

CHMRS

ANYIP

M2

INSTRUCTIONS

write your registration number and your serial number (which is your examination number) on every single answer sheet that you submit for marking. You must use this same number on all assessment and examination scripts during your pharmacology

10 questions. There is ONLY ONE SINGLE BEST CORRECT ANSWER for each question. One mark for single correct answer. Zero mark for wrong or multiple answers. Time allowed: 2 hours

1. Pharmacokinetics may best be described as:

- a. Drug movement into and out of the body
- b. Drug movement from the pharmacist to the patient
- c. The science of drug handling by the body ✓
- d. The study or science of the effect of drugs on the body
- e. Drug movement from the manufacturer to the pharmacist

2. Which would be the preferred drug treatment for migraine headache?

- a. Propranolol
- b. Paracetamol
- c. Ergotamine ✓
- d. Caffeine
- e. Sumatriptan ✓

3. Which is most suitable for the treatment of post-partum haemorrhage?

- a. Oxytocin
- b. Salbutamol
- c. Ergometrine ✓
- d. Ergotamine
- e. Insertion of swabs with forceps and apply pressure to staunch the flow

4. Which muscle relaxant may cause life-threatening malignant hyperthermia?

- a. Diazepam
- b. Pancuronium
- c. Baclofen
- d. Gallamine
- e. Suxamethonium ✓

5. Which is not used in the treatment of peptic ulceration?

- a. Clarithromycin
- b. Sucralfate
- c. Low-dose aspirin ✓
- d. Lansoprazole
- e. Ranitidine

6. How would you define the pharmacokinetic concept of clearance?
- The volume of plasma cleared of drug per unit time ✓
 - The process whereby the doctor confirms that a given drug dosage is safe for a particular patient
 - The amount of drug eliminated per unit time
 - The process whereby a drug is removed from the body (either by metabolism or by excretion)
 - Clearance is constant in first order elimination kinetics.
7. How would you define the pharmacokinetic concept of elimination half-life?
- The time it takes to eliminate half of the drug amount left in the body ✓
 - This is an estimate of half the patient's remaining lifetime, based on his current medical condition
 - Half-life is constant with first order elimination kinetics.
 - The time it takes to eliminate drug from half the plasma volume.
 - The time it takes to halve the drug plasma concentration.
8. Which process would not be part of drug elimination in pharmacokinetics?
- Glucuronidation
 - Drug excretion
 - Biotransformation
 - First pass metabolism
 - Disposal of expired drugs from the pharmacy ✓
9. Which prostaglandin is suitable for peptic ulceration?
- Alprostadil
 - Misoprostol ✓
 - Latanoprost
 - Dinoprostone
 - Carboprost
10. Which anticonvulsant is suitable for petit mal epilepsy?
- Phenytoin
 - Carbamazepine
 - Vigabatrin
 - Lamotrigine
 - Ethosuximide ✓
11. Which is not an indication for acetylsalicylic acid ('aspirin')?
- Pyrexia ✓
 - Coronary artery disease (atherosclerosis)
 - Deep visceral pain ✓
 - Inflammation
 - Joint pains in osteoarthritis
12. Which is not an inhalational anaesthetic agent?
- Nitrous oxide
 - Halothane
 - Ether
 - Enflurane ✓
 - Fentanyl ✓
- petit mal = absence seizure*
9
- NSID-HE2*

