. Any food additive, color additive, drug, biological product, electronic product, medical device for human use, or any other article subject to regulation under act is
- a. Standard article
 - b. Testing facility
 - c. **Test article**
 - d. Control article
13. In the absence of QA, the responsibility of Product Recall will assume by
- a. **Plant Manager**
 - b. Production Head
 - c. QC Head
 - d. Technical Director
14. The retained sample is within the specification but the complaint sample is clearly OOS with no reason is
- a. Non-confirmed complaint
 - b. Confirmed complaint
 - c. **Counterfeit complaint**
 - d. Quality Complaint
15. Both complaint and retained samples showed results in compliance with specifications is
- a. **Non-confirmed complaint**
 - b. Confirmed complaint

- c. Counterfeit complaint
 - d. Quality Complaint
16. Both complaint and retained samples showed out-of specification (OOS) results is
- a. Non-confirmed complaint
 - b. Confirmed complaint**
 - c. Counterfeit complaint
 - d. Quality Complaint
17. The company elects a person to be in charge of technical investigation of each complaint
- a. QA Officer
 - b. QC Officer
 - c. Complaint Officer**
 - d. Regulatory Officer
18. Any report of dissatisfaction (written, oral or electronic) related to the identity, quality, safety or effectiveness of any product manufactured or distributed is termed as
- a. Complaint**
 - b. Change control
 - c. Noncompliance
 - d. Defects
19. The closeness of agreement between the value which is accepted either as a conventional true value or an accepted reference value and the value found by analytical method is called as
- a. Accuracy**
 - b. Precision
 - c. Linearity
 - d. Range
20. Type of process validation based on changes in packaging, formulation, equipment or processes which could have impact on product effectiveness is
- a. Prospective validation
 - b. Retrospective validation
 - c. Concurrent validation
 - d. Revalidation**
21. Lowest amount of analyte in a sample which can be detected but not necessarily quantitated as an exact value in validation of analytical method is known as
- a. Limit of Quantitation
 - b. Limit of Detection**
 - c. Loss on Drying
 - d. Range
22. Type of process validation based on pre-planned protocols and series of scientific information is
- a. Prospective validation**
 - b. Retrospective validation
 - c. Concurrent validation
 - d. Revalidation
23. Validation in Pharm industry is very important part of
- a. Quality Management System**
 - b. Quality Assurance
 - c. Good Manufacturing Practices

- d. Quality Control
24. Process validation is implemented by pharmaceutical industry under section 21 CFR
- a. 820
 - b. 42
 - c. 58
 - d. **211**
25. Actual data of the batch manufacturing and whole manufacturing process step by step explained in
- a. **Batch Manufacturing Record**
 - b. Master Formula Record
 - c. Standard Operating Procedure
 - d. Quality Audit Report
26. As per BMR Final Yield of each Batch at the end of the manufacturing should not be less than
- a. 98 .00 %
 - b. 98 .50 %
 - c. **99 .00 %**
 - d. 99 .50 %
27. Checklist of Equipment Cleaning Record and Bill of Material in BMR should be checked and verified by
- a. Production dept
 - b. F & D dept
 - c. Quality control dept
 - d. **Quality Assurance dept**
28. Production Department in association with F&D, shall prepare a record serve as reference for BPR is known as
- a. Batch Manufacturing record
 - b. **Master Formula record**
 - c. Batch Formula record
 - d. Standard Operating Procedure
29. As a part of Authorization every page of Master Formula Record shall be check by
- a. **Production Head**
 - b. Production Officer
 - c. Quality Assurance Head
 - d. QA Officer
30. SOPs should be systematically reviewed on a periodic basis at every Years
- a. 03 months
 - b. 06 months
 - c. 09 months
 - d. **1 – 2 years**



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Preliminary Theory Examination 2019-2020

Subject and subject code: Biopharmaceutics & Pharmacokinetics BP604 T

Day & Date: 08.05.2020

Class: TY B. Pharm

Time: 10:00 am to 1:00 pm

Max. Marks: 75

Semester: VI

Instructions:

1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Figures to the right indicates full marks

Q.1. Multiple Choice Questions (MCQs)

(20×1=20) (Marks)

1. Conjugation is:

- a. Process of drug reduction by special enzymes
- b. Process of drug oxidation by special oxidases
- c. Coupling of a drug with an endogenous substrate
- d. Solubilization in lipids

2. The volume of distribution (Vd) relates:

- a. Single to a daily dose of an administered drug
- b. An administered dose to a body weight
- c. An uncharged drug reaching the systemic circulation
- d. The amount of a drug in the body to the concentration of a drug in plasma

3. Elimination rate constant (Kelim) is defined by the following parameter:

- a. Rate of absorption
- b. Maximal concentration of a substance in plasma
- c. Highest single dose
- d. Half life ($t_{1/2}$)

4. The area under the serum concentration time curve of the drug represents:

- a. The biological half life of the drug
- b. The amount of drug in the original dosage from
- c. The amount of drug absorbed
- d. The amount of drug excreted in the urine

5. Protein binding of drugs helps to maintain _____ for absorption of drugs.

- a. non sink condition
- b. sink condition
- c. none of the above
- d. All of above

6. Constant rate infusion _____

- a. prevents fluctuations
- b. useful when drug has narrow TI
- c. a and b
- d. none of the above

7. _____ is defined as the predictive mathematical model that describes the relationship between an in-vitro property of dosage form and in-vivo response.

