

1. The bioavailability of a drug:

- A. Is closely related to clearance
- B. Is 100% for oral agents that are not metabolized by the liver
- C. Is equal to the amount of drug in the body at the time of peak concentration relative to the dose administered
- D. The area under the plasma concentration curve is used to calculate its value
- E. Is defined as 100% in the case of intra-muscular administration

2. Two drugs, A and B, have the same mechanism of action. Drug A in a dose of 5mg produces the same magnitude of drug B in a dose of 500mg.

- A. Drug B is less efficacious than drug B
- B. Drug A is 100 times more potent than drug B
- C. Toxicity of drug A is less than that of drug B
- D. Drug A is a better drug if maximal efficacy is required
- E. Drug A has a shorter duration of action

3. Regarding warfarin:

- A. It has no effect on blood clotting in vitro
- B. Vitamin K administration rapidly reverses the effects of warfarin
- C. It's the anti-coagulant of choice in the pregnant patient
- D. It is a large molecule which is best absorbed in the small intestine
- E. Salicylates and cholestyramine interact with warfarin to cause an increased INR

4. Regarding suxamethonium:

- A. Its structure resembles two acetylcholine molecules hidden in a bulky ring structure
- B. Its effects may be potentiated by cholinesterase inhibitors
- C. The respiratory muscles are the first to be affected following an IV dose
- D. The side-effect of muscle pains can be reduced by early post-operative mobilization
- E. Its action is terminated rapidly by reductive metabolism

5. Regarding biotransformation of drugs:

- A. Phase I reactions include the acetylation of sulphonamides in the liver
- B. Smoking commonly causes liver enzyme inhibition
- C. Biotransformation tends to produce a more lipophilic molecule
- D. The rate at which this occurs is often the primary determinant of clearance
- E. Induction of drug metabolism results in an increased amount of rough endoplasmic reticulum

6. Propranolol has the following properties:

- A. It is a selective B-antagonist agent
- B. Its half-life is similar to atenolol
- C. Its volume of distribution is < 1 litre/kg
- D. It possesses intrinsic sympathomimetic activity
- E. It produces sodium channel blockade in cardiac muscle cells

7. Aspirin is an acidic drug with a pKa 3.5. In treating a patient who has taken an overdose of this agent:

- A. Urinary excretion will be enhanced by administration of NH_4Cl
- B. More of the drug would be ionized at stomach pH than blood pH
- C. Absorption of the drug would be faster from the small intestine than the stomach
- D. Urinary excretion will be enhanced by the administration of bicarbonate
- E. Haemodialysis is the only effective therapy for this toxic ingestion

8. Regarding digoxin

- A. It exerts its action by augmentation of the Na-K ATPase pump
- B. It is 25% bound to plasma proteins
- C. Its negative chronotropic effects are primarily due to a centrally mediated increase in vagal tone
- D. It increases the refractory period of atrial and ventricular cells leading to < HR
- E. Hypokalaemia, hypomagnesaemia and hypocalcaemia can all promote digoxin toxicity

9. Which of the following drugs is correctly associated with its site of action?

- A. Thiazides - PCT
- B. Spironolactone - DCT
- C. Ethacrynic acid - descending LOH
- D. Amiloride - PCT
- E. Mannitol - thin ascending LOH

10. Local anaesthetics have the following properties EXCEPT:

- A. Affect type C fibres more than type A
- B. Block nerve fibres of lowest diameter more than those of large diameter
- C. Exert their effect on the sodium channel receptor located close to the extracellular space
- D. Can cause anaphylaxis if of the ester-type
- E. Bupivacaine exhibits severe cardiovascular toxicity

11. Lignocaine typically:

- A. Reduces abnormal automaticity
- B. Reduces resting potential
- C. Increases action potential duration
- D. Increases PR interval
- E. Increases contractility

12. The most useful agent in the treatment of recurrent calcium stones is:

- A. Mannitol
- B. Frusemide
- C. Spironolactone
- D. Thiazide
- E. Acetazolamide

13. Acyclovir is active against all except

- A. CMV
- B. VZV
- C. HSV
- D. EBV
- E. ???

14. Pentamidine

- A. Is toxic to pancreatic B cells
- B. Is toxic to renal cells
- C. Is toxic to hepatic cells
- D. Is toxic to blood cells
- E. Is toxic to ???? cells

15. Interferons

- A. Are antiviral
- B. Exert virus-specific anti-viral activities
- C. Can be used to treat Kaposi's sarcoma
- D. ???
- E. ???

16. Ticlopidine

- A. Decreases platelet aggregation by inhibiting the ADP pathway of platelets
- B. Has no GI side effects
- C. Inhibits prostaglandin metabolism
- D. ???
- E. ???

17. Prazosin

- A. Has a half-life of 18 hours
- B. Adversely affects lipid profiles
- C. Produces a reflex bradycardia
- D. Has a first-dose hypotensive effect
- E. Can increase CO by decreasing preload and leaving afterload unchanged

18. Zidovudine;

- A. Is a protease inhibitor
- B. Has a short serum half life
- C. Has no activity against retroviruses
- D. Inhibits viral thymidine kinase
- E. ???

19. Penicillin G

- A. Hyponatraemia is not reported
- B. Has good penetration to the eye
- C. 100 000u intrathecally can cause seizures
- D. 50% of people who claim allergy will have an allergic reaction on further exposure
- E. ???

20. Which causes hypoprothrombinaemia & bleeding disorders?

- A. Cefuroxime
- B. Cephalexin
- C. Cefaclor
- D. Cefotetan
- E. Ceftazidime

21. Naloxone

- A. Has a half life of over 4 hours
- B. Has a half life of less than one hour
- C. Has a half life of between 2 and 3 hours
- D. Has a half life of between 1 and 2 hours
- A. Has a half life of between 3 and 4 hours

22. Pethidine

- A. Causes raised CSF pressure
- B. ???

23. Diazepam

- A. Does not engender psychological dependence
- B. Is metabolized to oxazepam
- C. ???

24. Metformin

- A. Is a sulphonylurea
- B. Can cause a significant lactic acidosis
- C. Is similar to chlorpropamide
- D. Their action is (or is not – can't remember) dependent on insulin
- E. Does not require functioning pancreatic B cells for its action

25. Phenytoin

- A. Is lowly protein bound
- B. Causes agranulocytosis in 5% of patients
- C. ???
- D. ???
- E. Can cause abnormalities of vitamin D metabolism

26. Match the drug and effect – which is wrong?

- | | | | |
|----|----------------|---|------------------|
| A. | Phenytoin | - | Gum hypertrophy |
| B. | Carbamazepine | - | Blood dyscrasias |
| C. | Phenobarbitone | - | |
| D. | Ethosuximide | - | Hirsutism |
| E. | ??? | | |

27. Which local anaesthetic causes methaemaglobinaemia?

- A. Lignocaine
- B. Tetracaine
- C. Bupivacaine
- D. Procaine
- E. Prilocaine

28. Benztropine causes

- A. Miosis
- B. Diarrhoea
- C. Confusion
- D. Bronchorrhea
- E. GIT haemorrhage

29. A patient on phenytoin has a seizure and is found to have a low level, which is least likely to cause this?

- A. Phenobarbitone
- B. Non-compliance
- C. Hypoalbuminaemia
- D. Disulfuram
- E. Erythromycin

30. Heparin

- A. Inhibits antithrombin III
- B. Causes alopecia
- C. Decreases rate of conversion prothrombin to thrombin
- D. Decreases rate conversion fibrinogen to fibrin
- E. Decreases rate conversion VII to VIIa

31. 2ml of 0.5% wv is equal to

- A. 1mg
- B. 10mg
- C. 100mg
- D. 20mg
- E. ???

32. Regarding cromolyn, which is incorrect?

- A. It inhibits IgG mediated mast cell degranulation

33. Atracurium

- A. Has a longer duration of action than vecuronium
- B. Is not associated with histamine release
- C. Is a steroid derivative
- D. Is eliminated by non renal/liver dependent mechanisms
- E. ???

34. Pancuronium – which is incorrect?

- A. It is a steroid
- B. It does not release histamine
- C. It is renally excreted
- D. It has a shorter duration of action than vecuronium
- E. ???

35. Which antiseptic is commonly used in medical practice?

- A. Ethyl alcohol 70%
- B. Ethanol 30%
- C. Formaldehyde
- D. Isopropyl alcohol 10%
- E. All of the above

36. Metronidazole

- A. Commonly causes constipation
- B. Inhibits alcohol dehydrogenase
- C. Is useful in the treatment of urogenital trichomonas
- D. ???
- E. ???

37. Erythromycin

- A. Is predominantly renally excreted
- B. Is a cell wall inhibitor
- C. Is bacteristatic only
- D. Is effective against *Campylobacter jejuni*
- E. ???

38. A young patient is given a normal dose of a drug in the emergency department. They develop tachycardia, increased BP and dilated pupils. The drug is most likely to be

- A. Adrenaline
- B. Atropine
- C. ???

39. Cisapride

- A. Has a half life of 6-8 hours
- B. Decreases lower oesophageal sphincter pressure
- C. Is well absorbed orally
- D. ???
- E. ???

40. Sumatriptan

- A. Is a partial alpha 1 agonist
- B. ???

41. Mannitol

- A. Inhibits H₂O absorption in PCT, LOH and CT
- B. Is metabolized to glycerol
- C. Decreases TBW and total body cation content equally
- D. Is of no value when renal haemodynamics are compromised
- E. ???

42. Metoclopramide

- A. Increases antral contractility
- B. ???

43. In the treatment of Parkinson's disease

- A. Antimuscarinics are better for the treatment of resting tremor than dopamine agonists
- B. Administration of L-dopa with a dopa decarboxylase inhibitor decreases side effects
- C. ???

44. Dantrolene is a good choice in treatment of malignant hyperpyrexia because

- A. It antagonizes the effects of suxamethonium
- B. It inhibits prostaglandin formation
- C. It decreases calcium release from sarcoplasmic reticulum in skeletal muscles
- D. ???

45. Which is the safest to give in pregnancy

- A. Lithium
- B. Phenytoin
- C. Warfarin
- D. ACE inhibitor
- E. Heparin

46. Female patient on ACE inhibitor, which is most likely to impair hypotensive effects?

- A. Prostaglandin inhibitor (Indomethacin)

47. Regarding enzyme induction

- A. It is irreversible
- B. It takes 4 months to develop
- C. Causes increase in smooth ER
- D. Causes increase in rough ER
- E. ???

48. Regarding ethanol metabolism

- A. The MEOS system is the main pathway
- B. The alcohol dehydrogenase pathway is inducible
- C. Obeys first order kinetics
- D. Most alcohol dehydrogenase is found in the stomach
- E. ???

49. Regarding fluoxetine

- A. Serotonin syndrome = muscle weakness, hyperpyrexia and confusion
- B. It is removed by dialysis
- C. Can cause malignant hyperpyrexia
- D. Is an enzyme inhibitor
- E. Is safe in overdose due to minimal drug interactions

50. Dobutamine

- A. Results in ATP -> AMP
- B. Can decrease systemic vascular resistance/afterload
- C. ???

51. Clearance

- A. Is proportional to liver blood flow
- B. ???

52. Regarding pharmacokinetics and pharmacodynamics

- A. Diffusion is inversely proportionate to SA and directly proportionate to thickness
- B. The LD50 is 50% of the dose that kills most people
- C. The LD50 is 50% of the dose at which toxicity occurs
- D. Efficacy is the maximum response produced by a drug
- E. ???

53. Regarding bioavailability

- A. PR drugs have no first pass metabolism
- B. Transdermal drugs have first pass metabolism
- C. IV drugs undergo first pass metabolism
- D. ???

54. Regarding nitrates, they do not

- A. Increase collateral coronary blood flow
- B. Demonstrate tachyphylaxis / tolerance
- C. Demonstrate physical dependence
- D. ???

55. Regarding propofol

- A. Is a highly selective B receptor antagonist
- B. Is poorly lipid soluble
- C. Has sodium channel blocking activity

56. A 42-year-old male with typical ischaemic chest pain. Further investigation leads to diagnosis of 'vasospasm'. Which is the most likely to cause this?

- A. Adrenaline
- B. Cocaine
- C. ???

57. A young man presents with dilated pupils, confusion and hyperpyrexia. Which of the following could not account for these effects?

- A. Atropine
- B. Datura
- C. Morphine

58. Pralidoxime acts to

- A. Inhibit presynaptic Ach release
- B. Cleave Ach
- C. Regenerate Ach

59. Vecuronium, all of the following are true except

- A. Has minimal CVS effects
- B. Is predominantly renally excreted
- C. Has a significantly longer duration of action than pancuronium

60. Insulin dose not cause

- A. Decrease glycogenolysis in the liver
- B. Increase glycogen synthesis in the liver
- C. Increase lipolysis in the liver
- D. ???

61. Penicillins reach high concentrations in

- A. Vitreous humour
- B. CSF with normal meninges
- C. Proximal tubular fluids in kidneys
- D. ???

62. Ergot

- A. In overdose produces hypertension and severe vasospasm which is treated with an alpha agonist
- B. ???

63. Which raises the pH of the urine the most

- A. Acetazolamide
- B. Frusemide
- C. Chlorothiazide
- D. ???

64. The metabolism of paracetamol to its toxic metabolite is via which reaction

- A. Glucuronidation
- B. Sulphation
- C. Hydroxylation
- D. ??? Acetylation
- E. ???

65. Histamine when injected locally could be expected to produce all of the following except

- A. Increase contractility of GI smooth muscle
- B. Decrease systemic vasculature resistance
- C. Decrease myocardial contractility
- D. ???

66. Propofol

- A. Does accumulate
- B. Can produce abnormal muscle movements
- C. Has minimal effects on the CVS

67. Regarding paracetamol toxicity

- A. Toxicity is related to glutathione consumption
- B. Enhanced with cimetidine
- C. Toxic metabolite is due to sulphation
- D. ???

68. Paracetamol

- A. Is only given orally
- B. Is highly protein bound
- C. Doesn't cause hyperuricaemia
- D. ???

69. Dextropropoxyphene

- A. When combined with paracetamol is a strong anti-inflammatory
- B. Overdose causes death from hepatotoxicity
- C. Structurally related to methadone

70. What is the half life a drug given: clearance = 8.41 l/min; weight = 70kg; Vd = 5 l/kg

- A. 24 hours
- B. 12 hours
- C. 30+ hours

71. Regarding the treatment of Parkinsons, which is INCORRECT

- A. L-dopa is contraindicated in acute psychoses
- B. Bromocriptine has less CNS effects than L-dopa
- C. Administration of L-dopa with a dopa decarboxylase inhibitor decreases side effects

72. GABA receptor

- A. Barbiturates increase the time GABA channels open
- B. Barbiturates do not effect warfarin metabolism

73. Regarding ethyl alcohol

- A. Excreted unchanged in the lungs
- B. Causes CNS excitation then depression
- C. ???