13. Which may be administered to reverse paralysis caused by pancuronium?
- Acetylcholine
 - Adrenaline
 - Noradrenaline
 - Gallamine
 - Neostigmine ✓
14. Appropriate treatment for echothiophate or parathion poisoning would be:
- Atropine and pralidoxime ✓
 - Neostigmine
 - Benztropine
 - Labetalol and atropine
 - Pancuronium and atropine
15. Appropriate treatment for hypertensive crisis due to phaeochromocytoma includes:
- Yohimbine and propranolol
 - Prazosin and labetalol ✓
 - Atropine and atenolol
 - Guanethidine and methyldopa
 - Clonidine and propranolol
16. Which is an alpha-2 adrenergic antagonist?
- Fentanyl
 - Clonidine
 - Guanethidine
 - Yohimbine ✓ ✓
 - Atenolol
17. Which is not an adverse effect of propranolol?
- Cardiac failure
 - Raynaud's phenomenon
 - Tachyarrhythmia ✓
 - Dysphoria and nightmares
 - Precipitation of complete heart block
18. Which is not anti-emetic?
- Ondansetron
 - Cyclizine
 - Chlorpromazine
 - Indomethacin ✓
 - Metoclopramide
19. Which is not a characteristic feature of salicylism?
- Hyperventilation
 - Pyrexia ✓
 - Renal failure
 - Hepatic failure
 - Respiratory failure

Labetalol is a non-selective $\alpha\beta$ blocker.

d2

20. Which is a lipoxygenase inhibitor useful in asthma?

- a. Zafirlukast
- b. Zileuton ✓
- c. Montelukast
- d. Ipratropium
- e. Salmeterol

21. Which is not a therapeutic application of beta-adrenergic blockade?

- a. Supraventricular tacharrhythmia
- b. Thyrotoxicosis
- c. Anxioly
- d. Migraine
- e. Ventricular tachycardia ✓

* 22. Which is drug of choice for partial seizures (focal epilepsy)?

- a. Carbamazepine ✓
- b. Ethosuximide ✓
- c. Phenytoin ✓
- d. Lamotrigine ✓
- e. Clonazepam ✓

T AM
 ✓ ✓ ✓
 C C C
 P ✓

23. Which is not a recognized side effect of phenytoin?

- a. Gingival hypertrophy
- b. Osteoporosis ✓
- c. Osteomalacia
- d. Nystagmus
- e. Cleft palate

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 enter
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24. Of these NSAIDs, which is the most selective inhibitor of the cyclooxygenase-II isoenzyme?

- a. Acetylsalicylic acid — non selective
- b. Indomethacin — non select
- c. Ibuprofen —
- d. Naproxen —
- e. Nabumetone — preferential Cox-2 inhibitor choice is most sele

25. The agonist at M1 receptor subtype is

- a) Arecoline
- b) Pilocarpine
- c) Oxotremorine ✓
- d) Methacholine
- e) Darifenacin

M1
 M2
 M3 Darif

26. M3 subtype receptor antagonist is

- a) Benzylcholine — Antagonist
- b) Pirenzepine — M1
- c) Methoctramine — M2
- d) Darifenacin — M3 antagonist ✓
- e) Tripitamine — M2 antagonist

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27. Select the odd one out

- a) Oxyphenonium
- b) Dicyclomine
- c) Clidinium
- d) Pipenzolate
- e) Methylbromide ✓

Anticholinergics } Anti-secretory, Anti-spasmodic
COPD

28. Select the odd one out

- a) Trihexyphenidyl
- b) Biperiden
- c) Benzotropine
- d) Pirenzepine
- e) Ethopropazine ✓

Anticholinergics drugs med u lang Parkinsonism
M1 Anticholinergics

29. Select the odd statement in the following:

- a) Choline is accumulated in cholinergic presynaptic nerve endings
- b) Choline uptake is inhibited by hemicholinium
- c) Presynaptic membrane depolarization opens voltage-dependent Ca^{2+} channels
- d) Interaction of synaptobrevin and botulinum toxin prevent ACh release.
- e) Anticholinesterases are not a target for indirect acting cholinomimetics.

