General Pharmacology Test

Marks: 30

Time allowed: 45 minutes

1. a) Enumerate three advantages and three disadvantages of parenteral route of drug administration. 3

   b) Write 2 differences between first and zero order kinetics. 3

2. a) Write two consequences of first pass metabolism. 2

   b) Name two 2nd messengers of G-protein coupled receptors. Describe signaling mechanism of any G-protein coupled receptor. 2+2

3. Write with example the clinical significance of:

   a) Plasma Potein Binding of drugs 3

   b) Microsomal enzyme induction 3

4. a) Describe different types of drug antagonism with examples. 3

   b) A patient admitted in hospital for cough, shortness of breath and fever is prescribed antibiotic tobramycin. The clearance and Vd of tobramycin are 0.08L/min and 40 L respectively. What maintenance dose (MD) should be given intravenously to obtain a steady state plasma concentration (CPss) of 4 mg/L? 3

5. a) Define tolerance. What are different mechanisms of development of tolerance? 4

   b) What is therapeutic index? 2

Lubna Farah

Afa Nawaz

QUESTIONS/ASSIGNMENTS 1st ROUND

PHARMACOKINETICS MBBS/3RD YEAR

1. a. What do you understand by parenteral route of drug administration. Write at least four advantages and four disadvantages of this route. (1+2)
   b. A patient presented with acute aspirin toxicity due to overdose. Using your knowledge of aspirin pharmacokinetics, how can you help this patient get kid of high plasma aspirin through urine? (2)
2. a. What is first pass metabolism of a drug? Write its two consequences with examples? (1+2)
   b. 500mg dose of a drug was administered, a uniform concentration of 10mg was achieved in the body. What will be the volume of distribution of this drug? (1)
   c. What do you know about loading dose of a drug? How is it calculated? (1)
3. a. Write down clinical significance of plasma protein binding of drugs with at least one example? (3)
   b. A patient was given 200mg dose of a drug IV and 100mg was eliminated during first 2 hours. If the drug follow first order elimination, how much will remain 6 hours after its administration. (2)
4. a. What is biotransformation. Write names of two phase II reactions with examples. (2)
   b. What are the possible results of drug biotransformation? Write with examples. (2)
   c. What is maintenance dose of a drug? How is it calculated? (1)
5. a. Explain enzymes induction of cytochrome P_{450} with two examples which are clinically relevant. (1+2)
   b. Define biotransformation. What are different phase I metabolic reaction, where do they occur? (2)
6. a. What information do you get from plasma half life? (3)
   b. What are different types of drug doses? Give examples. (2)
7. a. Write importance of cytochrome P_{450} inhibition with two clinical examples. (2)
   b. Classify & categorize drug use in pregnancy. (3)
8. a. Write down a comparison between first & zero order kinetics of elimination with graphs and examples? (3)
   b. What is plasma half life? How is it calculated? (2)
9. a. Write down different factors which effect the absorption of a drug? (3)
   b. What do you know about bioavailability, bioequivalence & therapeutics equivalence? (2)
10. a. What do you know about drug elimination? (2)
    b. What factors effect the distribution of drugs in the body? What is Vd. (3)
11. a. What is plasma half life? What do you know about steady state concentration of a drug? (2)
    b. What are different methods of prolonging drug action? (3)
12. a. What are different routes of drug administration? What are advantages & disadvantages of enteral route? (1+2)
    b. What are different barriers to drug absorption limiting the drug access to certain areas? (1)
    c. What are some special drug delivery system? (1)

Trans dermal
Ocular
Intravenous
Antigen Directed

Phospho[illegible]sitol system = epinephrine +
③ Arachidonic acid system = Acetylcholine
Histamine

QUESTIONS/ASSIGNMENTS – 2ND ROUND

PHARMACODYNAMICS MBBS 3RD YEAR

K14

1. a) Define 'receptors'. What is meant by 'signaling mechanism'? notes (2)
   b) Write names of different receptor families with one example each? notes (3)

2. a) Write names of three 2nd messengers with an example of drug acting through it. (2)
   b) What are differences between graded and quantal dose response curves? (3)

3. a) What do you know about affinity, efficacy and potency? wadood 19 (3)
   b) What is the difference between therapeutic index and therapeutic window? 25 wadood K17 (2)

4. a) What are different types of drug antagonism? Give examples. 27 wadood (3)
   b) What is a partial agonist? Give example? wadood. (2)

5. a) What is drug tolerance? And what is meant by cross tolerance? Give examples. (3) 26 wadood
   b) What is tachyphylaxis? How does it differ from tolerance? Give example. 26 wadood. (2)

6. What are different types of drugs interactions? Give examples. (5)

7. a) Write different type of G – Proteins & their associated receptors with examples? (3) notes
   b) What are the advantages of signaling through G – protein coupled receptors? (2) notes

8. a) Why do some drugs cause hemolysis in patients with G6PD deficiency. Explain with examples? notes (3)
   b) Give four examples of the role of genetics in human response to drugs? notes (2)

9. a) What information about a drug is retrieved from its graded dose response curve? (2)
   b) Explain the concept of spare receptors with examples.

