



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF MEDICINE AND BACHELOR OF SURGERY DEGREE –

PHARMACOLOGY LEVEL 5

HIP 300-309: PHARMACOLOGY MCQ PAPER

DATE: Tuesday, 10th April, 2012

TIME: 9.00 a.m. – 12.00 p.m.

Instructions:

Write your registration number on all pages

Choose ONE BEST ANSWER for each question

Shade the correct answer in the Answer sheet

Each correct answer scores one mark

Any wrong answer scores a zero

Switch off your mobile phones

1. Distribution of drugs to specific tissues
 - A. Is independent of blood flow to the organ
 - B. Is independent of the solubility of the drug in that tissue

- C. Depends on the unbound drug concentration gradient between blood and the tissue
 - D. Is increased for drugs that are strongly bound to plasma proteins
 - E. Has no effect on the half-life of the drug
2. Which one of the following is **NOT** a clinical use of Bleomycin?
- A. Testicular cancer
 - B. Squamous Cell carcinoma
 - C. Brain tumors
 - D. Combination treatment in Lymphoma
 - E. Malignant effusions in Ovarian or breast cancers
3. Which one of the following is an important effect of the drug named?
- A. Cyanide toxicity with hydralazine
 - B. Hyperglycemia with diazoxide
 - C. Lupus erythematosus with nitroprusside
 - D. Pericardial abnormalities with verapamil
 - E. Reduced cardiac output or atrioventricular block with minoxidil
4. If therapy with multiple drugs causes induction of drug metabolism in your asthma patient, it will,
- A. Result in increased smooth endoplasmic reticulum
 - B. Be irreversible
 - C. Result in increased rough endoplasmic reticulum
 - D. Require 3-4 months to reach completion
 - E. Results in decreased enzymes in the soluble cytoplasmic fraction
5. "Nicotinic" sites include all the of the following EXCEPT
- A. Adrenal medullary cells
 - B. Parasympathetic ganglia

- C. Bronchial smooth muscle cells
 - D. Skeletal muscle
 - E. Sympathetic ganglia
6. Parathion has which one of the following characteristics?
- A. It is inactivated by conversion to paraxon
 - B. It is less toxic to humans than malathion
 - C. It is more persistent in the environment than DDT
 - D. It is poorly absorbed through the skin and lungs
 - E. Its toxicity, if treated early, may be partly reversed by pralidoxime
7. Actions of cholinergic agonists and their clinical uses include which one of the following?
- A. Bronchodilation (Asthma)
 - B. Cyclospasm, improved aqueous humor drainage (Glaucoma)
 - C. Decreased GIT motility with resulting post-operative GIT relaxation (abdominal surgery)
 - D. Decreased neuromuscular transmission and impaired recovery after neuromuscular blockade (Surgical anaesthesia)
 - E. Both A and C are correct
8. A 7-year-old boy has a significant bed-wetting problem. A long-acting indirect sympathomimetic agent sometimes used by the oral route for this and other indications is
- A. Dobutamine
 - B. Ephedrine
 - C. Epinephrine
 - D. Isoproterenol
 - E. Phenylephrine
9. Your patient is to receive a selective B₂ stimulant drug. In considering possible drug effects in this patient, you would note that Beta₂ stimulants frequently cause

- A. Direct stimulation of renin release
 - B. Increase cGMP in mast cells
 - C. Skeletal muscle tremor
 - D. Vasodilation in the Skin
 - E. All of the above
10. With chronic use in seizure states, the adverse effects of this drug include coarsening of facial features, hirsutism, gingival hyperplasia, and osteomalacia.
- A. Carbamazepine
 - B. Ethosuximide
 - C. Gabapentin
 - D. Phenytoin
 - E. Valproic acid
11. A friend has very severe hypertension and asks about a drug her doctor wishes to prescribe. Her physician has explained that this drug is associated with tachycardia and fluid retention and increased hair growth. Which of the following is most likely to produce the effects that your friend has described?
- A. Captopril
 - B. Guanethidine
 - C. Minoxidil
 - D. Prazosin
 - E. Propranolol
12. Which of the following terms best describes an antagonist that interacts directly with the agonist and not at all, or only incidentally, with the receptor?
- A. Pharmacologic antagonist
 - B. Partial agonist

- C. Physiologic antagonist
- D. Chemical antagonist
- E. Noncompetitive antagonist

13. When nitrates are used in combination with other drugs for the treatment of angina, which of the following result in additive effects on the variable specified?