74. Aciclovir

- A. Dose is 10-20mg five times daily
- B. Does not work on viruses with thymidine kinase
- C. Does not work on CMV
- D. Is a guanasine analogue
- E. ???

75. Metronidazole

- A. Shown to be teratogenic in humans
- B. Causes a disulfuram like reaction
- C. Inhibits alcohol dehydrogenase
- D. Is recommended as a single dose for Giardiasis

76. Which of the following is a cell wall inhibitor

- A. Cephalosporin
- B. Tetracycline
- C. Ciprofloxacin

77. Tetracycline

- A. May cause photosensitivity
- B. Does not cause enamel discolouration

78. Gentamicin

- A. Is water soluble but unstable in solution
- B. Is an antibiotic which is O₂ dependent

79. Which antibiotic is resistant to beta-lactamase?

- A. Piperacillin
- B. Cloxacillin
- C. Amoxicillin
- D. Penicillin

80. Which action of glucagons is INCORRECT?

- A. Smooth muscle relaxant
- B. Positive inotrope
- C. Positive chronotrope
- D. Stimulates gluconeogenesis

81. Adenosine

- A. Opens K⁺ channels
- B. Opens Cl⁻ channels
- C. Half life of 10 minutes
- D. Profoundly blocks SA node
- E. Blocks Ca²⁺ dependent action potential

82. Regarding theophylline, which is CORRECT

- A. Causes increased K⁺
- B. Seizures may not have warning neurological signs
- C. Overdose of slow release tablets will give a peak serum level in 6 hours

83. Allopurinol

- A. Metabolized by xanthine oxidase
- B. Has no side effects
- C. Low oral bioavailability

84. Regarding ipratropium bromide

- A. Peak onset is 10 minutes post inhalation
- B. Gives rise to tolerance
- C. Has CNS effects
- D. May precipitate narrow angle glaucoma

85. Regarding trimethoprim, which is INCORRECT

- A. Synergistic with sulphonamides
- B. Folate synthesis disruption
- C. Less toxic to humans than bacteria
- D. Is bacteriocidal

86. Aminoglycosides

- A. Resistance is plasmid mediated
- B. Does not cross species

87. Which is INCORRECT

- A. Disinfectants clean non-living fields
- B. Antiseptics clean living fields
- C. Antiseptics in low dose can promote bacterial growth
- D. Alcohol kills all bacteria and spores

88. Digitalis

- A. Is positive inotrope

89. Regarding cisapride, which is CORRECT

- A. 80% oral bioavailability
- B. potent anti-dopamine agent
- C. needs to be reduced in renal failure
- D. decreases colonic motility

90. Which is most potent?

- A. Cortisol
- B. Cortisone
- C. Aldosterone
- D. Corticosterone
- E. Deoxycorticosterone

91. Which agent does not cause constipation

- A. Verapamil
- B. Digoxin
- C. Warfarin

92. Verapamil

- A. Increases myocardial contractility
- B. Is a positive inotrope
- C. Causes skeletal muscle weakness
- D. Blocks active and inactive Ca²⁺ channels

93. Which is CORRECT regarding warfarin

- A. Broken down in GIT
- B. Added to transfused blood
- C. Decreases thromboplastins

94. Which has pure beta agonist effect in the circulation?

- A. Adrenaline
- B. Noradrenaline
- C. Isoprenaline
- D. ???
- E. ???

95. Carbamazepine

- A. Is metabolized to active metabolites
- B. In overdose causes seizures
- C. Is an enzyme inhibitor

96. Which drug does not interact with warfarin?

- A. Phenobarbitone
- B. Loop diuretic
- C. Benzodiazepine
- D. Cephalosporins

97. Regarding antidepressants

- A. Fluoxetine is more sedating than TCAs
- B. SSRI's are more effective in OCD

98. Hydralazine

- A. Classically has a biphasic response in BP control
- B. Should not be used in eclampsia
- C. Causes significant postural hypotension
- D. Predominantly a vasodilator
- E. ???

99. Diazoxide

- A. Can be used in an hypertensive emergency
- B. Structurally related to thiazide

100. ACE inhibitors

- A. Can be used in second and third trimesters
- B. Have been associated with angioedema

101. Regarding fibrinolytics

- A. Urokinase is cheap but less selective
- B. Streptokinase comes from human cells
- C. HIMA says GIT haemorrhage is most common haemorrhagic complication
- D. GIT haemorrhage within 12 months is a contraindication
- E. Actriylitic acid is a potent fibrinolytic inhibitor

102. Termination of irreversible neuromuscular block involves

- A. Regeneration of receptors
- B. Increase in end plate Ach

103. GTN

- A. Works by NO
- B. Causes methaemoglobin

104. Half life

- A. $t_{1/2}$ may not be a good indication of clearance
- B. does not increase with age
- C. not dependent on Vd

105. Stematil

- A. Useful in tardive dyskinesia
- B. Can cause neuroleptic malignant syndrome
- C. Has antiemetic effect via 5-HT antagonist activity

106. Alpha-methyl-dopa

- A. Can cause a positive Coombs test

107. 2ml of 5% wv is equal to

- A. 1mg
- B. 10mg
- C. 100mg
- D. 20mg

108. What is an example of a phase II biotransformation

- A. Oxidation
- B. Reduction
- C. Glycolysis

109. Which is an important example of a Class IV antiarrhythmic

110. Which cephalosporin causes hypoprothrombinaemia and bleeding?

A. Cefotetan

111. To which infection can you not acquire passive immunity

A. Tb

112. Which of the following doesn't need to be altered in renal failure?

A. Tetracyclines

113. Which of the following causes a disulfuram like reaction?

A. Metronidazole

114. Which of the following glucocorticoids has the most mineralocorticoid activity

A. Hydrocortisone

115. Which of the following does not cause hyperkalaemia?

A. NSAIDS

B. ACE

C. Digoxin

D. Spironolactone

E. ???

116. Which of the following statements about clonidine is correct?

A. Can cause severe hypotension in overdose

B. Exerts its antihypertensive effect by relaxing peripheral blood vessels but has no effect on heart rate

C. Clonidine does not cross the blood brain barrier

D. If the drug must be stopped, it must be done gradually

E. Clonidine has increased antihypertensive effects when combined with TCAs

117. Which characteristic is a feature of atenolol

- A. Has partial agonist activity
- B. Has local anaesthetic action
- C. Is a non-selective beta receptor antagonist
- D. Has low lipid solubility
- E. Antihypertensive effect results mainly from dilation of the peripheral vasculature

118. Which of the following statements about prazosin is correct?

- A. Prazosin produces most of its antihypertensive effect by blocking alpha receptors in the vasomotor centre of the brainstem
- B. May precipitate urinary retention
- C. May cause postural hypotension
- D. Dilates resistance and capacitance vessels
- E. Is a strong antagonist of alpha-2 receptors

119. Which of the following antihypertensives is a direct acting vasodilator?

- A. Captopril
- B. Hydralazine
- C. Carvedilol
- D. Candesartan
- E. Felodipine

120. With regard to Sodium Nitroprusside

- A. Oral bioavailability is 50%
- B. Half life is 50 minutes
- C. In the presence of cardiac failure, administration of nitroprusside can increase cardiac output
- D. Methaemoglobinaemia is a common adverse reaction
- E. Sodium nitroprusside is a complex of cobalt, cyanide groups and a nitroso moiety

121. Hydralazine

- A. May precipitate angina
- B. Does not cause reflex tachycardia
- C. Can cause sexual dysfunction
- D. Can cause orthostatic hypotension
- E. Dilates arterioles and veins

122. Lisinopril

- A. Causes peripheral vasodilation with resulting reflex tachycardia
- B. Is more effective in conditions associated with low plasma renin
- C. May cause hypokalaemia
- D. Is safe during the third trimester of pregnancy
- E. Is a pro drug converted to the active agent by hydrolysis, primarily in the liver

123. GTN

- A. Has high oral bioavailability
- B. Has no effect on gastro-intestinal smooth muscle
- C. Reduces pulmonary vascular resistance
- D. Causes the release of nitrous oxide in vascular smooth muscles
- E. Lowers blood pressure but does not cause reflex tachycardia

124. Postural hypotension is a common adverse effect of which one of the following types of drugs

- A. ACE inhibitors
- B. Alpha receptor blockers
- C. Arteriolar dilators
- D. Non-selective beta receptor blockers
- E. Beta-1 selective blockers

125. Digoxin

- A. Stimulates Na/K ATPase
- B. Gastrointestinal toxicity is only seen at very high blood levels
- C. Can be reversed by digoxin antibodies which are produced in sheep
- D. Has a half life of 168 hours
- E. Is 10% excreted unchanged in urine

126. Adenosine

- A. Is a nucleoside that occurs naturally throughout the body
- B. Acts by enhancing potassium conductance and inhibition of cAMP induced calcium influx
- C. Strongly inhibits conduction and increases the refractory period of the SA node
- D. Its effect is inhibited by dipyridamole
- E. Causes flushing in about 90% of patients

127. Amiodarone

- A. Blocks alpha adrenoceptors
- B. Skin deposits cause photosensitivity in 2% of patients
- C. Will increase the clearance of warfarin and theophylline
- D. Shortens the action potential duration
- E. Potentiates calcium channel activity

128. With regard to antiarrhythmic drugs

- A. Lignocaine is a class 1c drug
- B. Sotalol is a non selective beta blocker
- C. Verapamil is a class III anti-arrhythmic drug
- D. Flecainide has no effect on supraventricular arrhythmias
- E. All of the above are incorrect

129. With regard to the use of diuretics

- A. Patients who are allergic to frusemide can be safely given bumetanide
- B. Thiazide diuretics act on the PCT
- C. Amiloride binds to the mineralocorticoid receptors
- D. Mannitol is an osmotic diuretic with good oral absorption
- E. Frusemide inhibits the coupled Na/K/2Cl transport system in the luminal membrane of the thick ascending limb of the loop of Henle

130. Which of the following statements is correct

- A. Prazosin has high affinity for alpha-2 receptors
- B. Cocaine is a local anaesthetic with direct effect on noradrenergic receptors
- C. Isoprenaline is a potent vasodilator due to its effects on alpha receptors
- D. Clonidine exerts its antihypertensive effects via peripheral alpha receptor antagonism, thus rapid drug withdrawal can precipitate hypertensive crisis
- E. Adrenaline in combination with local anaesthetic, cause vasoconstriction via action at alpha receptors

131. Which of the following statements about relative selectivity of adrenoceptor antagonists is incorrect?

- A. Terbutaline - $\beta_2 \gg \beta_1 \gg \gg \alpha$
- B. Clonidine - $\alpha_1 > \alpha_2 \gg \gg \beta$
- C. Dobutamine - $\beta_1 > \beta_2 \gg \gg \alpha$
- D. Dopamine - $D_1 = D_2 \gg \beta \gg \alpha$
- E. Noradrenaline - $\alpha_1 = \alpha_2; \beta_1 \gg \beta_2$

132. With regard to adrenoceptor antagonists

- A. Phentolamine is an irreversible alpha receptor antagonist
- B. Esmolol is a non selective beta receptor antagonist with a short half life
- C. Metoprolol is a nonselective beta receptor antagonist with local anaesthetic properties
- D. Carvedilol is a nonselective beta receptor antagonist and a strong alpha receptor antagonist
- E. Rapid cessation of therapy with beta receptor antagonists may precipitate angina

133. Beta receptor antagonists

- A. May mask the signs of developing hyperthyroidism
- B. Are generally well tolerated in patients with peripheral vascular disease
- C. Diabetic patients may benefit from beta receptor antagonists after myocardial infarction
- D. May cause sleep disturbance, sedation and depression
- E. All of the above

134. Which of the following statements correctly describes a warfarin-drug interaction?

- A. Amiodarone inhibits the metabolism of warfarin and prolongs the prothrombin time
- B. Rifampicin prolongs the prothrombin time via its effect on metabolism
- C. Morphine can prolong the prothrombin time
- D. Cefotaxime prolongs the prothrombin time via its effect on plasma protein binding
- E. Metronidazole prolongs the prothrombin time via its effect on thrombin

135. Local anaesthetics

- A. Primarily block nerve calcium channels
- B. Include the amide procaine
- C. Are weak acids
- D. Bind to intracellular channel site
- E. Block large nerve fibres at lower doses than small nerve fibres

136. Ciprofloxacin

- A. Is a de-fluorinated analogue of nalidixic acid
- B. Inhibits topoisomerase II and III
- C. Has gram positive cover
- D. Has a bioavailability of 30%
- E. May cause an arthropathy

137. Which of the following has class III antiarrhythmic properties?

- A. Adenosine
- B. Digoxin
- C. Amiodarone
- D. Lignocaine
- E. Phenytoin

138. Elderly patients

- A. Respond better to diuretics and beta-blockers than to ACE inhibitors as antihypertensive treatment
- B. Have increased lean body mass
- C. All have an age related decline in creatinine clearance
- D. Have increased serum albumin and alpha-acid glycoprotein
- E. Are less sensitive to the respiratory effects of opioid analgesics

139. Captopril

- A. Has 95% oral bioavailability
- B. Its absorption is enhanced when taken with food
- C. Is 90% excreted unchanged in urine
- D. Is acceptable to be given 2nd/3rd trimester pregnancy
- E. Can cause hypokalaemia

140. Atenolol

- A. Is a Beta-2 selective antagonist
- B. Has 90% oral bioavailability
- C. Has T_{1/2} 12 hours
- D. Is mostly excreted unchanged in urine
- E. Its cardiac effects cannot be reversed with atropine

141. Dobutamine

- A. Has its main action as a beta-2 selective agonist
- B. Decreases systemic and pulmonary resistance
- C. Can be given orally
- D. Increases left ventricular filling pressure
- E. Decreases ventricular ectopics

142. Lithium

- A. Has a rapid onset of action
- B. Is partly renally excreted
- C. Tremor is not a frequent adverse effect
- D. Has no interactions with NSAIDS
- E. Is contraindicated in sick sinus syndrome

143. Spare receptors

- A. Do not affect the sensitivity of a drug
- B. Are the result of low efficiency of receptor-effector interaction
- C. Are present when the maximal response is achieved when occupancy is not full
- D. Are qualitatively different from non-spare receptors
- E. May be hidden

144. The drug with the highest first pass metabolism is

- A. Chlorpropamide
- B. Diazepam
- C. Verapamil
- D. Theophylline
- E. Warfarin

145. Verapamil

- A. Is a dihydropyridine
- B. Produces more vasodilation than other Ca²⁺ channel blockers
- C. Is not effective for use in supraventricular tachycardias
- D. Has diarrhoea as an important side effect
- E. Blocks voltage dependent L type Ca channels