10. a) What do you understand by decreased response of a drug after prolonged exposure? What are possible mechanisms involved? Tolerance, Tachyphylaxis. 26 (3)
    b) How partial agonist act as antagonists? Explain with example. wadood pg 19 (2)

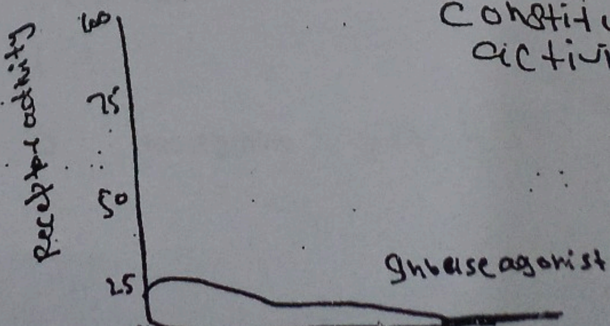
11. a) Explain receptor up-regulation with examples? wadood 19 (2)
    b) What are different types of adverse drug reactions? Give examples. wadood (3)

A drug that bind to the non-active state of receptor molecules and decrease the constitutive activity.

12. What is meant by 'inverse agonist'? Explain graphically with the help of a drug-receptor model. (5)

K14

Q2:- (A)
i) cAMP e.g Glucagon, epinephrine
ii) cGMP e.g ANF
iii) PIP2 e.g vasopressin epinephrine



QUESTIONS/ASSIGNMENTS – 2ND ROUND

PHARMACODYNAMICS MBBS 3RD YEAR

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= 3000 Pharma rounds

Pharma Rounds

LYBA (1)

QUESTIONS/ASSIGNMENTS - 1ST ROUND

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    c. What are some special drug delivery system? (1)

[illegible]OLOGY & THERAPEUTICS

MAX MARKS: 70

[illegible] ALLOWED: 70MIN

[illegible] Azole Antifungal Agents. Give their Mechanism of Action & Toxicity. 2+2+3

[illegible]umerate 1st & 2nd line drugs used in Tuberculosis. 3

[illegible] down the Mechanism of Action & Adverse Effect of INH. 2+2

3) a) Classify drugs used in Amoebiasis. 3

b) Give Mechanism of Action and Toxic effect of Metronidazole. 2+2

a) Enumerate drugs used for Nematodes. What is the MOA of Albendazole? 2+2

b) Discuss how bacterial resistance is produced against antimicrobial agents. 3

What is MOA, Clinical Uses and Toxicity of Chloroquine. 2+2+3

Classify Anti Cancer drugs. What are Uses and Adverse Effects of Methotrexate? 3+2+2

Write short note on: 3+4

a) Interferon b) Immunosuppressants

Define Bioavailability? What are the factors Affecting the bioavailability of the drug. 1+3

What is zero order kinetics. Give its examples? 3

Define biotransformation. Enumerate phase II reactions of metabolism. 1+2

What is enzyme induction. Give examples. 4

What is a receptor? Give different types of receptors? 1+2

What is antagonism of the drug? Describe briefly pharmacological antagonism with examples. 1+3

HyperKalemia.
Apnea

→ [illegible] pain following [illegible] nerve [illegible] by herpes zoster)) Gabapentin is also an anti convulsant.

Adverse effects of succinylcholine are

1. HyperKalemia.
2. Muscle pain.
3. ↑ intragastric and intraocular pressure.

DEPARTMENT OF PHARMACOLOGY

SEQ's (Pharmacodynamics)

Time Allowed: 60 mins

Max Marks:30

Q1. Define following terms with examples of each: 5

a) Agonist e.g Acetylcholine Noradrenaline

b) Inert binding site

c) Spare receptors

d) Potency

e) Therapeutic index

Q2. What is meant by the term Tolerance. Briefly describe its mechanism 3

Q3. a) Enumerate various types of 2nd messengers. 4

b) Briefly describe the signaling mechanism of G protein coupled receptors. 3

Q4. In the presence of a full agonist, how a partial agonist acts as an antagonist? Explain.

Q5 Explain the following with examples:

a) Competitive Antagonism

b) Non competitive Antagonism

Q6. a) Define Drug Allergy. What are its manifestations.

c) Give drug treatment of anaphylactive shock.