30. Consider the following Muscarinic receptor pairings and indicate the odd one:

- a) Heart SA node-M3- positive chronotropy
- b) Lung bronchioles-M3 -bronchospasm
- c) Stomach- M3-cramps
- d) Bladder-M3- Relaxation
- e) Blood vessels-M3-Dilation

31. The drug of choice for treatment of urinary retention, myasthenia and reversal of non-depolarizing nicotinic blocker is

- a) Donepezil
- b) Tacrine
- c) Neostigmine ✓
- d) Edrophonium
- e) Physostigmine

32. Select the odd one out in the following

- a) Lisuride
- b) Pergolide
- c) Metergoline
- d) Ergometrine ✓
- e) Lergotrile

dopamine agonist
dopamine agonist

33. This ergot alkaloid is a potent α - blocker and enhances Acetylcholine release in cerebral cortex advocated for treatment of dementia

- a) Bromocriptine
- b) Ergometrine
- c) Dihydroergotoxine ✓
- d) Dihydroergotamine
- e) Ergotamine

34. Select the odd one out in the prophylactic treatment of migraine.

- a) Timolol — β_1 & β_2 Blocker
- b) Amitriptyline — Antidepressant
- c) Divalproex
- d) Verapamil — Cal channel blocker
- e) Meclizine

35. Selective Nicotinic agents does not include:

- a) Carbachol ✓
- b) Lobeline ✓
- c) Trimethylammonium
- d) Piperazine
- e) Dimethylphenyl

36. Symptoms of Anticholinesterase inhibitor poisoning do not include:

- a) Diarrhoea
- b) Bradycardia
- c) Excitation
- d) Miosis
- e) Diplopia ✓

T ✓
A ✓
M ✓
C ✓
P ✓

37. The drug of choice for treatment of general tonic-clonic seizure is:

- a) Carbamazepine ✓
- b) Valproic acid ✓
- c) Lorazepam
- d) Fosphenytoin
- e) Phenytoin

T ✓
V ✓
C ✓
P ✓

A ✓
V ✓
E ✓

M ✓
D ✓

38. Ataxia, weight loss, Steven-Johnson's syndrome are adverse effects attributed to

- a. Gabapentin
- b. Tiagabine
- c. Lamotrigine ✓
- d. Felbamate
- e. Topiramate ✓

39. Partial seizures combined with migraine and bipolar disorder are best managed with

- a. Vigabatrin
- b. Ethosuximide
- c. Phenytoin
- d. Gabapentin ✓
- e. Zonisamide

40. Beta lactam antibiotics include the following 7
- (a) Spironolactone ✓
 - (b) Cephalixin ✓
 - (c) Vancomycin ✓
 - (d) Amoxicillin ✓
 - (e) Penicillin G ✓
41. Which of the following produces formaldehyde in acidic medium
- (a) Tetracycline
 - (b) Nalidixic acid
 - (c) Methenamine ✓
 - (d) Penicillin
 - (e) Clavulanic acid.
42. The following are urinary antiseptics except
- (a) Fosmycin ✓
 - (b) Nitrofurantoin
 - (c) Nalidixic acid
 - (d) Methenamine
 - (e) Ampicillin ✓
43. The following drugs block voltage gated sodium channels except
- (a) Bupivacaine ✓
 - (b) Lidocaine ✓
 - (c) Ropivacaine
 - (d) Articaine
 - (e) Adrenaline ✓
44. Effective intravenous General anaesthetic agents include the following except
- (a) Thiopental
 - (b) Midazolam
 - (c) Nalidixic acid ✓
 - (d) Propofol
 - (e) Etomidate.
45. Which of the following is an Inhaled General anaesthetic agent
- (a) Enflurane ✓
 - (b) Fosmycin
 - (c) Ciprofloxacin
 - (d) Bethanechol
 - (e) Pirenzepine
46. This drug is a DNA gyrase inhibitor.
- (a) Nalidixic acid ✓
 - (b) Albuterol
 - (c) Nicotine
 - (d) Ceftriaxone
 - (e) Isoproterenol ✓
47. The following are Inhaled General anaesthetic drugs except
- (a) Nitrous oxide ✓
 - (b) Halothane ✓

IV KETP
KETM

[NSIDHE²]



- (c) Enflurane
- (d) Desflurane ✓
- (e) Cocaine ✓

48. Which of these does not exert clinically useful LOCAL anaesthetic effect

- (a) Terbutaline
- (b) Cocaine
- (c) Tetracaine
- (d) Benzocaine
- (e) Procaine.