146. SSRIs

- A. Are structurally similar to TCAs
- B. Have short half lives
- C. Are safe in combination with MAOIs
- D. Are more effective antidepressants than TCAs
- E. Can produce decreased libido and decreased sexual function

147. In regards to drugs in pregnancy

- A. Transfer of the drugs across the placenta is independent of its lipid solubility and charge
- B. Foetal proteins have a high binding affinity for drugs
- C. Pregnant women have a smaller volume of distribution
- D. Gastric emptying time is shortened in the first day of life
- E. A single intrauterine exposure to a drug can be teratogenic

148. Verapamil

- A. Is not hepatically metabolized
- B. Can cause VF
- C. Re-entrant SVT is not an indication
- D. Is less antiarrhythmic than nifedipine
- E. Is a class III antiarrhythmic

149. The main mechanism of action of colchicine is

- A. Inhibition of PMNs
- B. Inhibition of synoviocyte phagocytes
- C. Reduced formation of LTD4
- D. Inhibition of mononuclear phagocytes
- E. Decreasing the body pool of urate

150. Non-depolarising muscle relaxants

- A. Have a limited volume of distribution, which approximates blood volume
- B. Are eliminated primarily by hepatic metabolism
- C. Are isoquinolone derivatives
- D. Produce a sustained response to a tetanic stimulus
- E. Have a rapid onset of action

151. NSAIDS

- A. Acts by decreasing cAMP via inhibition of prostacyclin
- B. Are not useful in reducing the slow releasing substances of anaphylaxis
- C. May cause interstitial nephritis and hypokalaemia
- D. Have anti-inflammatory actions by inhibiting COX-1
- E. Are weak acids and are largely absorbed in the stomach

152. Celecoxib

- A. 5-10% protein bound
- B. a sulphonamide
- C. only indicated for acute inflammation
- D. not inhibitory to COX-1
- E. Is primarily metabolized by the kidney

153. Loading dose

- A. Is inversely proportional to volume of distribution
- B. Is proportional to accumulation factor
- C. Is independent of rate of administration to multicompartment pharmacokinetics
- D. Equal target concentration X accumulation factor
- E. Of theophylline administered IV in a normal 70kg person = 100mg

154. Haloperidol

- A. Is excreted mostly via the bile in a conjugated form
- B. Is 40% protein bound
- C. Is metabolized in the liver via phosphorylation
- D. Is a potent dopamine receptor agonist
- E. Has neuroleptic malignant syndrome as a serious adverse effect

155. Glucocorticoids

- A. Bind to intranuclear receptors
- B. Regulate protein synthesis via glucocorticoid receptor complex
- C. Have catabolic effect on carbohydrates, protein and lipids
- D. Suppress mononuclear cells only
- E. Do not bind to aldosterone receptor

156. Half-life

- A. Is not a useful parameter in drug dosage
- B. Depends on the volume of distribution and clearance of a drug
- C. Is defined as the time required for a third of the drug to be eliminated
- D. Does not vary with age
- E. Is not altered with certain disease states

157. Regarding insulin

- A. It is not known to cause anaphylactic reactions
- B. Ultralente is short acting insulin
- C. Patients do not develop antibodies to insulin
- D. Works through receptors with tyrosine kinase activity
- E. Hypoglycaemia is a rare complication

158. Paracetamol

- A. Has no significant anti-inflammatory effects
- B. Has no pharmacologically active metabolites even in high doses
- C. 25% is excreted unchanged
- D. Half-life is 12-14 hours
- E. Increases uric acid levels significantly

159. In the setting of adrenaline being given for asthma – the adrenaline acts as

- A. A partial agonist causing mild bronchodilation
- B. A physiological antagonist of histamine
- C. A competitive antagonist of histamine
- D. A chemical antagonist of histamine
- E. An irreversible antagonist

160. Resistance to beta-lactams

- A. Can be due to an efflux pump
- B. Is most commonly due to modification of the target PBPs
- C. Does not involve impaired penetration of drug to target PBPs
- D. Infers resistance only to penicillins
- E. Can involve up to 100 different beta-lactamases

161. Ribosomal resistance occurs with

- A. Sulphonamides
- B. B. Penicillin
- C. Macrolides
- D. Fluoroquinolones
- E. Trimethoprim

162. With regard to penicillin

- A. Penicillins inhibit protein synthesis
- B. It inhibits cell membrane function
- C. Probenecid is a uricosuric drug that increases penicillin excretion
- D. Penicillin G is a semi-synthetic penicillin
- E. Penicillamine is a metabolite of penicillin

163. Aminoglycosides

- A. Have a beta-lactam ring
- B. Are DNA gyrase inhibitors
- C. Have good oral absorption but high first pass metabolism
- D. Normally reach high CSF concentrations
- E. Can produce neuromuscular blockade

164. Volume distribution

- A. Is directly proportional to concentration
- B. May be defined only in respect to blood
- C. Can vastly exceed any physical volume of the body
- D. Is not influenced by plasma binding
- E. Has no influence upon half life

165. Thrombolytic therapy is indicated in patients with chest pain who have

- A. ST depression
- B. ST elevation or LBBB
- C. Non Q-MI
- D. Normal ECG
- E. None of the above

166. Aspirin inhibits the following except

- A. Cyclooxygenase
- B. Recurrent miscarriages
- C. Prostacyclin synthesis
- D. Kallikrein system
- E. Lipoxygenase

167. Calcium channel blockers

- A. Cause smooth muscle contraction
- B. Have positive inotropic effects
- C. Reduce preload significantly
- D. Block transmitter gated calcium channels
- E. Include dihydropyridines

168. About potency and efficacy, the following are true EXCEPT

- A. Efficacy is more important than potency
- B. Potency is the concentration/dose required to produce a given effect
- C. Steep dose-response curves are a concern in low therapeutic index drugs
- D. Low potency is not important
- E. Efficacy is determined by receptors

169. The following adrenoceptors use phospholipase as a second messenger system

- A. Alpha one adrenoceptors
- B. Alpha two adrenoceptors
- C. Beta one adrenoceptors
- D. Beta two adrenoceptors
- E. Dopamine adrenoceptors

170. Clearance of which drug involves capacity limited elimination

- A. Phenytoin
- B. Theophylline
- C. Propranolol
- D. Lithium
- E. Gentamicin

171. Adenosine is used for

- A. Atrial fibrillation
- B. Atrial flutter
- C. Ventricular tachycardia
- D. Sinus bradycardia
- E. Supraventricular tachycardia

172. Thiopentone

- A. Has low lipid solubility
- B. May worsen cerebral oedema
- C. Has effects on the brain that are terminated by re-distribution
- D. Is not significantly metabolized
- E. Is likely to increase mean arterial pressure

173. Macrolides

- A. Have enhanced activity at acidic pH
- B. Have little activity legionella
- C. Have half-lives which increase with anuria
- D. Induce cytochrome P450 enzymes
- E. Are contraindicated in neonates

174. With regards to antiviral drugs

- A. Delvirdine is a nucleoside reverse transcriptase inhibitor (NRTI)
- B. Zidovudine (AZT) is a nonnucleoside reverse transcriptase inhibitor (NNRTI)
- C. NRTIs activate HIV-1 reverse transcriptase
- D. NRTIs require intracytoplasmic activation to the triphosphate form
- E. Abacavir is a protease inhibitor

175. During warfarin therapy, an increase in INR tends to occur with

- A. Cholestyramine
- B. Vitamin K
- C. Metronidazole
- D. Rifampicin
- E. Phenobarbital

176. Regarding Beta-blockers

- A. In clinical use, most are partial agonists
- B. Propranolol has minimal first-pass metabolism
- C. Beta-blockers antagonize the release of rennin
- D. Blockage of Beta2 receptors
- E. Decrease airway resistance
- F. Metoprolol is a non-selective Beta-blocker

177. The half-life of amiodarone is

- A. 1-3 minutes
- B. 1-3 hours
- C. 4-11 days
- D. 10-103 days
- E. 4-6 months

178. Regarding biotransformation

- A. Phase I reactions always precede phase II
- B. Skin is an organ involved in biotransformation of drugs
- C. Water conjugation is a phase I biotransformation
- D. CYP2D6 accounts for the majority of cytochrome P450 activity
- E. Epoxidation is a phase II biotransformation

179. Flucloxacillin

- A. Is not effective against streptococci
- B. Is active against enterococci and anaerobes
- C. Blocks transpeptidation and inhibits peptidoglycan synthesis
- D. Is poorly absorbed orally
- E. Has excellent penetration into the CNS and prostate

180. Regarding elimination kinetics

- A. For most drugs, the rate of elimination = clearance x half-life
- B. In flow-dependent elimination, the limiting factor is the volume of distribution
- C. Capacity limited elimination is also known as Michaelis-Menton elimination
- D. Most drug pathways are not saturated at very high doses
- E. The two major sites of drug elimination are the kidneys and the lungs

181. Carbamazepine

- A. Can be used in the treatment of bipolar disorder, trigeminal neuralgia and epilepsy
- B. Like phenytoin, enhances GABA activity at therapeutic concentrations
- C. Has a rate of absorption which does not vary widely among different patients
- D. Can cause mild but persistent leukopenia and this is an indication to stop treatment
- E. Has liver enzyme-inhibiting properties

182. Phenytoin

- A. Is used for post herpetic neuralgia
- B. Is a class I antiarrhythmic
- C. Works by abolishing the primary discharging focus of seizures
- D. Is only 40% protein bound
- E. Is a potent enzyme inhibitor

183. Regarding the mode of action of opioid drugs

- A. Kappa receptors may produce analgesia and euphoria
- B. Delta receptors display selectivity for dynorphins
- C. Opioid analgesic actions at omega receptors are blocked by naloxone
- D. Opioid peptides activate synapses in the CNS and gut
- E. Pentazocine predominantly binds to Kappa receptors

184. Cephalosporins

- A. Are less stable than penicillins
- B. Are active against enterococci and listeria monocytogenes
- C. Intrinsic antimicrobial activity is high
- D. Belonging to the first generation have better activity against gram positives
- E. Are active against methicillin-resistant strains of staphylococci

185. Benzodiazepines

- A. Are primarily excreted unchanged in the urine
- B. Decrease the frequency of the Cl⁻ channel opening
- C. Act upon GABA_A receptors
- D. All have shorter half-lives than flumazenil
- E. Do not cross the placental barrier during pregnancy

186. Benzodiazepines

- A. Have metabolites with no systemic effects
- B. In overdose, should be reversed with flumazenil in a patient with a long-term history of benzodiazepine abuse
- C. Inhibit action at the mu-receptor
- D. Are useful agents for the induction of surgical anaesthesia
- E. Cross the placenta when administered to a pregnant woman

187. Suxamethonium

- A. Phase II paralysis may be overcome by acetylcholinesterase
- B. Metabolism at the synapse is rapid
- C. Hypokalaemia is a relatively common side effect
- D. Onset of action is approximately 4-8 minutes
- E. Metabolism in the circulation is by specific cholinesterase

188. With regards to half-life

- A. it is the time required to change the amount of drug in the body by one third
- B. The body may be considered as a dual compartment
- C. 90% of the steady state concentration is reached after four half-lives
- D. It is useful because it indicates the time required to attain 90% of steady state
- E. A change in $t_{1/2}$ reflects a change in drug elimination

189. First pass metabolism

- A. Is not completely avoided with the sublingual route
- B. Results in hepatic extraction ratio for morphine of 0.067
- C. Is completely avoided with rectal administration
- D. Is avoided by inhalation administration but absorption is poor
- E. Occurs in the gut wall

190. Regarding antagonist/agonist relationships

- A. A competitive antagonist reduces the e_{max} of a full agonist at a fixed concentration
- B. Protamine is a competitive antagonist of heparin
- C. A competitive antagonist at a fixed concentration has no effect on the EC_{50} of an agonist
- D. In the presence of high concentration of irreversible antagonists, high concentrations of agonists can still produce e_{max}
- E. A competitive antagonist has no effect on the potency of an agonist

191. Drug receptor sites

- A. Spare receptors decrease the sensitivity to the agonist
- B. Muscarinic receptors do not respond to Ach
- C. There are three subtypes of Beta receptors, β_1 , β_2 , β_3
- D. Botulinium toxin works on post synaptic receptor for Ach blocking it irreversibly
- E. Cocaine modifies the presynaptic receptor response increasing efficacy

192. The volume of distribution

- A. For a drug that is retained within plasma is 4% of body weight
- B. Is 20 litres / 70kg for warfarin
- C. Is 70 litres / 70kg for chloroquine
- D. Is high for drugs that are plasma protein bound
- E. Is calculated from the plasma concentration divided by the amount of drug in the body

193. Aspirin is a weak acid with a pK_a of 3.5

- A. At lower pH, less aspirin will be in the protonated
- B. $pK_a = pH + \log_{10} [A]/[HA]$
- C. At pH 3.5, the concentration of ionized and unionized forms are equal
- D. In the small bowel, more aspirin will be in the neutral form relative to the stomach
- E. Acidification of the urine creates more anionic aspirin which is trapped in the renal tubule enhancing elimination

194. G-proteins

- A. Convert GDP to GTP during activation
- B. Are located on the extracellular face of the plasma membrane
- C. Are required for the action of insulin in cells
- D. Are always linked to serpentine transmembrane receptors
- E. Mediate the production of camp when catecholamines bind to an alpha1 adrenoceptor

195. Salbutamol

- A. Is a new generation long acting beta2-selective agonist
- B. Administration by nebulizer is preferred over metered dose inhalers
- C. Is available in oral, injectable and subcutaneous forms
- D. Is recommended as the sole therapy for asthma
- E. Delivered by inhalation, has the greatest local effect with least CNS toxicity

196. Suxamethonium

- A. Blockade is similar to a non-depolarising block in its later stages
- B. Will paralyse the diaphragm first before other muscles
- C. Has positive inotropic and chronotropic effects
- D. Causes a drop in potassium levels on administration
- E. Has effects that last up to half an hour

197. Regarding anti-seizure drugs

- A. At high doses, phenytoin exhibits first order elimination kinetics
- B. Barbiturates block voltage gated Na^+ channels
- C. Ethosuximide inhibits K^+ channels
- D. Carbamazepine inhibits formation of liver drug-metabolizing enzymes
- E. Benzodiazepines facilitate the inhibitory effects of GABA

198. Clozapine

- A. Is very sedating at therapeutic doses
- B. Is a butyrophenone derivative
- C. Causes agranulocytosis in a majority of people
- D. Acts on alpha-1 receptors
- E. Has a high incidence of extrapyramidal side effects

199. Chlorpromazine

- A. Is a potent D-1 agonist
- B. Causes tachycardia and hypertension
- C. Is a highly potent antipsychotic
- D. Acts mainly on alpha-2 receptors
- E. Is a highly sedating agent

200. Which of the following is an indication for the use of carbamazepine

- A. AV block
- B. Previous bone marrow suppression
- C. Partial seizures
- D. Acute intermittent porphyria
- E. Primary biliary cirrhosis