- A. Beta-blockers and nitrates on end-diastolic cardiac size
- B. Beta-blockers and nitrates on heart rate
- C. Calcium channel blockers and beta-blockers on cardiac force
- D. Calcium channel blockers and nitrates on cardiac force
- E. Calcium channel blockers and nitrates on cardiac rate

14. A patient being treated for another condition complains that whenever he takes that medication, his angina becomes worse. Drugs that may precipitate angina when used for other indications include all of the following EXCEPT

- A. Amphetamine
- B. Hydralazine
- C. Isoproterenol
- D. Reserpine
- E. Terbutaline

15. Which of the following situations constitute an added risk for digoxin toxicity?

- A. Starting administration of captopril
- B. Starting administration of quinidine
- C. Hyperkalemia
- D. Hypermagnesemia

E. Hypocalcaemia

16. Which of the following has been shown to prolong life in patients with chronic congestive failure but has negative inotropic effects on cardiac contractility?

- A. Carvedilol
- B. Dobutamine
- C. Enalapril
- D. Digitoxin
- E. Furosemide

17. A 16-year-old girl is found to have paroxysmal attacks of rapid heart rate. The antiarrhythmic of choice in most cases of acute AV nodal tachycardia is

- A. Adenosine
- B. Amiodarone
- C. Flecainide
- D. Propranolol
- E. Quinidine

18. A patient is admitted to the emergency department for evaluation of an abnormal ECG. Overdose of an antiarrhythmic drug is considered. Which of the following drugs is correctly paired with its ECG effects?

- A. Quinidine: Increased PR and decreased QT intervals
- B. Flecainide: Increased PR, QRS, and QT intervals
- C. Verapamil: Increased PR interval
- D. Lidocaine: Decreased QRS and PR interval
- E. Metoprolol: Increased QRS duration

19. Which of the following drugs is correctly associated with its site of action and maximal diuretic efficacy?

- A. Thiazides--Distal convoluted tubule--10% of filtered Sodium
- B. Spironolactone—Proximal convoluted tubule—40%
- C. Bumetanide—thick ascending limb-15%

- D. Metolazone-Collecting tubule—2%
- E. All of the above

20. A 50-year-old man has a history of frequent episodes of renal colic with high-calcium renal stones. The most useful agent in the treatment of recurrent calcium stones is

- A. Mannitol
- B. Furosemide
- C. Spironolactone
- D. Hydrochlorothiazide
- E. Acetazolamide

21. Toxicities of H₂ antihistamines include which one of the following?

- A. Blurred vision
- B. Diarrhea
- C. Orthostatic hypotension
- D. P450 inhibition
- E. Sleepiness

22. Which of the following is a serotonin agonist useful for aborting an acute migraine headache and is not derived from fungus?

- A. Ergotamine
- B. Methysergide
- C. Nitroprusside
- D. Sumatriptan
- E. Ondansetron

23. Which of the following is frequently associated with increased gastrointestinal motility and diarrhea?

- A. Corticosteroids
- B. Leutriene LTB₄
- C. Misoprostol
- D. Timolol

E. Zileuton

24. Which of the following drugs inhibits cyclooxygenase irreversibly?

- A. Ibuprofen
- B. Hydrocortisone
- C. Aspirin
- D. Indomethacin
- E. Zileuton

25. Which of the following is an approved application for nitric oxide administered as a gas?

- A. Asthma
- B. Dysmenorrhea
- C. Neonatal hypoxic respiratory failure
- D. Patent ductus arteriosus
- E. Rejection following renal transplant

26. A 10-year-old child has severe asthma and was hospitalized five times between the ages of 7 and 9. He is now receiving outpatient medications that have greatly reduced the frequency of severe attacks. Which of the following is most likely to have adverse effects when used daily over long periods for severe asthma?

- A. Albuterol by aerosol
- B. Beclomethasone by aerosol
- C. Cromolyn by inhaler
- D. Prednisone by mouth
- E. Theophylline in long-acting oral form

27. Which of the following has overdose toxicity that includes insomnia, arrhythmias, and convulsions?

- A. Epinephrine
- B. Salmeterol
- C. Aminophylline
- D. Zafirlukast

E. Ipratropium

28. In strychnine poisoning, convulsions occur due to antagonistic effects at receptors for

- A. Aspartate
- B. GABA
- C. Glutamate
- D. Glycine
- E. Norepinephrine

29. Which of the following is most likely to result from treatment with moderate doses of Diazepam?

- A. Alleviation of the symptoms of major depressive illness
- B. Agitation and possible hyperreflexia with abrupt discontinuance after chronic use
- C. Increased porphyrin synthesis
- D. Improved performance on tests of psychomotor function
- E. Retrograde amnesia

30. This hypnotic drug facilitates the inhibitory actions of GABA, but it lacks anticonvulsant or muscle relaxing properties and has minimal effects on sleep architecture.