49. Which is a well known serious adverse effect of Halothane

- (a) Intestinal obstruction
- (b) Urinary bladder blockade
- (c) Hepatitis
- (d) Alopecia totalis
- (e) Infertility

50. Which of these is untrue about the use of Angiotensin converting inhibitors in hypertension (ACEI)

- a. ACEI are superior to other antihypertensive drugs in patients with diabetes
- b. ACEI cause systemic arteriolar dilatation
- c. Side effects like cough may limit their use
- d. ACEI reduces hypertension in patients irrespective of their plasma rennin level
- (e) A troublesome side effect is cardiotoxicity

51. Adverse effects of ACEI exclude

- a. fetopathic potential
- b. hyperkalemia
- c. angioedema
- (d) hyperglycaemia
- e. hypotension

52. The usefulness of ACEI in heart failure stems from the following except

- a. improvement in ventricular geometry or inhibition of ventricular remodeling
- b. vasodilation in arteriolar vessels
- c. venodilation and increased capacity of of venous bed
- d. impaired kidney function
- (e) inhibition of aldosterone

rather it inhibits converting enzyme

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53. Which of these is not true about oxytocin?

- a. It causes prolonged uncoordinated uterine contraction when given in normal doses
- b. Induction of labour is one its uses
- c. It is used to promote lactation
- d. It causes augmentation of labour in poorly contracting uterus
- e. It has vasodilatory action

54. The following are tocolytics except

- a. salbutamol
- b. ergometrine ✓
- c. terbutaline
- d. ritodrine
- e. orciprenaline

55. In which of the following is ergometrine indicated

- a. Management of post partum haemorrhage
- b. prevention of premature labour
- c. induction of labour
- d. augmentation of labour
- e. relaxation of the cervix

56. Clinical uses of ACEI are correctly indicated in the following except

- a. patients who are at low risk of cardiovascular events
- b. acute myocardial infarction
- c. left ventricular systolic dysfunction
- d. diabetes to protect the kidneys
- e. hypertension

57. Spasmolytic drugs include the following except

- a. diazepam
- b. baclofen
- c. tizanidine

d. dantrolene

 e. phenacetin

58. which of the following matches is false

a. diazepam-GABA_A synapsesb. baclofen-GABA_B receptorsc. tizanidine-alpha₂ adrenoceptors d. botulinum toxin-Beta adrenoceptors ✓

e. methocarbamol-brain stem

59. The following 5 HT agonists are correctly matched with their indications except

a. buspirone-anxiolytic ✓

b. dexfenfluramine-appetite suppressant ✓

c. sumatriptan-migraine headache ✓

 d. cisapride-gastroesophageal reflux e. phenoxybenzamine-phaechromocytoma ✓ α -antagonist

60. Arnold Adolph Berthold's experiment is an example of:

 a. A qualitative bioassay

b. A quantitative bioassay

c. An immunochemical assay

d. A multiple point assay

e. A method of calculating LD₅₀

61. This experiment referred to above makes use of.

a. Guinea pigs

b. Rabbits

c. Monkeys

 d. Chickens

e. Cats

62. What is the usefulness of the Arnold Adolph Berthold's experiment?

a. Measurement of the side-effect profile

 b. Investigation of the function of endogenous mediators

c. Measurement of the pharmacological activity of new substances

d. Measurement of the concentration of known substances

e. Assessing the amount of pollutants being released by a particular source.

63. The following can be bioassayed in water EXCEPT:

a. Chromate

b. Chlorine ✓

c. Thallium

d. Cadmium

e. Nickel

64. Radioimmunoassay (RIA) is a technique used to measure:

- a. Antigens ✓
- b. Antibodies
- c. Antigen-antibody complexes
- d. Antibody-binding site
- e. Drug receptors

65. Which of the following statements is not true for Ames Test?

- a. Used to identify chemicals that affect the structure of DNA ✓
- b. A positive test result is an indication that a particular chemical is capable of causing cancer ✓
- c. The test uses strains of Salmonella that have been altered to make them more susceptible to mutation ✓
- d. It is an important part of assessing the safety of new chemicals ✓
- e. animal liver enzymes are often added to the test. ✓