201. Regarding ketamine

- A. It has minimal analgesic effect
- B. It is lipophilic and hence has a slow initial distribution phase
- C. It increases intracranial pressure
- D. It has central inhibitory effect on the cardiovascular system
- E. It should not be used in shocked patients

202. With regard to vasopressin

- A. Vasopressin has no role in short-term regulation of arterial pressure
- B. Patients with idiopathic orthostatic hypotension have reduced pressor sensitivity to vasopressin
- C. The actions of vasopressin are mediated by activation of specific cytoplasmic receptors
- D. V_1 receptors mediate the anti-diuretic action
- E. DDAVP is a selective V_2 receptor agonist

203. Adrenaline

- A. When used in anaphylaxis, subcutaneous injection is the preferred route of administration
- B. Acts both directly and indirectly at adrenergic nerves
- C. Causes moderate bronchiolar smooth muscle constriction
- D. May cause a fall in diastolic blood pressure when given as an intravenous injection
- E. Is formed before noradrenaline in pathway of catecholamine synthesis

204. Amiodarone

- A. Blocks conversion of T3 to T4
- B. Promotes K^+ current across cell membrane
- C. Is almost completely absorbed orally
- D. Levels are reduced by administration of cimetidine
- E. Increases QT interval

205. Nitrates

- A. Act via adenylyclase
- B. Are contraindicated in raised intraocular pressure
- C. Have a stronger action on arterioles than veins
- D. Act to decrease platelet aggregation
- E. Increase total coronary blood flow in angina due to atherosclerotic coronary heart disease

206. Which of the following causes prolonged relaxation of the ciliary muscle of the eye?

- A. phenylephrine
- B. tropicamide
- C. cyclopentolate
- D. timolol
- E. atropine

207. Regarding oxygen

- A. High flow O₂ is used in carbon monoxide poisoning
- B. It is not used in patients with COAD
- C. Breathing 100% O₂ for a long period of time is not harmful
- D. It increases the amount of surfactant in premature infants alveoli
- E. Retrolental fibroplasias is not a side effect

208. Regarding digoxin

- A. Antibiotics that alter intestinal flora may decrease digoxin bioavailability
- B. Digoxin's half-life is +/- 20 hours
- C. Digoxin's renal clearance increases if taken with quinidine
- D. It is the drug of choice for WPW syndrome and AF
- E. Arrhythmias can develop if given in the presence of hypokalaemia

209. Dobutamine

- A. Is an alpha blocker
- B. Has no value in the treatment of CHF
- C. Is a non-selective beta agonist
- D. Typically causes tachycardia
- E. Increases cardiac output

210. Ipratropium

- A. Binds to nicotinic receptors
- B. Is not indicated for management of COAD
- C. Commonly causes tachycardia
- D. Is effective orally as well as by aerosol
- E. Is a quaternary ammonium derivative of atropine

211. Captopril

- A. Lowers blood pressure solely by inhibiting formation of angiotensin II
- B. Causes coughing by inactivating the kallikrein-kinin system
- C. Is relatively safe in the third trimester of pregnancy
- D. Causes decreased glomerular efferent arteriolar resistance
- E. Has a half-life of approximately 12 hours

212. Regarding diuretics

- A. Carbonic anhydrase inhibitors may cause a hypervolaemic metabolic alkalosis
- B. Frusemide may precipitate attacks of gout
- C. Thiazide diuretics inhibit the Na^+/Cl^- pump in the PCT
- D. The major effect of osmotic diuretics is to prevent water absorption in the collecting tube
- E. Hypokalaemia is a common side effect of spironolactone

213. Clopidogrel

- A. Prevents production of platelet thromboxane A
- B. Irreversibly inhibits the binding of ADP to its receptor on platelets
- C. Antithrombotic effects are not dose dependent
- D. Enhances platelet aggregation
- E. Frequently causes leukopenia

214. Aspirin

- A. Is a simple organic acid with a pK_a of 2.0
- B. Is converted to salicylate by esterases in tissue and blood
- C. Reversibly inhibits COX
- D. Has an antiplatelet effect lasting 15-21 days
- E. Has been shown to be associated with an increased incidence of colon cancer (with long-term use)

215. All of the following statements about antihypertensive medications are true EXCEPT

- A. Severe hypotension can occur after initial doses of any ACE inhibitor in hypovolaemic patients
- B. Hydralazine dilates arterioles but not veins
- C. Antihypertensives include sympathoplegics
- D. The goal of treatment of hypertensive emergencies is normalization of blood pressure within hours
- E. Methyldopa causes a positive Coomb's test in 10-20% of patients on prolonged treatment

216. Metoprolol

- A. Is often used in the management of acute heart failure
- B. Has a high oral bioavailability
- C. Never causes exacerbation of asthma
- D. Has no local anaesthetic activity
- E. Has greater selectivity for β_1 than β_2 receptors

217. Which of the following drugs decreases INR when used with warfarin?

- A. Amiodarone
- B. Barbiturates
- C. Metronidazole
- D. Cimetidine
- E. Cotrimoxazole

218. Which of the following antibiotics and mechanisms of action of resistance are correctly paired?

- A. Erythromycin – modification of the D-ala binding site
- B. Ciprofloxacin – production of an efflux pump
- C. Gentamycin – enzymatic inactivation
- D. Penicillins – plasmid encoded
- E. Tetracycline – production of an efflux pump

219. Prednisolone

- A. Has less anti-inflammatory effect than prednisone
- B. Has a biologic half-life greater than its half-life in plasma
- C. Is taken in the morning because the endogenous ACTH peaks at night
- D. Is a product
- E. Causes Cushing's disease as a side effect

220. Gentamicin is isolated from

- A. Pyrimethamine
- B. A 15-atom lactone micloide ring
- C. Micromonospora purpurea
- D. Streptomyces griseus
- E. Streptomyces aureofaciens

221. Activated charcoal

- A. Is not effective when given in a ratio of 10% of charcoal to estimated dose of toxin by weight
- B. Binds alcohol and cyanide well
- C. Does not bind iron, lithium or potassium
- D. When given with cathartics, is more effective than charcoal alone
- E. Is given as a dose of 0.5mg/kg

222. Regarding red back spider anti-venom

- A. It is derived from a porcine source
- B. In male spider bites, envenomations can occur
- C. Even mild local effects have to be treated regardless of when patients present
- D. Late serum sickness does not usually occur
- E. Subcutaneous adrenaline is considered if previous anaphylaxis has been reported

223. Roxithromycin

- A. Inhibits protein synthesis by binding to the 30S ribosomal RNA
- B. Absorption is unaffected by food
- C. Inactivates cytochrome P450 enzymes
- D. Resistance is usually plasmid mediated
- E. Is mostly excreted in the urine

224. Match the antibiotic with the correct mechanism of action

- A. Penicillin interferes with protein synthesis within bacteria
- B. Gentamicin acts on the 30S subunit of the bacterial ribosome
- C. Isoniazid reversibly blocks folic acid synthesis
- D. Erythromycin acts on the 30S subunit of the bacterial ribosome
- E. Trimethoprim inhibits synthesis of mycolic acids

225. A woman aged 43 presents with a petechial rash on her legs and a platelet count of 8,000. She has recently been receiving treatment for an ear infection. Which of the following agents is most likely to be the cause of her current problem?

- A. Penicillin
- B. Amoxicillin
- C. Cotrimoxazole
- D. Erythromycin
- E. Roxythromycin

226. A 70-year old patient undergoing antimicrobial therapy for acute cholecystitis complains of dizziness, headache and nausea on movement. Which of the following antibiotics is most likely to have caused these symptoms?

- A. Amoxicillin
- B. Trimethoprim
- C. Gentamycin
- D. Ceftriaxone
- E. None of the above

227. Which of the following is NOT TRUE for norfloxacin?

- A. It is poorly absorbed from the GIT
- B. It is effective in Salmonella enteritis
- C. It inhibits DNA synthesis in susceptible microbes
- D. It can increase serum theophylline levels if administered concurrently
- E. It is mainly excreted by the kidney

228. With respect to hypersensitivity reactions to penicillins

- A. If a patient has had a previous reaction to penicillin, the risk of allergic reaction is greater than 80%
- B. Small children are at higher risk of allergic reaction to penicillin
- C. Less than 1% of patients with a past history of having taken penicillin without reaction will have an allergic reaction
- D. The risk of sensitization is not related to the amount of penicillin received in the past
- E. Ceftriaxone is a safe alternative for those with a past history of anaphylaxis to penicillin

229. Which of the following drugs achieves high concentrations in both urine and bile?

- A. Aminoglycosides
- B. Sulphonamides
- C. Nitrofurantoin
- D. Cephalosporins
- E. Erythromycin

230. A 25-year old woman being treated for pneumonia develops clinical jaundice. Her serum bilirubin level is 40 micromoles per litre (normal up to 17) with conjugated bilirubin level of 30 micromole per litre (normal up to 7). Which of the following antibiotics is most likely to have caused this effect?

- A. Vancomycin
- B. Ceftriaxone
- C. Penicillin
- D. Doxycycline
- E. Erythromycin

231. Naloxone

- A. Has an increased half-life in the presence of renal failure
- B. Does not produce an abstinence syndrome after withdrawal subsequent to chronic administration
- C. Is a weak opiate agonist/antagonist
- D. Has a half-life of 30 minutes
- E. Binds specifically with Kappa receptors

232. Propofol

- A. Is less painful when injected than thiopentone
- B. Causes less hypotension than thiopentone
- C. Is less likely to cause post operative vomiting than thiopentone
- D. Causes cumulative effects when given as a continuous infusion
- E. Is useful in long term sedation in ICU for periods 1-2 weeks

233. Tubocurarine blocks the neuromuscular action of acetylcholine by

- A. Blocking its synthesis
- B. Blocking its release
- C. Breaking it down in the synapse
- D. Reversibly blocking its receptor sites
- E. Reversibly binding to acetylcholine molecules

234. Heparin

- A. Consists of a heterogeneous group of glycoproteins
- B. Acts by decreasing activity of blood coagulant factor VII
- C. Is associated with osteomalacia
- D. Increases the reaction rate of antithrombin III on clotting factors
- E. Is consumed in anticoagulation activity

235. Regarding inhaled anaesthetics

- A. The concentration of an individual gas in a mixture of gases is inversely proportional to its partial pressure
- B. The blood gas partition co-efficient of nitrous oxide is about 0.5
- C. The rate of rise of anaesthetic gas tension in arterial blood does not depend on minute alveolar ventilation
- D. They have no effect on right atrial pressure or contractility of the heart
- E. Nitrous oxide is probably the only inhaled anaesthetic that causes a decrease in tidal volume and an increase in respiratory rate

236. Flumazenil cannot reverse the action of

- A. Phenobarbital
- B. Meprobate
- C. Chloral hydrate
- D. Morphine
- E. All of the above

237. Neostigmine

- A. Blocks acetylcholine receptors
- B. Depolarizes the end plate regions of muscle cells
- C. Reverses the blockade produced by suxamethonium
- D. Reverses the blockade produced by tubocurarine
- E. Potentiates muscarinic but not nicotinic responses the acetylcholine

238. Ketamine

- A. Is useful as an induction agent in head injured patients
- B. Decreases salivation
- C. Decreases heart rate and may cause bronchoconstriction
- D. Must be given intramuscularly
- E. May cause unpleasant dreams in children

239. Your patient has abnormal LFTs, in particular an elevated AST. He tells you he is on medication for fits, but can't remember its name. Which of the following drugs is the most likely

- A. Phenytoin
- B. Diazepam
- C. Sodium valproate
- D. Clonazepam
- E. Ethosuximide

240. Regarding phenytoin

- A. It follows zero-order kinetics in clinical doses
- B. It follows zero-order kinetics only in excessive doses
- C. It follows first-order kinetics in clinical doses
- D. It is excreted mainly unchanged by the kidney
- E. Its concentration is increased by co-administration of carbamazepine

241. A patient started on carbamazepine for episodes of partial seizures. After a month where she was seizure free she started having further seizures. What is the MOST LIKELY cause?

- A. Patient developed a tolerance to carbamazepine
- B. Carbamazepine IS NOT the drug of choice for such seizures, hence needs to be put on a more suitable anticonvulsant
- C. Initially carbamazepine has a low systemic clearance, however over time the clearance increases requiring an increase in the dose of carbamazepine
- D. She was not loaded with carbamazepine appropriately
- E. All of the above

242. With regard to clonazepam, which is NOT TRUE?

- A. Is often used IV in status epilepticus as it is short acting
- B. Sedation is a significant problem, especially at the start of therapy
- C. Development of tolerance limits its use in long term anticonvulsant therapy
- D. Acts on GABA receptors
- E. Can be given as an IV bolus

243. Tricyclic antidepressants

- A. Have a predictable bioavailability
- B. Enhance amine re-uptake pumps
- C. More commonly cause cardiac arrhythmias in patients with metabolic acidosis
- D. Cause urinary frequency
- E. Increase gastric emptying

244 Amiodarone

- A. Is only effective in suppression of ventricular arrhythmias
- B. Causes peripheral vasodilation via alpha-adrenergic effects
- C. Commonly causes corneal opacification
- D. Increases warfarin clearance
- E. Decreases the AV nodal refractory period

245. For a specific effect, drug A is more potent than drug B. It follows that:

- A. Drug B is a partial agonist acting at the same receptor as drug A
- B. Drug A causes a greater maximal effect than drug B
- C. When present in identical concentrations, drug A causes greater effect than drug B
- D. Drug A has a lower ED₅₀ than drug B
- E. Drug B will have a steeper dose response curve than drug A

246. Frusemide

- A. Causes dose-related ototoxicity that is characteristically irreversible
- B. Decreases Na and water delivery to the distal nephron
- C. Enhances renal H⁺ secretion in the collecting tubule
- D. Causes hypokalaemic metabolic acidosis in overdose
- E. Has no effect on body Mg²⁺ stores in chronic use

247. The volume of distribution of a drug

- A. Relates its dose to its clearance rate
- B. Is not an apparent volume
- C. If high, implies greater concentration of drug in extravascular tissue
- D. If high, implies greater plasma protein binding of the drug
- E. If high, implies easier clearance of the drug by haemolysis in overdose

248. Warfarin

- A. Is an orally administered anticoagulant with low bioavailability
- B. Block the alpha carboxylation of glutamate residues in protein C
- C. Has an anticoagulant action which is immediate
- D. Does not cross the placenta-blood barrier
- E. Causes increased prothrombin time when given with diuretics

249. Zidovudine (AZT)

- A. Acts on thymidine kinase
- B. Must be given parenterally
- C. Inhibits synthesis of viral DNA
- D. Stimulates reverse transcriptase
- E. Is effective against herpes viruses