- A. Buspirone
- B. Diazepam
- C. Flurazepam
- D. Phenobarbital
- E. Zaleplon

31. Which one of the following statements best describes the mechanism of action of benzodiazepines?

- A. Benzodiazepines activate GABA-B receptors in the spinal cord
- B. Their inhibition of GABA transaminase leads to increased levels of GABA

- C. Benzodiazepines block glutamine receptors in hierarchical neuronal pathways in the brain
 - D. They increase the frequency of opening of Chloride ion channels that are coupled to GABA A receptors
 - E. They are direct-acting GABA receptor agonists in the CNS
32. The chronic abuse of alcohol predisposes to hepatic damage following overdose of acetaminophen because ethanol
- A. Blocks acetaminophen metabolism
 - B. Causes thiamine deficiency
 - C. Displaces acetaminophen from plasma proteins
 - D. Induces liver drug-metabolizing enzymes
 - E. Inhibits renal clearance of acetaminophen
33. Which one of the following statements concerning the pharmacokinetics of antiseizure drugs is accurate?
- A. At high doses, phenytoin elimination follows first-order kinetics
 - B. Valproic acid may increase the activity of hepatic ALA synthetase and the synthesis of porphyrins
 - C. The administration of phenytoin to patients in methadone maintenance programs has led to symptoms of opioid overdose, including respiratory depression
 - D. Although ethosuximide has a half-life of approximately 40hrs, the drug is usually taken twice a day
 - E. Treatment with vigabatrin may reduce the effectiveness of oral contraceptives
34. Which of the following drugs would be effective in a child with absence seizures but has the disadvantages of causing sedation and tolerance?
- A. Diazepam
 - B. Clonazepam
 - C. Ethosuximide

- D. Phenobarbital
- E. Valproic acid

35. Your 55-year old patient with asthma and glaucoma is to receive a beta-blocking drug. Regarding beta-blocking drugs
- A. Esmolol's pharmacokinetics are compatible with chronic oral use
 - B. Metoprolol blocks Beta2 receptors selectively
 - C. Nadolol lacks beta2 blocking action
 - D. Pindolol is a beta antagonist with high membrane-stabilizing (local anesthetic) activity
 - E. Timolol lacks the local anesthetic effects of propranolol
36. Which one of the following statements concerning the effects of anesthetic agents is false?
- A. Relaxation of bronchiolar smooth muscle occurs during halothane anesthesia
 - B. Mild generalized muscle twitching occurs at high doses of enflurane
 - C. Chest muscle rigidity often follows the administration of fentanyl
 - D. Intra-operative use of midazolam with inhalation anesthetics may prolong the post-anesthesia recovery period
 - E. Severe hepatitis has been reported following the use of desflurane
37. Post operative vomiting is uncommon with this intravenous agent: patient are able to ambulate sooner than those who receive other anesthetics
- A. Enflurane
 - B. Ketamine
 - C. Morphine
 - D. Propofol
 - E. Remifentanyl

38. As the physician, you could tell patient and close family members all of the following things about Levodopa EXCEPT
- A. Taking the drug in divided doses will decrease nausea and vomiting
 - B. He should be careful when he stands up because he may be dizzy
 - C. Uncontrollable muscle jerks may occur
 - D. A net-like reddish to blue discoloration of the skin is a likely side effect of the medication
 - E. The drug will probably improve his symptoms for a period of time but not indefinitely
39. Great caution must be exercised in the use of this drug in parkinsonian patients who have prostatic hypertrophy or obstructive gastrointestinal disease
- A. Benztropine
 - B. Carbidopa
 - C. Levodopa
 - D. Ropinirole
 - E. Selegiline
40. One of the major side effects of trazodone is
- A. Priapism
 - B. Dry cough
 - C. Vomiting
 - D. Diarrhoea
 - E. Frequent urination
41. Which of the following is an adreno-receptor antagonist?
- A. Mianserine
 - B. Reboxetine
 - C. Velafaxine
 - D. Initramine
 - E. Afprin
42. Which of the following is **NOT** an SSRI?