66. An Informed Consent Document does not include one of the following:

- a. Purpose of the study
- b. Duration of the study
- c. Procedures
- d. Risks
- e. Patient contacts

67. Which of the following should not be part of Phase I clinical trials?

- a. Use of healthy volunteers
- b. Use of patients
- c. Assessing the safety of the drug
- d. Assessing appropriateness of dose
- e. Tolerability

68. Alcoholism is associated with a type of alcohol-related dementia, which is caused by deficiency of a deficiency of:

- a. Thiamine
- b. Thyroxine
- c. Ascorbic acid
- d. Vitamin A
- e. Vitamin K

69. Which of these assays is not a quantal assay?

- a. Digitalis-induced cardiac arrest in guinea pig
- b. Histamine on guinea pig ileum.
- c. Hypoglycaemic convulsion in mice
- d. Digitalis-induced head drop in rabbits
- e. Calculation of LD₅₀ in mice or rats.

70. Which of the following is not an indication for bioassay?

- a. Active principle of drug can not be isolated ✓
- b. Chemical composition of drug is unknown but variable ✓
- c. Determination of site effects profile ✓
- d. Assessing the amount of pollutants being released by a particular source ✓
- e. Chemical method is insensitive.

71. Parasympathetic nervous system innervates the following except

- a. Ganglia
- b. Skeletal muscle
- c. Cardiac muscle
- d. Smooth muscle
- e. Glands

72. The rate limiting step in the synthesis of adrenaline is

- a. Conversion of phenylalanine to tyrosine
- b. Conversion of tyrosine to dopa
- c. Conversion of dopa to dopamine
- d. Conversion of dopamine to noradrenaline
- e. Conversion of noradrenaline to adrenaline

73. Tyrosine hydroxylase is inhibited by

- a. Metyrosine
- b. Carbidopa
- c. Benztropine
- d. Reserpine
- e. Amantadine

74. Neuronal reuptake can be inhibited by

- a. Reserpine — reuptake NMAF
- b. Tricyclic antidepressants
- c. Tetrabenazine
- d. Alpha-methyl dopa
- e. Clonidine

75. The following are direct acting sympathomimetic drugs except

- a. Phenylephrine — direct α_1 agonist
- b. Metaraminol — direct α_1 agonist
- c. Amphetamine — indirect agonist
- d. Mephentermine — indirect agonist
- e. Methoxamine — direct α_1 agonist

76. Direct acting alpha agonists have the following uses except

- a. Relieve of bronchoconstriction and mucosal congestion associated with bronchial asthma
- b. Nasal decongestion
- c. As a mydriatic
- d. Blood pressure elevation during spinal anaesthesia
- e. Management of hypotension due to drug overdose

77. B-Adrenoceptor antagonists may not be used in

- a. Pheochromocytoma
- b. Hypertensive emergencies
- c. Chronic hypertension
- d. Asthma
- e. Urinary obstruction

78. The following are non-selective β -adrenoceptor antagonists except

- a. Propranolol
- b. Timolol
- c. Esmolol
- d. Pindolol
- e. Labetalol

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79. One of the following drugs blocks α_2 adrenoceptor
- a. Prazosin
 - b. Doxazosin
 - c. Trimazosin
 - d. Yohimbine
 - e. Terazosin

80. Which one of the following is a β_2 agonist
- a. Metaraminol
 - b. Methoxamine
 - c. Isoprenaline
 - d. Phenylephrine
 - e. Mephentermine

81. Consider the mechanism of action of the following antihypertensive drugs and indicate the odd one

- a. Valsartan *ARB & Angiotensin receptor blocker*
- b. Losartan *"*
- c. Telmisartan *"*
- d. Quinapril *"*
- e. Candesartan *"*

82.

- a. Verapamil *Ca²⁺ channel blocker*
- b. Nifedipine *"*
- c. Diltiazem *"*
- d. Prazosin *"*
- e. Amlodipine *"*

83.