250. Aspirin

- A. Decreases plasma levels of phenytoin
- B. Increases the activity of spironolactone
- C. Will cause penicillin G level in plasma to reduce
- D. Inhibits the uricosuric effect of probenecid
- E. Toxicity will be enhanced by acetazolemid

251. EC₅₀ is

- A. Drug concentration with 50% receptors bound
- B. Drug concentration with 50% of maximal drug effect
- C. A representation of the receptors affinity for drug binding
- D. Always equal to K_d
- E. Measured with a radioactive receptor

252. Which of the following vasodilators acts by arteriolar dilation with negligible venous dilation

- A. Glyceryl trinitrate
- B. Verapamil
- C. Sodium Nitroprusside
- D. Diazoxide
- E. None of the above

253. Which of the following antidotes acts by BYPASSING blockade of a receptor

- A. Glucagon (β -blocker poisoning)
- B. Flumazenil (benzodiazepine poisoning)
- C. Propranolol (theophylline poisoning)
- D. Methanol (ethanol poisoning)
- E. Acetyl-cysteine (paracetamol poisoning)

254. Metoclopramide exerts its anti-emetic effect by

- A. Inhibiting the action of acetylcholine at muscarinic nerve endings in the gut
- B. By blocking dopamine D_2 -receptors in the chemoreceptor trigger zone
- C. Lowering the tone at the pylorus
- D. None of the above

255. Monoamine oxidase inhibiting drugs potentiate the effect of the following drugs

- A. Carbamazepine
- B. Pethidine
- C. Fluoxetine
- D. Oral hypoglycaemics
- E. Insulin

256. Regarding the pharmacokinetics of Lithium, which of the following is NOT correct

- A. Lithium is rapidly absorbed throughout the gut
- B. Lithium has a volume of distribution of about 50 litres
- C. Concomitant use of a diuretic can reduce lithium clearance by 50%
- D. Lithium is easily dialyzable from blood
- E. More than 50% of lithium is bound to plasma proteins

257. Dopamine

- A. Has less α agonist effect than dobutamine
- B. Dilates the renal vascular bed by its action on β_1 receptors
- C. Causes a profound rise in peripheral vascular resistance
- D. Is inactivated by sodium bicarbonate
- E. Causes vasoconstriction at all doses

258. The clinical features of salicylate overdose include all of the following EXCEPT

- A. Respiratory alkalosis
- B. Metabolic acidosis
- C. Hypokalaemia
- D. Tinnitus
- E. Respiratory depression

259. Propofol

- A. Has an elimination half-life of 4 hours
- B. The effect of a single dose is terminated by first-pass metabolism
- C. The effect of a single dose lasts about 30 minutes on average
- D. Is unsuitable for use as a maintenance anaesthetic
- E. None of the above is true

260. Streptokinase

- A. Has a shorter half-life than r-TPA
- B. Is a non-fibrin selective fibrinolytic
- C. Is less likely than r-TPA to cause a coagulation disturbance in plasma
- D. Reduces mortality from myocardial infarction in 40% of cases
- E. Is ineffective for the treatment of non-coronary thrombosis

261. Which of the following does NOT cause cholestatic hepatitis?

- A. Chlorpromazine
- B. Carbimazole
- C. Phenytoin
- D. Erythromycin
- E. Glibenclamide

262. The following are effects of hydrocortisone EXCEPT

- A. Suppression of gluconeogenesis
- B. Increased urinary calcium excretion
- C. Osteoporosis
- D. Psychotic states
- E. Delayed healing of wounds

263. With reference to drug receptor

- A. The total number receptors is unrelated to the maximal effect of a drug
- B. Pure pharmacological antagonists bind to receptors and directly alter the receptors function
- C. They include regulatory proteins, enzymes, transport proteins and structural proteins
- D. Receptor-mediated responses to drugs usually remain constant over time, even in the continued presence of the agonist
- E. Receptor desensitization is usually irreversible

264. With regard to drug bioavailability

- A. Rectal administration of a drug has more first pass effect than oral administration
- B. Transdermal administration of a drug involves first-pass metabolism
- C. Drugs administered by inhalation may undergo first pass loss by excretion from the lungs
- D. Diazepam is a drug that is highly extracted by the liver
- E. First-pass elimination refers only to the reduction in drug bioavailability due to liver metabolism

265. In the case of poisoning with so-called heavy metals

- A. Acute arsenic toxicity causes vomiting but not diarrhoea
- B. Chronic lead poisoning causes flexor muscle weakness and sensory disturbance
- C. Mercury intoxication can readily occur by ingestion of the pure liquid
- D. Acute iron ingestion can be effectively treated with oral activated charcoal
- E. Chronic lead poisoning may cause hypochromic microcytic anaemia

266.

see original... graph involved

267. Phase II drug biotransformation reactions

- A. result in the conversion of the parent drug into its activated form
- B. result in increased binding of the metabolites to Albumin
- C. are necessary for the excretion of drug into the urine
- D. result in the degradation of drugs into non-toxic metabolites that are readily excreted in the urine
- E. none of the above

268. Volume of distribution is

- A. Generally larger than predicted for patients with ascites
- B. Directly proportional to the drug concentration in plasma
- C. High in drugs contained in plasma
- D. Directly proportional to loading dose
- E. Not affected by being obese

269. Suxamethonium

- A. Has no effect on heart rate
- B. May cause decreased intraocular pressure
- C. Would be the muscle relaxant of choice in a patient severely burned two weeks prior
- D. Has a short duration of action due to rapid hydrolysis by acetylcholinesterase
- E. Is antagonized by nondepolarising muscle relaxants

270. Adenosine

- A. Is a synthetic nucleoside
- B. Half life is 30 seconds
- C. May be effective in broad complex tachycardia
- D. Causes flushing in 50% of patients
- E. Has no marked effect on sinoatrial nodal function

271. Regarding neuromuscular blocking agents

- A. Rocuronium has longest duration of action
- B. Nondepolarising agents paralyse larger muscles first
- C. Aminoglycosides decrease neuromuscular blockade
- D. Vecuronium has little effect on the cardiovascular system
- E. Nondepolarising blockade isn't surmountable

272. All are effects of tricyclic antidepressant overdose EXCEPT

- A. Drowsiness
- B. Seizure
- C. Respiratory depression
- D. Increased GI motility
- E. Bladder paralysis

273. With regard to thrombolytic agents

- A. Streptokinase acts by binding to fibrin
- B. The half life of streptokinase is 15 minutes
- C. Streptokinase is inactivated by amino protease
- D. Hypertension is a common side effect of streptokinase
- E. Acute pericarditis is a contraindication to streptokinase

274. Chloramphenicol

- A. Is an inhibitor of microbial metabolic function
- B. Is bactericidal
- C. Is clinically effective against Chlamydiae
- D. After absorption has a wide distribution including CNS
- E. Is poorly absorbed

275. In organophosphate poisoning

- A. Carbamites bind irreversibly to acetyl cholinesterase
- B. Parathion is poorly absorbed through the skin
- C. Anticholinergics are effective in treatment
- D. Carbamates have a longer duration of action than organophosphates
- E. Pralidoxime is most effective if administered early

276. Nifedipine

- A. Is useful as an antiarrhythmic agent
- B. Can be given both IV and IM routes
- C. May cause peripheral oedema and constipation
- D. Is safely given in conjunction with Beta Blockers
- E. Acts via potentiation of calcium influx

277. Angiotensin converting enzyme inhibitors

- A. Act only by inhibiting the conversion of angiotensin I and angiotensin II
- B. Can only be safely used if renal function is monitored on a weekly basis for the duration of treatment
- C. Can precipitate acute hypotension perioperatively
- D. Cause neutropaenia that does not usually resolve with cessation of the drug
- E. Reduce bradykinin activity

278. Nitrates

- A. Act via cAMP
- B. When given orally have a bioavailability of 30%
- C. Have metabolites that are clinically important
- D. Are excreted mainly by the liver
- E. Are not associated with problems of tolerance

279. In the Vaughan Williams classification

- A. Procainamide is in Class 1C
- B. Sotalol is in Class III
- C. Lignocaine is in Class 1A
- D. Bretyllium is in Class II
- E. Class IV drugs prolong action potential

280. A partial agonist

- A. Will produce a higher response at the same receptor occupancy rate when compared to a complete agonist
- B. Will have no effect on an agonist producing maximal effect
- C. May be used as a competitive agonist
- D. Will alter the plateau of a dose response curve
- E. May have the same maximal efficacy but a lower potency when compared to a complete agonist

281. All of the following are about Noradrenaline are correct EXCEPT

- A. Is synthesized in nerve terminals
- B. Can result in piloerection
- C. Is metabolised by both COMT and MAO systems
- D. Has a stronger affinity for beta adrenoceptors than Isoprenaline
- E. Is synthesized from Tyrosine

282. Adverse effects of Suxamethonium include all of the following EXCEPT

- A. Bradykinin
- B. Hypokalaemia
- C. Myoglobinaemia
- D. Malignant hyperpyrexia
- E. Raised intraocular pressure

283. MAO inhibitors interact with all of the following EXCEPT

- A. Warfarin
- B. Tricyclic antidepressants
- C. Cheeses
- D. Amphetamines
- E. Guanethidine

284. Which of the following statements are correct

- A. Atenolol is water soluble
- B. Propranolol is too large to cross the blood brain barrier
- C. Timolol is useful as eye drops because of its membrane stabilizing activity
- D. Sotalol is extensively metabolised in the liver
- E. Labetolol is safe in asthmatics because of its intrinsic sympathomimetic activity

285. Lignocaine

- A. Is effective against arrhythmias originating in depolarising tissue
- B. Hepatic clearance is equivalent to hepatic blood flow
- C. Has no active metabolites
- D. Is approximately 90% protein bound
- E. Lengthens the action potential

286. Quinidine

- A. Is a sodium channel blocker which shortens the action potential
- B. Is effective for supraventricular arrhythmias
- C. Is useful in the treatment of Torsades-de-Pointes
- D. Has indirect (anticholinergic) actions on the heart
- E. Has no interaction with Digoxin

287. Drug concentration is not a good indicator of response

- A. When acute tolerance develops (tachyphylaxis)
- B. For drugs used at concentrations which give a maximal response
- C. For drugs which have delayed distribution
- D. All of the above
- E. None of the above

288. Calcium channel blockers

- A. Dihydropyridines are less cardioselective and more vascularly active when compared to other groups
- B. Results in increased cardiac muscle activity
- C. Are compatible for use with beta blockers
- D. Are of no use in acute myocardial infarction
- E. Increase myocardial oxygen consumption

289. Concerning Digoxin

- A. It is metabolised in the liver
- B. It results in increased intracellular potassium
- C. Antibiotics may decrease its bioavailability
- D. Toxicity is rarely associated with arrhythmias
- E. It has a clinically significant diuretic action

290. Atropine

- A. Is a tertiary amine and so does not cross the blood brain barrier
- B. Increases atrioventricular conduction time
- C. Increases blood pressure
- D. Diarrhoea is a feature of toxicity
- E. Competitively antagonizes acetylcholine at muscurinic receptors

291. The toxic effects of paracetamol

- A. Can be avoided using Cimetidine to inhibit the cytochrome P450 system
- B. Are always evident with doses of 150mg/kg and greater
- C. In chronic overdose are less likely than in acute overdose
- D. Include neurotoxicity resulting in personality changes
- E. Occur because sulphation / glucuronidation pathways and metabolism are saturated

292. Clinical effect of antidepressants most closely correlates to

- A. Noradrenaline and Serotonin levels in neuronal synapses
- B. Drug concentrations in the cerebral circulation
- C. The number of tablets ingested
- D. Decrease in the number of post-synaptic beta receptors
- E. Changes in the patient's standard clinical measurements (HR, BP, Temp. etc)

293. Features of the malignant neuroleptic syndrome occasionally encountered with antipsychotic agents include all of the following EXCEPT

- A. Emotional lability
- B. Muscle rigidity
- C. Autonomic instability
- D. Leucocytosis
- E. Rabdomyolysis

294. Chlorpromazine

- A. Blocks dopamine receptors
- B. Blocks histamine receptors
- C. Blocks alpha receptors
- D. None of the above
- E. All of the above

295. A woman aged 43 presents with a petechial rash on her legs and a platelet count of 8,000. She has recently been receiving treatment for an ear infection. Which of these agents is most likely to be the cause of her current problem

- A. Penicillin
- B. Amoxicillin
- C. Cotrimoxazole
- D. Erythromycin
- E. Roxythromycin

296. A 70-year old patient undergoing antimicrobial therapy for an acute cholecystitis complains of dizziness, headache and nausea on movement. Which antibiotic is most likely to have caused these symptoms

- A. Amoxicillin
- B. Trimethoprim
- C. Gentamycin
- D. Ceftriaxone
- E. None of the above

297. Which of the following is not true for Norfloxacin

- A. It is poorly absorbed from the GIT
- B. It is effective in salmonella enteritis
- C. It inhibits DNA synthesis in susceptible microbes
- D. It can increase serum theophylline levels if administered concurrently
- E. It is mainly excreted by the kidney

298. With respect to hypersensitivity reactions to penicillins

- A. If a patient has had a previous reaction to penicillin, the risk of allergic reaction is greater than 80%
- B. Small children are at a higher risk of allergic reaction to penicillin
- C. Less than 1% of patients with a past history of having taken penicillin without reaction will have an allergic reaction
- D. The risk of sensitization is not related to the amount of penicillin received in the past
- E. Ceftriaxone is a safe alternative for those with a past history of anaphylaxis to penicillin

299. A 25-year old woman being treated for pneumonia develops clinical jaundice. Her serum bilirubin level is 40 micromoles per litre (normal up to 17), with a conjugated bilirubin level of 30 micromoles per litre (normal up to 7). Which antibiotic is most likely to have caused this effect

- A. Vancomycin
- B. Ceftriaxone
- C. Penicillin
- D. Doxycycline
- E. Erythromycin

300. Naloxone

- A. Has an increased half life in the presence of renal failure
- B. Does not produce an abstinence syndrome after withdrawal subsequent to chronic administration
- C. Is a weak opiate agonist/antagonist
- D. Has a half life of 30 minutes
- E. Binds specifically with Kappa receptors

301. Propofol

- A. Is less painful when injected than thiopentone
- B. Causes less hypotension than thiopentone
- C. Is less likely to cause post operative vomiting than thiopentone
- D. Causes cumulative effects when given as a continuous infusion
- E. Is useful in long term sedation in ICU for periods of 1-2 weeks

302. Heparin

- A. Consists of heterogenous groups of glycoproteins
- B. Acts by decreasing activity of blood coagulant factor VII
- C. Is associated with osteomalacia
- D. Increases the reaction rate of antithrombin III on clotting factors
- E. Is consumed in anticoagulation activity

303. Regarding inhaled anaesthetics

- A. The concentration of an individual gas in a mixture of gases is inversely proportional to its partial pressure
- B. The blood gas partition co-efficient of nitrous oxide is about 0.5
- C. The rate of rise of anaesthetic gas tension in arterial blood does not depend on minute alveolar ventilation
- D. They have no effect on right atrial pressure or contractility of the heart
- E. Nitrous oxide is probably the only inhaled anaesthetic that causes a decrease in tidal volume and an increase in respiratory rate

304. Neostigmine

- A. Blocks acetylcholine receptors
- B. Depolarizes the end plate regions of muscle cells
- C. Reverses the blockade produced by suxamethonium
- D. Reverses the blockade produced by tubocurarine
- E. Potentiates muscarinic but not nicotinic responses to acetylcholine

305. Ketamine

- A. Is useful as an induction agent in head injured patients
- B. Decreases salivation
- C. Decreases heart rate and may cause bronchoconstriction
- D. Must be given intramuscularly
- E. May cause unpleasant dreams in children

306. Your patient has abnormal LFTs, in particular an elevated AST. He tells you he is on medication for fits, but can't name it. Which is most likely to be his drug?