- a. Pharmacodynamic Model
- b. In vitro – In vivo correlation
- c. Pharmacokinetic Model
- d. all of the above

8. _____ change in drug kinetics is known as chronokinetics.

- a. Time-dependent
- b. Dose-dependent
- c. Both a & b
- d. None of the above

9. The drug concentration between MEC and MSC represents the _____.

- a. Therapeutic index
- b. Therapeutic range
- c. Therapeutic outcome
- d. Therapeutic ratio

10. The kinetics of capacity-limited process is best described by _____.

- a. First order kinetics
- b. Zero order kinetics
- c. Michaelis-Menten equation
- d. none of the above

11. Primary binding site for albumin is _____ binding site.

- a. Warfarin
- b. Diazepam
- c. Digitoxin
- d. Tamoxifen

12. What does the word "open" mean in the one compartment open model?

- a) The drug easily enters
- b) The drug readily mixes with the blood
- c) Unidirectional input and output
- d) Easy absorption

13. What is the equation of bioavailable fraction?

- a) $1/\text{Bioavailable dose}$
- b) $1/\text{Administered dose}$
- c) $\text{Bioavailable dose}/\text{Administered dose}$
- d) $\text{Administered dose}/\text{Bioavailable dose}$

14. What is bioequivalence?

- a) Drug substance reaches the systemic circulation at the same rate in two or more identical dosage
- b) Two or more drug products contain the same labeled chemical substance in different quantity
- c) Two or more drug products contain different labeled chemical substance giving the same therapeutic effect
- d) Two or more drug products contain the same labeled chemical substance giving a different therapeutic effect

15. In which of the model peripheral compartments are connected to a central compartment?

- a) Compartment model
- b) Catenary model
- c) Physiologic model
- d) Mamillary model

16. What type of drug administration will have the shown compartment model?



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Day & Date: 08.05.2020

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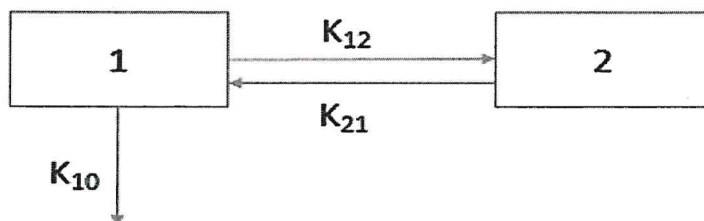


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16. What type of drug administration will have the shown compartment model?



- a) Intravenous administration
- b) Oral administration
- c) Rectal administration
- d) Sublingual administration

17. Which of the following statement rightly states "bioactivation"?

- a) Formation of high reactive metabolites which interact with tissues to precipitate toxic compounds
- b) Formation chelating agents
- c) Formation of enzymes which can lyse toxic compounds
- d) Stimulating the immune systems to initiate the formation of t cells

18. What is implied by «active transport»?

- a. Transport of drugs through a membrane by means of diffusion
- b. Transport without energy consumption
- c. Engulf of drug by a cell membrane with a new vesicle formation
- d. Transport against concentration gradient

19. What is the reason of complicated penetration of some drugs through brain-blood barrier?

- a. High lipid solubility of a drug
- b. Meningitis
- c. Absence of pores in the brain capillary endothelium
- d. High endocytosis degree in a brain capillary

20. The loading dose of a drug is based upon the

- a. time taken for complete elimination
- b. percentage of drug excreted unchanged in urine
- c. percentage of drug bound to plasma protein
- d. apparent volume of distribution and the desired drug concentration in plasma



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Q. II. Attempt any two of the following (Long answer) (2×10=20) Marks

1. Explain ONE Compartmental open model for assessment of parameters by IV bolus administration.
2. Explain two methods for calculating K_E from Urinary Excretion Data.
3. Explain in detail pH-partition hypothesis in connection with the absorption of drug.

Q. III. Attempt any seven of the following (7 ×5=35) Marks

1. Explain the different physiological barriers to the drug distribution.
2. Write short note Passive diffusion of drug.
3. Describe the factors influencing protein binding of drug.
4. Phase I reactions in biotransformation of drugs.
5. Write a note on Michelis Menten Equation.
6. Write a note on calculation of loading and maintenance doses.
7. State the plateau principal. Which parameters govern attainment of steady state.
8. Write a note on Wagner-Nelson Method for Estimation of K_a .
9. Enlist factors influencing absorption of drugs.