- A. Fluoxetine
 - B. Mirtazapine
 - C. Citalopram
 - D. Sertraline
 - E. Paroxetine
43. The following is an example of an Anti-TNF agent. Which one is **NOT**?
- A. Certolizumab pegol
 - B. Golimumab
 - C. Adalimumab
 - D. Tocilizumab
 - E. Entercept
44. The following are known side effects of cyclosporine EXCEPT
- A. Hypertension
 - B. Hyperkalemia
 - C. Gingival hyperplasia
 - D. Alopecia
 - E. All the above
45. Which one of the following drugs is currently considered to be the first choice Disease modifying Antirheumatoid drugs (DMARD)?
- A. Methotrexate
 - B. Azathioprine
 - C. Penicillamine
 - D. Hydroxychloroquine
 - E. Cyclophosphamide
46. A young male patient is brought to the emergency room of a hospital suffering from an overdose of cocaine following intravenous administration. His symptoms are unlikely to include
- A. Agitation
 - B. Bradycardia
 - C. Hyperthermia
 - D. Myocardial infarct

E. Seizures

47. An important biochemical consequence of Vitamin B12 deficiency is accumulation of
- A. Dihydrofolate
 - B. dTMP
 - C. Folic acid
 - D. N-methyltetrahydrofolate
 - E. Tetrahydrofolate
48. Conversion of plasminogen to plasmin is brought about by
- A. Aminocaproic acid
 - B. Heparin
 - C. Lepirudin
 - D. Reteplase
 - E. Warfarin
49. A 67 year old woman with left thigh deep vein thrombosis (DVT) was started on enoxaparin. Relative to regular heparin, enoxaparin
- A. Can be used without monitoring the patient's aPTT
 - B. Has a shorter duration of action
 - C. Is less likely to have a teratogenic effect
 - D. Is more likely to be given intravenously
 - E. Is more likely to cause thrombosis and thrombocytopenia
50. A patient with ischemic stroke had their symptoms resolved completely within two days. To prevent a recurrence of this disease, the patient is most likely to be indefinitely with
- A. Aspirin
 - B. Aminocaproic acid
 - C. Enoxaparin
 - D. Urokinase
 - E. Warfarin

51. Which one of the following drugs is **NOT** useful in dysmenorrhea?

- A. Diclofenac
- B. Colchicine
- C. Ibuprofen
- D. Rofecoxib
- E. Naproxen

52. Which one of the following effects does not occur in salicylate intoxication?

- A. Hyperventilation
- B. Metabolic acidosis
- C. Respiratory alkalosis
- D. Hypothermia
- E. Tinnitus

53. Which of the following drugs is LEAST likely to be used as part of a controlled ovarian hyperstimulation protocol?

- A. Human chorionic gonadotropin
- B. Leuprolide
- C. Menotropins
- D. Pergolide
- E. Urofollitropin

54. Agents that could be used to treat thyrotoxicosis in a 24-year woman do not include

- A. Methimazole
- B. Potassium iodide
- C. Propylthiouracil
- D. Radioactive iodine
- E. Thyroglobulin

55. Toxic effects of corticosteroids do NOT include
- A. Growth inhibition
 - B. Hypertension
 - C. Hypoglycemia
 - D. Psychosis
 - E. Salt retention
56. Which of the following drugs is MOST likely to cause hypoglycemia when used as monotherapy in the treatment of type 2 diabetes
- A. Acarbose
 - B. Glyburide
 - C. Metformin
 - D. Miglitol
 - E. Rosiglitazone
57. The molecular basis for the resistance of pneumococci to penicillin G is
- A. The production of Beta-lactamases
 - B. Structural changes in penicillin binding proteins
 - C. Decreased intracellular accumulation of penicillin G
 - D. Changes in the D-Ala-D-Ala building block of peptidoglycan precursor
 - E. Changes in porin structure
58. Which one of the following statements about the mechanisms of action of drugs used in cancer chemotherapy is LEAST accurate?
- A. Alkylating agents commonly attack the nucleophilic N-7 position in guanine
 - B. Anthracyclines intercalate with base pairs to block nucleic acid synthesis
 - C. In steady doses, leuprolide inhibits the release of pituitary gonadotropins
 - D. Mercaptopurine is an irreversible inhibitor of HGPRTase

E. Paclitaxel acts mainly in the M phase of the Cell cycle

59. A 55 year old woman with congestive heart failure is to be treated with a diuretic drug. Drugs X and Y have the same mechanism of diuretic action. Drug X in a dose of 5mgs produces the same magnitude of diuresis as 500mgs of drug Y. This suggests that:

- A. Drug Y is less efficacious than drug X
- B. Drug X is about 100 times more potent than drug Y
- C. Toxicity of drug X is less than that of drug Y
- D. Drug X is a safer drug than drug Y
- E. Drug X will have a shorter duration of action than drug Y because less of drug X is present for a given effect.

60. Chronic iron toxicity in patients with thalassemia major may BEST benefit from;-

- A. Intermittent phlebotomy
- B. Deferasirox
- C. Parenteral deferoximine
- D. Reduced dietary intake of iron
- E. Ileal resection

ANSWER SHEET