- A. Phenytoin
- B. Diazepam
- C. Sodium Valproate
- D. Clonazepam
- E. Ethosuxamide

307. Regarding Phenytoin

- A. It follows zero-order kinetics in clinical doses
- B. It follows zero-order kinetics only in excessive doses
- C. It follows zero-order kinetics only in subclinical doses
- D. It is excreted mainly unchanged by the kidneys
- E. Its concentration is increased by co-administration of carbamazepine

308. A patient is started on carbamazepine for episodes of partial seizures. After a month where she was seizure free, she started having further seizures. What is the MOST LIKELY cause

- A. Patient developed a tolerance to carbamazepine
- B. Carbamazepine is not the drug of choice for such seizures
- C. Initially carbamazepine has a low systemic clearance, however over time the clearance increases requiring an increase in dose of carbamazepine
- D. She was not loaded with carbamazepine appropriately
- E. All of the above

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- C. Sodium Nitroprusside
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- C. Propranolol (Theophylline poisoning)
- D. Methanol (Ethanol poisoning)
- E. Acetyl-cysteine (Paracetamol poisoning)

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- B. By blocking dopamine D2 receptors in the chemoreceptive trigger zone
- C. Lowering the tone of the lower oesophageal sphincter
- D. Raising the tone of the pylorus
- E. None of the above are correct

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- A. Lithium is rapidly absorbed throughout the gut
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- B. Increases urinary calcium excretion
- C. Osteoporosis
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- C. They include regulatory proteins, enzymes, transport proteins and structural proteins
- D. Receptor-mediated responses to drugs usually remain constant over time, even in the continued presence of the agonist
- E. Receptor desensitization is usually irreversible

326. Which of the following adverse drug reactions does not have a hereditary basis

- A. Prolonged paralysis after succinylcholine
- B. Malignant hyperthermia after Halothane
- C. Thrombocytopaenia after Quinidine
- D. Development of lupus erythematosus during treatment with Hydralazine
- E. Resistance to Warfarin but sensitivity to Vitamin K

327. In all but which of the following situations is the effect of the drug potentiated

	Potentiating Drugs	Potentiated Drugs
A.	Thiazide	Digoxin
B.	Verapamil	Digoxin
C.	Chloral Hydrate	Warfarin
D.	Naproxen	Thiazide Diuretics
E.	Diltiazem	Propranolol

328. The time taken for a drug to reach steady state plasma after either infusion or oral administration depends on

- A. Rate of infusion
- B. Half life
- C. Total amount of drug
- D. Total clearance
- E. Bioavailability

329. Which does not cause postural hypotension

- A. Amitryptiline
- B. Naproxen
- C. Frusemide
- D. Felodipine
- E. Enalapril

330. In all but which one of the following situations is the effect of the drug diminished

	Inhibitor	Drug
A.	Cholestyramine	Warfarin
B.	Naloxone	Morphine
C.	Metoprolol	Diltiazem
D.	Rifampicin	Corticosteroids
E.	Flumazenil	Oxazepam

331. All of the following changes except which one occur with age, and affect drug treatment

- A. Decreased lean body mass
- B. Decreased GFR
- C. Decreased sensitivity to beta adrenoceptor function
- D. Decreased sensitivity to Warfarin
- E. Increased sensitivity to centrally acting sedative-hypnotics

332. The pharmacokinetic value that most reliably reflects the amount of drug reaching the target tissue when given orally is

- A. Peak blood concentration
- B. Time taken to reach peak blood concentration
- C. Product of the volume of distribution and the first order rate constant
- D. Volume of distribution
- E. Area under the blood concentration-time curve

333. Monitoring the blood level is particularly important in all except

- A. When inter-patient variability is considerable
- B. When the therapeutic index is low
- C. When the biological effect is difficult to monitor
- D. When the drug has a short duration of action

334-336 70-72.refer to diagram.....

337. Pancytopenia is common after

- A. Phenytoin
- B. Chlorthiazide
- C. Guanethidine
- D. Methotrexate
- E. Reserpine

338. CO poisoning causes all except

- A. Oxygen carrying decreased
- B. Oxyhaemoglobin dissociation curve shifted to the right
- C. Carboxyhaemoglobin less than 30% gives minimal symptoms
- D. Treatment with 100% oxygen is effective

339. Ototoxicity occurs with all except

- A. Ethacrynic acid
- B. Gentamicin
- C. Frusemide
- D. Allopurinol

340. Side effects of contraceptive pill include all but

- A. Decreased glucose tolerance
- B. Increased blood pressure
- C. Sodium and water retention
- D. Ovarian carcinoma

341. Direct hepatic toxicity occurs in all but

- A. Halothane
- B. Thiopentone
- C. Enflurane
- D. Methoxyflurane

342. Carbidopa is used in the treatment of Parkinson's because

- A. Precursor of L-dopa
- B. Dopamine antagonist
- C. Decreased peripheral breakdown of L-dopa
- D. Decreased breakdown of dopamine
- E. Promotes regeneration of dopaminergic neurons

343. Methyldopa is used as an antihypertensive because

- A. Blocks beta receptors
- B. Prevents conversion of angiotensinogen to angiotensin
- C. Alters central sympathetic activity
- D. Directly dilates arteriolar smooth muscle
- E. Produces catecholamine depletion in postganglionic sympathetic nerves

344. Digoxin is best described as

- A. Greater than 90% plasma protein bound
- B. Has enterohepatic circulation
- C. Completely orally absorbed
- D. Excreted unchanged in the urine, predominantly
- E. High margin of safety

345. Quinidine has its effect on digoxin by

- A. Decreasing absorption from gut
- B. Decreasing metabolism
- C. Increased concentration in plasma
- D. Decreased effect on AV node
- E. Decreased effect on sodium / potassium ATPase

346. Verapamil works by

- A. Decreasing calcium entry through slow channels
- B. Decreasing repolarization
- C. Increasing calcium entry through fast channels
- D. Antagonizing opening fast sodium channels
- E. Enhancing potassium efflux

347. Which effect is not due to the inhibition of metabolism

Inhibiting drug	Inhibited drug
A. Cimetidine	Phenytoin
B. Erythromycin	Theophylline
C. Rifampicin	Contraceptive pill
D. Metronidazole	Alcohol
E. Allopurinol	Azathioprine

348. Which of the following groups of drugs can be used in control of nausea and vomiting

- A. Corticosteroids
- B. Marijuana derivatives
- C. Benzodiazepines
- D. 5HT₃ Inhibitors
- E. All of the above

349. Features of third generation cephalosporins include

- A. Good efficacy against gram positive organisms
- B. Reliable activity in cases against *P. aeruginosa* meningitis
- C. Consistent activity against haemophilus and neisseria species
- D. Reliable high oral bioavailability
- E. Reversible binding to the 50S subunit of the bacterial ribosome

350. Regarding aspirin

- A. It is a selective inhibitor of cyclooxygenase II
- B. It is a base
- C. It is slowly absorbed in the ileum
- D. It blocks the CNS response to interleukin 1
- E. Its action on platelet aggregation is reversible

351. Regarding the opioid receptors, all of the following are true EXCEPT

- A. They are closely linked with the cAMP system
- B. Analgesia at a supraspinal level results principally from kappa receptors
- C. They are highly concentrated in the dorsal horn of the spinal cord
- D. They may be involved with pain modulation
- E. Sigma receptors are related to the hallucinogenic effects of opioids

352. Overdoses of salicylates lead to all of the following effects EXCEPT

- A. Tinnitus
- B. Marked hyperventilation
- C. Increased metabolic rate
- D. Nausea and vomiting
- E. Metabolic alkalosis

353. Regarding nonsteroidal anti-inflammatory drugs

- A. They commonly cause psychosis
- B. They may impair the hypotensive effects of ACE inhibitors
- C. About 50% of patients develop adverse effects from aspirin
- D. Misoprostol is contraindicated with NSAID's
- E. Sulindac is less gastro-irritative than aspirin

354. Methylxanthine drugs

- A. Reduce intracellular cAMP levels
- B. Are adenosine agonists
- C. Stimulate the enzyme phosphodiesterase
- D. Have direct positive chronotropic and inotropic effects on the heart
- E. Are potent diuretics

355. Corticosteroids

- A. With chronic use, increase bronchial activity
- B. Directly relax airway smooth muscle
- C. Can be administered as an aerosol if lipid soluble
- D. Stimulate the release of arachidonic acid
- E. Induce adrenal suppression irrespective of dose

356. Regarding Gentamicin

- A. It can be mixed in the same administration set with penicillin
- B. Most streptococci are sensitive to Gentamicin
- C. If organisms are resistant to Gentamicin, they will also be resistant to Tobramycin
- D. Purulent exudates do not effect the activity of tropical Gentamicin
- E. Ototoxicity manifests itself mainly as vestibular dysfunction

357. Intermediate spectrum (second generation) cephalosporins include all of the following EXCEPT

- A. Cefoxitin
- B. Cephadrine
- C. Cefaclor
- D. Cefamandole
- E. Cefuroxime

358. Regarding Cimetidine, all of the following are true EXCEPT

- A. It may cause gynaecomastia
- B. It decreases serum phenytoin levels
- C. It increases the anticoagulant effect on Warfarin
- D. It can be used to treat Zollinger-Ellison Syndrome
- E. It has a volume of distribution of (approx.) 70L in a 70kg male

359. Opiates

- A. Can interact with monoamine oxidase inhibitors to produce hypopyrexia
- B. Show strong development of tolerance with respect to miosis with long term use
- C. Cause postural hypotension equally in normovolaemic and hypovolaemic states
- D. Cause nausea and vomiting purely through local gut effects
- E. Cause respiratory depression which is overcome by any rise in PaCO₂

360. Common effects of inhalational general anaesthetics include

- A. Increased mean blood pressure
- B. Increased tidal volume of respiration
- C. Increased metabolic rate of the brain
- D. Increased cerebral blood flow
- E. Increased hepatic blood flow

361. Regarding gastro-intestinal drugs, all of the following is true except

- A. Cimetidine slows hepatic microsomal metabolism of Warfarin and phenytoin
- B. Omeprazole is capable of inhibiting 100% gastric acid secretion
- C. Metoclopramide hastens gastric emptying and raises lower oesophageal sphincter pressure
- D. Lactulose is an osmotic laxative
- E. Sucralfate is considered a colloidal bismuth compound

362. With regard to local anaesthetics, all of the following are true except

- A. They have a high affinity for sodium channels in the resting state
- B. They are antagonized by an elevated extracellular calcium
- C. They are enhanced by raised extracellular potassium
- D. They block myelinated fibres before unmyelinated fibres of the same diameter
- E. They preferentially block small nerve fibres

363. Propranolol

- A. Antagonises catecholamines at alpha and beta adrenoceptors
- B. Stimulates rennin secretion by catecholamines
- C. Increase plasma triglycerides
- D. Increase plasma HDL cholesterol
- E. Blocks beta 1 receptors in bronchial smooth muscle

364. Regarding Amiodarone, all of the following are true except

- A. It causes hyperthyroidism
- B. It achieves higher levels in cardiac tissue than plasma
- C. It is a noncompetitive alpha blocker
- D. It has a half life of 24 hours
- E. Markedly prolongs the QT interval

365. Important effects of digoxin on the heart muscle include

- A. Increased force of contraction
- B. Decreased atrioventricular conduction velocity
- C. Increased ectopic automaticity
- D. Decreased ejection time
- E. All of the above

366. The effects of digoxin include all of the following EXCEPT

- A. Increased cardiac intracellular potassium
- B. Increased cardiac intracellular sodium
- C. Increased cardiac intracellular calcium
- D. Increased force of cardiac contraction
- E. Reduced sympathetic outflow of the heart

367. Regarding Lignocaine

- A. It lengthens action potential duration by blocking sodium channels
- B. Doses do not need to be altered in liver disease
- C. It is limited in its use by the high rate of cardiotoxicity
- D. Its clearance is reduced by cimetidine
- E. It is a class 1C antiarrhythmic

368. Lignocaine

- A. Is a potent suppressor of normal cardiac activity
- B. Appears to act exclusively on the sodium channel
- C. Has calcium channel blocking effect
- D. Has sympatholytic action
- E. Has low first pass metabolism

369. Nitrous oxide

- A. Can be used safely in patients with bowel obstruction
- B. Is a useful analgesic in patients with decompression illness
- C. Is mainly metabolized in the liver
- D. If used for a prolonged period, results in megaloblastic anaemia
- E. Is effective due to its high blood solubility

370. Suxamethonium

- A. Is antagonized by neostigmine
- B. May induce hyperkalaemia
- C. Is a nondepolarising muscle relaxant
- D. Is contraindicated within 12 hours of a burn injury
- E. Dosage, when repeated, may cause a severe tachycardia

371. Lignocaine

- A. Blocks potassium channels
- B. Has a half life of 50 minutes
- C. Is metabolized in the liver by dealkylation
- D. Is metabolized in the blood stream by plasma cholinesterases
- E. Is a class 1C antiarrhythmic

372. Which of these drugs is safe to use in tricyclic overdose

- A. Phenytoin
- B. Flumazenil
- C. Quinidine
- D. Procainamide
- E. None of the above

373. Sotalol

- A. Is a beta-1 selective beta adrenoceptor blocker
- B. Has a bioavailability of approximately 50% due to first pass effect
- C. Has no local anaesthetic action
- D. Has class I antiarrhythmic properties only
- E. Has class I and IV antiarrhythmic properties

374. Which neuromuscular blocker is most likely to cause tachycardia

- A. Atracurium
- B. Vecuronium
- C. Pancuronium
- D. Succinylcholine
- E. Rocuronium

375. Regarding drugs which act at adrenoceptors

- A. Clonidine is an alpha antagonist used in the treatment of hypertension
- B. Timolol causes pupil dilation
- C. Noradrenaline causes bradycardia
- D. Atenolol is more lipid soluble than propranolol
- E. Stimulation of alpha receptors causes an increase in insulin release