Pharma

2015–16

GENERAL PHARMACOLOGY 2015

(1)

Pharmacokinetics

(Kinetics + Dynamics) SEQs

Time Allowed: 50 minutes

Maximum Marks: 30

Attempt all questions

1. a) Write three possible consequences of first pass metabolism. 3
   b) Write two differences between first and zero order kinetics with examples. 2

2. a) Name two 2nd messengers of G – protein coupled receptors. Described signaling mechanism of any G – protein coupled receptor. 3
   b) What are the two most important factors which determine half life of a drug? 2

3. a) Write two differences between graded dose response curve and quantal dose response curve. 2
   b)) Define efficacy and potency. Which of these two attributes is more important about a drug? 3

4. Write with example the clinical significance of:
   a) Plasma Protein Binding of drugs 2
   b) Microsomal enzymes induction 1.5
   c) Microsomal enzyme inhibition 1.5

5. a) Define volume of distribution. How it is calculated? 3
   b) What is the difference between Elimination and Excretion 2

Amount of drug in body / Plasma drug conc.

6. Define
   a) Partial agonist 1.5
   b) Inverse agonist 1.5
   c) Competitive antagonist 2

88888888888888888888888888888888888

G.P

14-15 (1) 0

(16)

GENERAL PHARMACOLOGY

SEQs

Time Allowed: 50 minutes Maximum Marks: 30

Attempt all questions.

1. a) What is dose response curve? Define efficacy and potency. Notes (back) 1+2
   b) Write two differences between first and zero order kinetics with examples. Notes 3

2. a) Write two consequences of first pass metabolism. Notes 2
   b) Name two 2nd messengers of G – protein coupled receptors. Described signaling mechanism of any G – protein coupled receptor. Notes +Pg 27(L) 2+2

3. a) Write with example the clinical significance of: Notes
   i) Plasma Protein Binding of drugs 1.5
   ii) Microsomal enzymes induction 1.5
   b) Why do some patients with G6PD deficiency have bleeding tendency when given certain drugs? (back 3

4. a) Describe different types of drug interaction with examples. notes 3
   b) A patient admitted in hospital for cough, shortness of breath and fever is prescribed antibiotic tobramycin. The clearance and Vd of tobramycin are 0.08L/min and 40L respectively. What maintenance dose (MD) should be given intravenously to obtain a steady state plasma concentration (CPSS) of 4mg/L? Not paper 3

5. a) Define tolerance. What are different mechanisms of development of tolerance? 4 Notes
   b) What is therapeutic window? Illustrate by graphical representation. Back 2

Mechanism of tolerance
- Change in receptor sensitivity
- Enzyme Induction
- Intestinal absorption

Cl = 0.08L/min
Vd = 40L
plasm. con
= Cl × Plas

0.08 / 4 = 0.32

0.32 / 100 = 32 / 100 × 40

13-14 (1)

General Pharmacology Test

Marks: 30 Time allowed: 45 minutes

1. a) Enumerate three advantages and three disadvantages of parenteral route of drug administration. 3
   b) Write 2 differences between first and zero order kinetics. 3

2. a) Write two consequences of first pass metabolism. 2
   b) Name two 2nd messengers of G-protein coupled receptors. Describe signaling mechanism of any G-protein coupled receptor: 2+2

3. Write with example the clinical significance of:
   a) Plasma Potein Binding of drugs 3
   b) Microsomal enzyme induction 3

4. a) Describe different types of drug antagonism with examples. 3
   b) A patient admitted in hospital for cough, shortness of breath and fever is prescribed antibiotic tobramycin. The clearance and Vd of tobramycin are 0.08L/min and 40 L respectively. What maintenance dose (MD) should be given intravenously to obtain a steady state plasma concentration (CPss) of 4 mg/L? 3

5. a) Define tolerance. What are different mechanisms of development of tolerance? 4
   b) What is therapeutic index? 2

DEPARTMENT OF PHARMACOLOGY

TEST PHARMACODYNAMICS (SEQ's)

IE ALLOWED: 50MIN

TOTAL MARKS: 35

1. a. Give different types of receptors? 2 6 L 1
   b. Explain G protein coupled signaling receptor? 3
2. a. Give difference between tolerance and Tachyphylaxis? Down 3
   b. Enumerate factor effecting dose of drugs? Age, Sex, Body wt, Route of administration, Severity of disease, health, Tolerance, Allergy 4
3. a. Compare and contrast between graded and quantal dose response curve? 4
   b. Explain therapeutic index with examples? 3
4. a. Give detail of pharmacological antagonism with example? 4
   b. Explain Pharmacogenetics with example? 3
5. Write short notes on:
   a. Spare Receptors 3.5
   b. Partial ~~Receptors~~ Agonist 3.5

Tolerance	Tachyphylaxis
Develops slowly	Develops rapidly

DEPARTMENT OF PHARMACOLOGY

MBBS 3rd YEAR

(General Pharmacology)