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Preliminary Theory Examination 2019-2020

Subject and subject code: Pharmaceutical Biotechnology (BP 605T)

Day & Date: 09/05/2020; Saturday

Class: Third year B. Pharm

Semester: VI

Time: 10:00 am to 1:00 pm

Max. Marks: 75

- Instructions:* 1. All questions are compulsory
2. Draw a well labeled diagram wherever necessary
3. Figures to the right indicates full marks

Q.I. Multiple Choice Questions (MCQs) (20×1=20 Marks)

1. Double helix structure of DNA is discovered by...
a. Watson and Crick; **b.** Sanger and Coulson; **c.** Meseleson and Stahl; **d.** Milstein and kohler
2. Which enzyme is used for conversion of D, L-Acyl amino acids to L-amino acids?
a. Penicillin acylase; **b.** Amylase; **c.** Aminoacylase; **d.** Aspartase
3. β -Amylase is anenzyme that acts from theend of a polysaccharide.
a. Endo-hydrolase; reducing **b.** exo-hydrolase; reducing, **c.** exo-hydrolase; nonreducing **d.** endo-hydrolase; non-reducing.
4.is the single stranded DNA phage of *E. coli*.
a. phage λ , **b.** Bacteriophage M₁₃, **c.** Both a and b, **d.** None.
5. technique is used when the sequence surrounding the target DNA is not known.
a. Asymmetric PCR, **b.** Real time PCR, **c.** Random amplified polymorphic DNA **d.** Anchored PCR
6. Raw materials mainly used for commercial production of penicillin
a. Corn steep liquor, **b.** Soya meal, **c.** Glucose, **d.** Peptone.
7. Prokaryotic genome contains...
a. linear chromosomes, **b.** plasmids, **c.** chloroplast DNA, **d.** Golgi apparatus
8. Which of the following vaccine is mainly administered at the birth of the child.
a. DPT, **b.** BCG, **c.** MMR, **d.** DPTC
9. Gene is incorporated into plasmids to detect recombinant cells.
a. antibiotic resistance, **b.** antibiotic susceptible, **c.** reverse transcriptase, **d.** virus receptors
10. External loop reactor system is a type of fermenter.
a. Air-lift, **b.** tray, **c.** stirred-tank, **d.** packed bed
11. Antibiotics are mainly produced by microorganisms in phase.



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- a. Lag, b. log, c. death, d. stationary
12. is the naturally occurring anticoagulant made by the mast cells.
a. citrates, b. heparin, c. disodium edetate, d. none of these
13. Freezing point of normal human plasma is
a. 4 °C, b. -4 °C, c. 0.54 °C, d. -0.54 °C
14. A sequence DNA that can move from one location or position to another location in the genome is called as...
a. Spontaneous mutation, b. Transposons, c. plasmids, d. specialized transduction
15. Production of grisiofulvin is carried out byfermentation with medium rich in.....
a. submerged, fructose, b. solid, glucose, c. submerged, glucose, d. solid, fructose
16. Now a days, penicillin is produced from
a. Penicillium notatum, b. Penicillium griseofulvum, c. Penicillium chrysogenum, d. All of the above.
17. ELISA test is used for detection of ...
a. Hepatitis B-antigen, b. rotavirus, c. Antigen-HIV, d. all of these
18. Spleen cells are....
a. HGPRT⁻, Ig⁺, immortal, b. HGPRT⁺, Ig⁻, mortal, c. HGPRT⁺, Ig⁺, mortal, d. HGPRT⁻, Ig⁺, mortal.
19. Stability testing of Vaccines is covered under....
a. ICH Q1 AR2, b. ICH Q8, c. ICH Q5C, d. ICH Q9
20. Helper T cells produce..... surface proteins that enhances their binding to class MHC molecules.
a. CD8; class I, b. CD4; class II, c. CD4; class I, d. CD8; class II

Q. II. Attempt any two of the following (Long answer) (2×10=20) Marks

1. Describe in detail production of any antibiotic by fermentation technology.
2. What is isolation of DNA? Explain in details various blotting techniques.
3. Explain the benefits of recombinant DNA products. Write a detailed account on human insulin production by rDNA technology.



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Q. III. Attempt any seven of the following

(7 ×5=35) Marks

1. What are Antitoxins? Explain in short the method of preparation, storage and dose of Diphtheria antitoxin.
2. Explain basic principle and components of biosensors. Give its example.
3. What is gene transfer? Explain transduction as a method of gene transfer.
4. Explain the structure of immunoglobulin with neat labelled diagram.
5. Explain the production of Vitamin B₁₂ by fermentation technology.
6. Write a short note on PCR.
7. Write a note on site directed mutagenesis.
8. Give the details about the collection, processing and storage of blood and blood products.
9. What are prokaryotes and eukaryotes. Differentiate between them.