376. Which of the following is true concerning drugs used for the treatment of hypertension

- A. Hydralazine dilates venous capacitance vessels
- B. Sodium nitroprusside is metabolized in the liver
- C. Clonidine causes development of positive Coombs test
- D. Guanethidine causes marked postural hypotension, diarrhea and impaired ejaculation
- E. Guanethidine is transported across the sympathetic nerve membrane by a specific transport molecule

377. Atropine

- A. Is a quaternary ammonium compound
- B. May cause bradycardia
- C. Its mydriatic action lasts 12-24 hours
- D. It is predominantly metabolized by the liver
- E. It causes an increase in sweating

378. Regarding antimuscarinic drugs

- A. Antimuscarinics may be used to treat peptic ulcer disease
- B. Antimuscarinics decrease intestinal transit time, decreasing absorption of certain drugs
- C. Increase resting bladder tone
- D. Benztropine has a direct effect on dopamine receptors and is used in the treatment of Parkinson's disease
- E. Ipratropium has little systemic effects because it is a tertiary amine

379. Which drug and adverse effect is correctly matched

- A. Calcium channel blockers – dry cough
- B. Methyl dopa – SLE type syndrome
- C. Hydralazine – hirsutism
- D. Clonidine – rebound hypertension
- E. Prazosin – renal failure

380. Regarding nitrates

- A. Isosorbide mononitrate has a bioavailability of 100%
- B. GTN causes platelet aggregation
- C. GTN has its primary effect on arteriolar smooth muscle
- D. Methaemoglobinaemia occurs in adults with large doses nitrates, causing significant effects
- E. Nitrates cause bradycardia due to direct cardiac effects on cAMP levels in the myocardial fibres

381. Digoxin tends to

- A. Decrease intracellular sodium due to decreased Na/Ca exchange
- B. Have a concentration in the heart 10-50 times higher than that in the plasma
- C. Predominantly increases the length of the action potential
- D. Shift the Frank-Starling curve to the right
- E. Cause ST segment elevation and T wave inversion in the ECG

382. All of the following increased the likelihood of digoxin toxicity EXCEPT

- A. Diuretic therapy
- B. Increased plasma calcium concentration
- C. Quinidine
- D. Calcium carbonate containing antacids
- E. Antibiotics in 10% of the population

383. Which of the following is true of antiarrhythmic drugs of Class1

- A. Lignocaine prolongs the action potential duration and is therefore a group 1B antiarrhythmic
- B. Flecainide causes cinchonism
- C. Group 1A drugs are particularly associated with torsades de pointes
- D. Toxic effects of group 1A drugs are exacerbated by decreased potassium
- E. The dose of Lignocaine should be decreased in renal failure

384. Concerning antiarrhythmics

- A. Sotalol exists as 2 optical isomers, of which only one is antiarrhythmic
- B. Bretyllium may cause marked hypertension due to its direct effect on vascular smooth muscle
- C. Sotalol is safe in asthma as its beta blocking effect is negligible
- D. Amiodarone may cause either hyper or hypothyroidism
- E. Flecainide may cause pulmonary fibrosis

385. Which of the following Drug – Adverse Reaction pairs is incorrect

- A. Quinidine – constipation
- B. Procainamide – SLE like syndrome
- C. Adenosine – hypotension
- D. Sotalol – torsades de pointes
- E. Amiodarone – paraesthesias

386. Which of the following is true of acetazolamide

- A. It causes acidosis of the CSF
- B. It may be used in the treatment of kidney stones
- C. It is useful in treatment of ascites associated with liver failure
- D. It causes a metabolic alkalosis
- E. It may be used in patients with sulfonamide allergy as, though derived from Sulfonamides, it is sufficiently structurally different

387. Concerning diuretics

- A. Loop diuretics are useful in treatment of calcium kidney stones
- B. Amiloride may cause gynaecomastia
- C. Mannitol may cause pulmonary oedema
- D. Loop diuretics may cause hyperlipidaemia
- E. Amiloride works by combining with the intracellular aldosterone receptor

388. Which of the following is correctly paired to its site of action

- A. Metolazone – collecting ducts
- B. Spironolactone – distal convoluted tubule
- C. Bumetanide – proximal tubule
- D. Ethacrynic acid – thick ascending limb of loop of Henle
- E. Hydrochlorothiazide – proximal tubule

389. Regarding drugs which effect histamine

- A. H2 blockers cause orthostatic hypotension due to alpha blocking effects
- B. Terfenadine and Ketoconazole is a good combination for itchy fungal skin lesions
- C. Adrenaline is useful in anaphylaxis as it blocks H1 receptors
- D. Terfenadine is highly lipid soluble
- E. H1 blockers may cause urinary retention and blurred vision

390. Which of the following is correct about H2 blockers

- A. Cimetidine induces the enzymes of the cytochrome P450 system
- B. Cimetidine inhibits renal clearance of certain acidic drugs
- C. Ranitidine does not cross the placenta and is therefore safe in pregnancy
- D. Ranitidine may cause reversible hepatitis
- E. Cimetidine decreases the effects of diazepam

391. Which of the following concerning Sumatriptan is not correct

- A. It is a 5HT₃ antagonist
- B. It may cause chest discomfort
- C. It relieves symptoms in 70% of migraine sufferers
- D. It may cause dizziness and weakness
- E. Its half life is less than 2 hours

392. Regarding ergot alkaloids, which of the following is incorrect

- A. They act at alpha adrenoceptors
- B. They act at dopamine receptors
- C. They act at serotonin receptors
- D. They may cause vasodilation, leading to flushing and increased skin temperature of "St Anthony's Fire"
- E. They may cause diarrhea

393. Which of the following is true of Theophylline (Vd 0.5 L/kg, therapeutic level 10mg/L)

- A. A loading dose of 5mg/kg given as an IV push will achieve therapeutics levels
- B. At toxic levels, arrhythmias and convulsions are preceded by gastrointestinal symptoms
- C. It strengthens contraction of the diaphragm in patients with COAD
- D. It causes sodium and water retention
- E. Smoking causes increased plasma levels

394. Concerning beta agonists

- A. Salmeterol's long duration of action is due to its resistance to metabolism
- B. Isoprenaline is a potent bronchodilator
- C. Salbutamol has a duration of action of 30 minutes
- D. Adrenaline is the only beta agonist available for subcutaneous injection
- E. None of the above are true

395. Concerning adrenal suppression during use of corticosteroids

- A. It may be decreased by using aerosol formulations in asthma
- B. It may be decreased by taking the dose early in the morning
- C. It may be decreased by giving the drug on alternate days
- D. All of the above
- E. None of the above

396. Regarding drug action on the GI tract

- A. Aluminium hydroxide causes diarrhea
- B. Sucrulfate tends to cause metabolic alkalosis
- C. Omeprazole's duration of action is at least 48 hours
- D. Diphenoxylate causes diarrhea
- E. Docusate is a bulk forming laxative

397. Metoclopramide works in which of the following ways

- A. It is a dopamine antagonist
- B. It is a cholinomimetic
- C. It releases acetylcholine from neurons in the enteric plexus
- D. It sensitizes intestinal smooth muscle cells to acetylcholine
- E. All of the above

398. Regarding antiemetics, which of the following is true

- A. Betahistine may aggravate asthma
- B. Promethazine acts on the vestibular nuclei and tractus solitarius
- C. Hyoscine may cause blurred vision
- D. All of the above
- E. None of the above

399. Which of the following is true of beta lactam antibiotics

- A. They inhibit transpeptidases
- B. They inhibit peptidyl transferase
- C. Patients with a past history of penicillin allergy have a 90-95% chance of recurrence of allergic response on repeat exposure
- D. Penicillins are predominantly hepatically metabolized

400. Which of the following is not true of beta lactam antibiotics

- A. Ampicillin is excreted in bile
- B. Penicillins only cross the blood brain barrier when the meninges are inflamed
- C. Penicillin may cause haemolytic anaemia
- D. Imipenem is not a beta lactam though its mode of action is similar
- E. None of the above

401. Choose the correct answer

- A. Chloramphenicol causes gray discoloration of tooth enamel
- B. Chloramphenicol binds to the 30S ribosomal unit
- C. Neonates lack hepatic glucuronosyl transferase necessary for Chloramphenicol elimination
- D. Tetracyclines are bacteriocidal
- E. Tetracyclines should be taken with milk to decrease GIT side effects

402. Which of the following statements about aminoglycosides is true

- A. They bind to the 50S ribosomal subunit, and inhibit peptidyl transferase
- B. They may cause respiratory paralysis
- C. Resistance is primarily due to a change in their binding site
- D. They are lipid soluble
- E. Loop diuretics increase elimination and, therefore, decrease toxic effects

403. Vancomycin's mode of action is by

- A. Inhibition of cell wall synthesis
- B. Inhibition of protein synthesis
- C. Inhibition of DNA synthesis
- D. Affecting cell membrane synthesis
- E. All of the above

404. All of the following are true of Erythromycin except

- A. Erythromycin inhibits the hepatic cytochrome P450 system
- B. Its mechanism of action is by blocking formation of the initiation complex
- C. It is active against methicillin resistant staphylococci
- D. It should not be given without terenadine
- E. Resistance can result from formation of enzymes that methylate its receptor

405. Which of the following is true of flouroquinolones

- A. Their elimination by the kidneys may be blocked by probenecid
- B. Resistance is due to a structural change in their receptor
- C. They penetrate cell body tissues including the CNS
- D. Ciprofloxacin decreases plasma theophylline levels by increasing its metabolism
- E. They are structurally related to sulfonamides

406. Examples of drug synergism established clinically include all of the following EXCEPT

- A. Penicillin and Vancomycin in enterococcal infections
- B. Amphoteracin B and Flucytosine in Cryptococcal meningitis
- C. Carbenicillin and gentamicin in pseudomonal infections
- D. Penicillin and Tetracycline in bacterial meningitis
- E. Trimethoprim and Sulfamethoxazole in coliform infections

407. Which of the following is true of benzodiazepines

- A. They are weak acids, well absorbed from the stomach
- B. All benzodiazepines undergo hepatic metabolism
- C. They increase the duration of chloride channel opening by interaction with the GABA receptor
- D. Flumazenil is useful in mixed overdoses of unknown drugs
- E. Cimetidine halves the elimination half life of diazepam

408. An alcoholic who complains of visual disturbance "like being in a snowstorm" has

- A. Liver failure
- B. Been drinking ethylene glycol
- C. Been drinking methanol
- D. Wernicke-Korsakoff syndrome
- E. Intracerebral haemorrhage

409. Which of the following is true concerning alcohol

- A. Chronic ingestion leads to increase in alcohol dehydrogenase
- B. Ethanol ingestion by a patient on disulfiram causes an accumulation of formaldehyde causing nausea, flushing and hypotension
- C. Chronic alcohol ingestion is associated with an increased incidence of breast cancer
- D. All of the above
- E. None of the above

410. Which of the following pairs of anticonvulsant-adverse effect is correct

- A. Phenytoin – headache
- B. Valproate – dependence
- C. Ethosuximide – diplopia
- D. Carbamazepine – blood dyscrasias
- E. Phenytoin - hepatotoxicity

411. Which of the following treatments would be appropriate

- A. Absence seizures – Ethosuximide
- B. Complex partial seizure – Phenytoin
- C. Generalized tonic clonic seizures – carbamazepine
- D. Myoclonic syndromes – Lamotrigine
- E. All of the above

412. Regarding Phenytoin

- A. Plasma levels are decreased by Isoniazid
- B. It causes increased incidence of cleft lip in foetus of mother on Phenytoin
- C. It may cause aplastic anaemia
- D. It may cause fatal hepatotoxicity
- E. All of the above

413. Which of the following is true comparing Propofol and Thiopentone

- A. They are equal in their anticonvulsant effects
- B. Both are contraindicated in porphyria
- C. Both have antiemetic action
- D. Both cause a decrease in cerebral oxygen consumption
- E. Thiopentone causes more cardiovascular depression than Propofol

414. Local anaesthetics

- A. Are chemicals which become charged by gaining a proton
- B. Lignocaine is metabolized by plasma cholinesterase
- C. Are more effective at type A than type C nerve fibres
- D. Have a higher affinity for rested sodium channels
- E. Should never be injected intravenously

415. Which of the following is true of Suxamethonium

- A. During Phase I block, there is post tetanic potentiation
- B. Phase I block is augmented by cholinesterase inhibitors
- C. It is rapidly excreted by the kidneys
- D. It is a competitive antagonist of acetyl choline
- E. Administration of a 2nd dose may cause tachycardia

416. Which of the following is not an adverse effect of Suxamethonium

- A. Increased intraocular pressure
- B. Muscle pain
- C. Decreased potassium
- D. Malignant hyperthermia
- E. Increased intragastric pressure

417. Concerning antipsychotic drugs

- A. They cause postural hypotension by their effect on the vasomotor centre
- B. Haloperidol has less autonomic effects than Thioridazine
- C. The phenothiazines predominantly block D4 receptors
- D. They are frequently fatal in overdose
- E. They are excreted unchanged in the urine

418. Which of the following is not true of Lithium

- A. It is distributed throughout total body water
- B. It may cause reversible nephrogenic diabetes insipidus
- C. It may cause flattening of the T wave on the ECG
- D. Tremor is a common adverse effect
- E. Thiazide diuretics cause a decrease in plasma levels

419. One of the following statements about antidepressants is true

- A. Their effects include elevation of seizure threshold
- B. The use of moclobemide and fluoxetine together is indicated for severe depression
- C. Sodium bicarbonate worsens arrhythmias in TCA overdose
- D. All cause marked sedation
- E. None of the above

420. Which of the following pairs of opioid receptor – effect is NOT true

- A. Mu – euphoria
- B. Sigma – spinal analgesia
- C. Delta – respiratory depression
- D. Sigma – dysphoria
- E. Mu – physical dependence

421. With prolonged use of opioids, tolerance develops to which of the following

- A. Miosis
- B. Antidiuretic effect
- C. Respiratory depression
- D. Constipation
- E. Convulsions

422. Which of the following does not increase the likelihood of bleeding in the patient taking Warfarin

- A. Aspirin
- B. Indomethacin
- C. 3rd generation Cephalosporins
- D. Cimetidine
- E. Metronidazole

423. All of the following are absolute contraindications to thrombolytic agents except

- A. Pregnancy
- B. BP of > 220/140
- C. CPR for 5 minutes
- D. Intracranial malignancy
- E. Aortic dissection

424. Regarding heparin

- A. LMW fraction consists of the molecular weight range 6,000-10,000
- B. It may be given by the subcutaneous, IM, or IV route
- C. Protamine antagonizes its effect by binding to antithrombin III
- D. It is hepatically metabolized
- E. It may cause alopecia