- a. Clonidine *AD agonist*
- b. Guanabenz *"*
- c. Phenylephrine *"*
- d. Guanfacine *ADP receptor*
- e. α -methyl dopa *"*

84.

- a. Hydralazine *vasodilation*
- b. Lisinopril *ACE inhibitor*
- c. Minoxidil *vasodilator*
- d. Diazoxide *"*
- e. Sodium nitroprusside *"*

85.

- a. Frusemide *Loop Diuretic & High ceiling*
- b. Hydrochlorothiazide *"*
- c. Bendroflumazide *"*
- d. Cyclopenthiazide *"*
- e. Chlorothiazide *"*

86. Pharmacokinetic interactions can involve all except

- a) Effects on drug absorption
- b) Effects on in vitro chemical reaction
- c) Effects on protein binding
- d) Effects on hepatic induction or inhibition

87. Inhibition of renal tubular secretion is a primary effect of

- a) Probenecid
- b) Digoxin
- c) Frusemide
- d) Penicillin

88. Hepatic inducers include

- a) Disulfiram
- b) Erythromycin
- c) Warfarin
- d) Griseofulvin

89. The risk of serious hepatic injury following paracetamol overdose is increased in patients

- a) Who are concomitantly receiving corticosteroids
- b) Who are chronic users of alcohol
- c) Who have taken some grapefruit juice
- d) Who take tea or coffee every morning

90. One of the following is not true of drug interactions

- a) They may cause therapeutic failure
- b) They may cause potentially harmful effects
- c) They may only be detected by blood assays
- d) They may be clinically beneficial

91. Cytochrome P450 enzyme induction

- a) Decreases first pass metabolism in the liver
- b) Increases the oral bioavailability of most drugs
- c) Lowers the plasma levels of drugs, metabolized by these enzymes
- d) Prolongs the half-life of drugs

92. Which of these statements is not true of P-glycoprotein

- a) It is the primary transporter for digoxin
- b) Its inhibition enhances CNS distribution of some drugs
- c) It may be inhibited by verapamil
- d) It is expressed mostly on capillary epithelia except the blood/brain barrier

93. Pharmacodynamic interactions include all except

- a) Aspirin-induced bleeding in warfarin-treated patients
- b) Reduction of anticoagulant action of warfarin by rifampicin
- c) Antibiotics' enhancement of warfarin activity
- d) NSAID induced bleeding in warfarin-treated patients

94. Histamine is formed

- a) By the demethylation of (R) - α - methylhistamine
- b) By the decarboxylation of histidine
- c) By the oxidative deamination of N - methylimidazoleacetic acid
- d) By the ring methylation of 4(5) - methylhistamine

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95. The concentration of histamine is high in tissues that contain large numbers of mast cells such as
- a) Hair
 - b) Muscles
 - c) Lacrimal glands ✓
 - d) Intestinal mucosa
96. The non - mast cell sites of histamine formation and storage include all except
- a) Bronchial tree mucosa
 - b) Epidermis
 - c) Gastric mucosa ✓ H₂
 - d) Neurons within the CNS
97. Which of the following statements is true of histamine receptors
- a) H₄ receptors are mainly in cells of hematopoietic origin
 - b) H₁ and H₂ receptors are confined largely to the CNS
 - c) H₃ receptors are widely distributed in the periphery and in the CNS
 - d) The pharmacologic definition of H₁, H₂ and H₃ receptors is unclear
98. Histamine release may elicit the following effects except
- a) Relaxation of smooth muscles
 - b) Contraction of smooth muscles
 - c) Decreased capillary permeability
 - d) Stimulation of sensory nerve endings
99. Intradermal injection of histamine elicits the triple response which consists of all except
- a) Flare
 - b) Shock
 - c) Wheal
 - d) Edema
100. Which of the following is true of antihistamines
- a) They are never used in the treatment of allergic disorders in children
 - b) Side effects are most prominent with the H₃ and H₄ antihistamines
 - c) All classes of antihistamines cause sedation
 - d) First generation H₁ antihistamines may cross the blood - brain barrier