SEQ's

Time Allowed: 60min **Max Marks: 30**

1. a) Give advantages and disadvantages of intravenous routes of drug administration. 4 L-5
   b) Write down significance of ion trapping mechanism. L-17 2
   c) Define clearance. How is it calculated. 2
2. a) Enumerate Phase I reactions of biotransformation with example of each. 3
   b) Write two differences between First and Zero order kinetics. 4
3. a) Define following terms.
   1) Bioavailability Q-L 2) First pass metabolism 8-L 4
   b) Describe the factors affecting absorption of drugs. 3
4. a) Define volume of distribution. Enumerate factors affecting it. L-11 4
   b) Give clinical significance of volume of distribution. L-11 4

FC It is the Pharmakokinetic measurement of the volume of plasma from which a substance is excreted per unit time

ml/min $CL = \frac{\text{Rate of elimination}}{\text{Plasma conc.}}$

Clearance = Renal C + Hepatic C + Lung C

16

DEPARTMENT OF PHARMACOLOGY

TEST PHARMACODYNAMICS (SEQ's)

TIME ALLOWED: 50MIN

TOTAL MARKS: 45

1. a. Give different types of receptors? 1
   b. Explain G protein coupled signaling receptor? 3
2. a. Give difference between tolerance and Tachyphylaxis? 2
   b. Enumerate factor effecting dose of drugs? 4
3. a. Compare and contrast between graded and quantal dose response curve? 4
   b. Explain therapeutic index with examples? 3
4. a. Give detail of pharmacological antagonism with example? 4
   b. Explain Pharmacogenetics with example? 3
5. Write short notes on: 3.5
   a. Spare Receptors → 3.5
   b. Partial ~~Receptors~~ agonist →

Partial agonists:

Department of Pharmacology

MCQ's(Pharmacodynamics)

1. Which of the following correctly defines a receptor?
   a. A carrier that transports drug
   b. A macromolecule of a cell to which a drug binds and thereby producing its effects
   c. An enzyme involved in drug metabolism
   d. A plasma protein to which drug binds
2. All of the following terms are correctly defined EXCEPT:
   a. Affinity: The ability of a drug to bind to a receptor
   b. EC50: Concentration of a drug that produces half of Emax (maximum efficacy)
   c. Efficacy: Maximum efficacy produced by a drug
   d. Kd: The concentration of free drug at which all of the receptors are occupied.
3. A 24 years old patient is to be treated for toothache with an analgesic. Drug X and Y are 2 analgesics with the same mechanism of action. Drug X in a dose of 5 mg produces the same magnitude of response as 500 mg of drug Y. This most likely means:
   a. Drug X has less potency than drug Y
   b. Drug X has more efficacy than drug Y
   c. Drug Y has more efficacy than drug X
   d. EC 50 of drug Y is more than the EC50 of drug X
4. Which of the following variables are expressed by X axis and Y axis respectively of a graded dose response curve?
   a. Affinity and Potency
   b. Efficacy and affinity
   c. Potency and efficacy
   d. Potency and affinity
5. A partial agonist may act as an antagonist in the presence of a full agonist because it has:
   a. High affinity but low intrinsic activity
   b. High affinity but no intrinsic activity
   c. No affinity but low intrinsic activity
   d. No affinity and no intrinsic activity
6. Which of the following statements concerning potency is correct?
   a. Potency is more important clinically than efficacy
   b. Is a measure of how much drug is required to elicit a given response
   c. The greater the efficacy, the greater the potency of a drug
   d. The higher the dose required for a given response, the more potent the drug.
7. Variation in the sensitivity of a population of individuals to increasing doses of a drug is best determined by which of the following?
   a. Efficacy
   b. Potency

15. A patient is administered a drug that binds to and activates cytokine receptors. The drug would most likely be:
    a. A corticosteroid
    b. Acetylcholine
    c. Adrenaline
    d. Growth hormone
16. All of the following are 2nd messengers EXCEPT:
    a. IP3
    b. cAMP
    c. Adenylyl cyclase
    d. DAG
17. Which of the following ligands is correctly coupled with its receptor signaling mechanism?
    a. Adrenaline: Ion channel linked receptors
    b. GABA: Tyrosine kinase receptors
    c. Insulin: Intracellular receptors
    d. Vitamin D: Intracellular receptors
18. The phenomenon of decrease in intensity of response to a given dose of a drug after repeated administration so that greater amount of drug is required to produce the same previous effect is called:
    a. Allergy
    b. Dependence
    c. Tolerance
    d. Idiosyncracy
19. Chronic use of an antagonist over a long period of time may cause an increase in the number of receptors. This is called:
    a. Desensitisation
    b. Down regulation
    c. Tolerance
    d. Up regulation
20. What is the situation when failure to continue administering the drug result in serious psychological and somatic distrubances called?
    a. Abstinence/ withdrawl syndrome
    b. Idiosyncracy
    c. Tachyphylaxis
    d. Allergy

abstin