425. Which of the following is true of Aspirin

- A. There is more of the unionized form in acid environments
- B. It inhibits lipoxigenase
- C. At normal analgesic doses it decreases plasma uric acid levels
- D. In overdose there is initial metabolic acidosis
- E. It decreases the effects of tolbutamide

426. Which of the following is true of oral hypoglycaemics

- A. Biguanides cause an increase in endogenous insulin release
- B. Metformin is metabolized in the liver
- C. Tolbutamide has a half life of 3-6 hours
- D. Metformin does not cause hypoglycaemia
- E. Chlorpropamide may cause persistent diarrhea

427. Which of the following is not a consequence of first order kinetics

- A. Half life increases with dose
- B. The area under the curve is proportionate to the dose
- C. The composition of drug products of metabolism is independent of the dose
- D. The amount of drug excreted unchanged in urine is proportionate to the dose
- E. Steady state concentration is proportionate to the dose

428. The Henderson Hasselbach equation states that

- A. $\text{pH} - \text{pKa} = \log [\text{Protonated form} / \text{Unprotonated form}]$
- B. $\text{pH} - \text{pKa} = \log [\text{Unprotonated form} / \text{Protonated form}]$
- C. $\text{pKa} - \text{pH} = \log [\text{Protonated form} / \text{Unprotonated form}]$
- D. $\text{pKa} - \text{pH} = \log [\text{Unprotonated form} / \text{Protonated form}]$
- E. Something completely different

429. A patient has taken an overdose of a drug with a pKa of 9. Which of the following is true

- A. Urinary excretion would be accelerated by giving NaHCO_3
- B. More of the drug will be in its unionized form in the stomach than in the jejunum
- C. Gastric lavage should always be carried out to punish the patient for wasting your time
- D. Haemodialysis should be carried out immediately
- E. Administration of NH_4Cl will increase urinary excretion

430. All of the following agents may increase the anion gap ? except

- A. Isoniazid
- B. Methanol
- C. Iron
- D. Ethylene glycol
- E. All of the above

431. Which of the following potential poison – effect is correctly paired

- A. Carbon monoxide – carboxyhaemoglobinaemia
- B. Paraquat – pulmonary fibrosis
- C. Cyanide – cytochrome oxidase inactivation
- D. Sodium nitrate – methaemoglobinaemia
- E. All of the above

432. In young children, the most dangerous toxic effect of atropine is

- A. Intraventricular heart block
- B. Dehydration
- C. Hypertension
- D. Hyperthermia
- E. Hallucinations

433. Which of the following is not a phase I metabolizing reaction

- A. Acetylation
- B. Deamination
- C. Hydrolysis
- D. Oxidation
- E. Reduction

434. Bioavailability of drugs is

- A. 100% for intramuscular injection
- B. 100% for oral preparations not metabolised by the liver
- C. Equal to the amount of drug in the body at the time of peak concentration relative to the amount administered
- D. Important because it determines the fraction of the dose administered which reaches the systemic circulation
- E. less than 100% only in orally administered drugs

435. Which of the following drugs achieves high concentrations in both urine and bile

- A. Aminoglycosides
- B. Sulphonamides
- C. Nitrofurantoin
- D. Ceftriaxone
- E. Erythromycin

436. Tubocurarine blocks the neuromuscular action of acetylcholine by

- A. Blocking its synthesis
- B. Blocking its release
- C. Breaking it down in the synapse
- D. Reversibly blocking its receptor sites
- E. Reversibly binding acetylcholine molecules

437. With regard to clonazepam, which is NOT true

- A. Is often used IV in status epilepticus as it is short acting
- B. Sedation is a significant problem, especially at the start of therapy
- C. Development of tolerance limits its use in long term anticonvulsant therapy
- D. Acts on GABA receptors
- E. Can be given as an IV bolus

438. Aspirin

- A. Decreases plasma level of phenytoin
- B. Increases the activity of spironolactone
- C. Will cause penicillin G level in plasma to reduce
- D. Inhibits the uricosuric effect of probenecid
- E. Toxicity will be enhanced by acetazolamide

439. Propofol

- A. Has an elimination half-life of 4 hours
- B. The effect of a single dose is terminated by first pass metabolism
- C. The effect of a single dose lasts about 30 minutes on average
- D. Is unsuitable for use as a maintenance anaesthetic
- E. None of the above is true

440. The mechanism of antibacterial action of cephalosporins involves

- A. Inhibition of peptide synthesis
- B. Interference with the synthesis of cytoplasmic membranes
- C. Inhibition of transpeptidase enzymes
- D. Inhibition of β -lactamases
- E. Interference with nuclear structure

441. Isoprenaline is / does the following EXCEPT

- A. It is a synthetic catecholamine
- B. It stimulates beta 1 and 2 receptors
- C. It will raise DBP
- D. It is used in complete heart block
- E. It is used in Torsades de pointes

442. Noradrenaline is / does the following EXCEPT

- A. Is metabolized by catechol O methyl transferase
- B. Acts on alpha and beta receptors
- C. Increases cardiac output, mean arterial pressure
- D. Is given as an infusion at 2 – 20 micrograms/kg/min
- E. At low doses will improve urine output

443. Dobutamine is / does the following EXCEPT

- A. Is a synthetic inotrope
- B. Acts equally on beta 1 and 2 receptors
- C. Increases stroke volume and heart rate
- D. Is a less potent inotrope than adrenaline
- E. Is a more efficacious inotrope than isoprenaline

444. Match the following pairs (exact one to one match)

- | | |
|---|--------------|
| A. Class 1a | Class 2 & 3 |
| B. Beta blocker | Nifedipine |
| C. Class 1c | Amiodarone |
| D. Sotalol | Lignocaine |
| E. Dihydropyridine | Procainamide |
| F. Ca ²⁺ channel blocker | Pindolol |
| G. Na ⁺ channel blocker
(& shortens repolarization) | Flecainide |
| H. Prolongs repolarization | Verapamil |

445. Lignocaine is / does the following EXCEPT

- A. Is a type 1b antiarrhythmic
- B. Blocks Na channels
- C. Shares similar action to mexilitine
- D. Causes QRS widening
- E. Alters K conductance

446. Hydralazine is / does the following EXCEPT

- A. Is a direct vasodilator
- B. Relaxes smooth muscle via cGMP
- C. Lowers peripheral resistance and heart rate
- D. There is a genetic link to clearance of the drug
- E. Causes a lupus like syndrome

447. Diazoxide is / does the following EXCEPT

- A. Is related to thiazide diuretics
- B. Causes sodium and water retention
- C. Is used in hypertensive emergencies
- D. Is a potent venodilator
- E. Is highly protein bound

448. Verapamil is / does the following EXCEPT

- A. Is a less potent vasodilator than nifedipine
- B. Has a bioavailability of 20% because of the first pass effect
- C. It blocks active and inactive calcium channels
- D. Increases the ERP at the AV node
- E. Its major antiarrhythmic effect is to slow the spontaneous firing of the SA node

449. Enalapril is / does the following EXCEPT

- A. Is a prodrug
- B. Reduces the secretion of aldosterone
- C. Potentiates bradykinin
- D. Decreases rennin secretion
- E. Has a longer duration of action than captopril

450. Beta blockers may cause the following EXCEPT

- A. Bronchospasm
- B. Skeletal muscle tremor
- C. Bradycardia
- D. Cardiac failure
- E. Nightmares

451. Regarding receptor action

- A. High concentrations of an agonist can never surmount a competitive antagonist
- B. Partial agonists do not occupy all receptor sites
- C. EC₅₀ refers to the clinical effect at 50% the maximal dose
- D. Second messengers explain 'spare receptors'
- E. Beta blockers and adrenaline exhibit physiological antagonism

452. $T_{1/2}$ (Half-life)

- A. Is inversely proportional to Vd
- B. Is the time required to attain 50% of the steady state concentration
- C. Is directly proportional to clearance
- D. Is decreased in renal failure
- E. Is decreased in hepatic failure

453. Regarding bioavailability

- A. Rectal administration has the same first pass effect as oral
- B. Transdermal is up to 90%
- C. IV administration is between 95-100%
- D. Is reduced in digoxin when given orally because of bacterial metabolism
- E. Can be calculated by the extent of absorption (f) multiplied by the extraction ratio (ER)

454. In the eye

Alpha adrenoceptors cause contraction of the circular papillary muscle

Cyclospasm is a feature of organophosphate poisoning

Beta agonist will reduce intraocular pressure

Antipsychotic agents such as chlorpromazine have no effect on the eye

Diuretics have no use in glaucoma

455. The cardiac toxicity of TCAs is explained in part by their action as

Alpha agonists

Dopamine agonists

Antiserotonergic

Class 1a antiarrhythmics

Cholinomimetics

456. Regarding biotransformation

A. Phase I reactions lead to increased polarity for excretion by the liver

B. Phase I reactions occur solely in the liver

C. Phase I reactions must undergo phase II reactions in order to be renally excreted

D. Hydroxylation and deamination are examples of phase I reactions

E. Rarely leads to toxic metabolites

457. In paracetamol poisoning

A. Toxicity is favoured by phase II metabolism

B. Toxicity is increased in glutathione deficiency

C. Poisoning is unlikely in liver disease

D. Cytochrome P450 is unimportant in paracetamol metabolism

E. N acetylcysteine directly binds paracetamol in vitro

458. The potency of a drug

- A. Refers to the concentration needed to produce maximal effects
- B. Depends on the efficiency of drug-receptor interaction
- C. Is the limit of the dose-response relation
- D. Determines clinical efficacy
- E. Determines its toxic side effects

459. The volume of distribution

- A. Is proportionately related to the concentration of drug in the body
- B. Is high for those drugs retained in the vascular compartment
- C. Is a measure of the apparent space available in the body to contain a drug
- D. For chloroquine is much smaller than that of digoxin
- E. None of the above

460. Carbon monoxide

- A. Has ten times the affinity of oxygen for haemoglobin
- B. Moves the haemoglobin / oxygen dissociation curve to the left
- C. Has a half life bound to haemoglobin in the order of days
- D. Forms methaemoglobin rendering haemoglobin unable to carry oxygen
- E. Produces symptoms at COHb levels of 12-15%

461. Regarding local anaesthetics

- A. Adrenaline increases systemic absorption
- B. Maximal blood level is independent of site of administration
- C. Blockade of Ca^{2+} channels augments effects
- D. Bupivacaine has a short duration of action
- E. None of the above are correct

462. Propofol

- A. Is mainly excreted unchanged in the urine
- B. Has minimal effects on blood pressure during induction
- C. Has a recovery rate from anaesthesia similar to the barbiturates
- D. Has antiemetic properties
- E. Hypersensitivity reactions are due to the intralipid component

463. Benzodiazepines

- A. Cross the placental barrier during pregnancy
- B. Are metabolized in the kidney
- C. All have active metabolites
- D. Act on nuclear receptors
- E. Circulate unbound to plasma

464. Regarding lithium

- A. It is responsible for inducing type II diabetes
- B. It requires no treatment in overdose
- C. It is metabolized by first pass effects in the liver
- D. Dosing does not need to be reduced in renal impairment
- E. It is excreted almost entirely in the urine

465. Regarding antidepressants

- A. Inhibition of MAO only persists while MAO inhibitors are detectable in plasma
- B. Fluoxetine has significant interactions with other antidepressants
- C. Tricyclics are well absorbed orally
- D. Moclobemide acts via MAO-B receptors
- E. Tricyclics are cleared primarily via renal excretion

466. Local anaesthetics

- A. May cause blockage of motor nerves before sensory nerves in large mixed nerves
- B. Preferentially block larger fibres
- C. Preferentially block unmyelinated nerves
- D. Will block A-alpha fibres before A-delta and C fibres
- E. Have no cardiac effects

467. Benzodiazepines

- A. Are weakly acidic drugs
- B. Bind to the GABA binding site
- C. Use renal metabolism for clearance
- D. Show tolerance as an uncommon feature
- E. Bind extensively to plasma proteins

468. Phenytoin

- A. Is not effective against partial seizures
- B. Accumulates in the endoplasmic reticulum of brain tissue
- C. Is poorly bound to plasma proteins
- D. Is mostly excreted unchanged by the kidneys
- E. Suppresses seizures primarily by its action on channels

469. Chronic use of opioid analgesics leads to tolerance to all of the following except

- A. Euphoria
- B. Miosis
- C. Sedation
- D. Laugh suppression
- E. Nausea

470. Codeine

- A. Has a half life of six hours
- B. Is excreted via the biliary system
- C. Does not cross the blood brain barrier
- D. Is commonly administered intravenously
- E. Exerts its analgesic effect via conversion to morphine

471. Digoxin

- A. Causes a decrease in intracellular sodium
- B. Causes hypokalaemia in overdose
- C. Has a half life of 40 hours in a normal patient
- D. Decreases cardiac output
- E. Has no role in the treatment of heart failure

472. Antiarrhythmic drugs may work in any of the following ways EXCEPT

- A. Reducing ectopic pacemaker activity
- B. Modifying conduction in reentrant circuits
- C. Sodium channel blockade
- D. Calcium channel blockade
- E. Reducing the effective refractory period

473. Lignocaine

- A. Has poor oral bioavailability
- B. Blocks activated sodium channels not inactivated channels
- C. Is effective in AF
- D. Exacerbates VT in 30%
- E. Suppresses electrical activity of normal and arrhythmogenic tissue equally

474. Flecainide

- A. Has poor oral bioavailability
- B. Is safe in ischaemia induced arrhythmias
- C. May be used in reentry tachycardias
- D. Is a class 1A antiarrhythmic
- E. Reduces mortality in post MI PVCs

475. Adenosine

- A. Has a half life of 2 minutes
- B. Increases AV nodal conduction
- C. Predominantly inhibits SA nodal function
- D. Directly inhibits AV nodal conduction
- E. Is more effective in presence of theophylline or caffeine

476. Which of the following statements regarding antihypertensives and their sites of action is incorrect

- | | | |
|-------------------------------------|---|---------------|
| A. Vasomotor center | - | Methyldopa |
| B. Beta receptors of the heart | - | Propranolol |
| C. Alpha receptors of the vessels | - | Hydralazine |
| D. Vascular smooth muscle | - | Nitroprusside |
| E. Angiotensin receptors of vessels | - | Losartan |

477. Beneficial effects of nitrates in treatment of angina include all of the following EXCEPT

- A. Decrease ventricular volume
- B. Decreased arterial pressure
- C. Decreased ejection time
- D. Increased collateral flow
- E. Reflex increased contractility

478. Adenosine

- A. Has a half life of 30 seconds
- B. Is the drug of choice in ventricular arrhythmias
- C. Works by directly inhibiting the sinoatrial node with only mild effect on the atrioventricular node
- D. Causes flushing in over 50% of patients
- E. Is less effective in the presence of caffeine and theophylline

479. Hydralazine

- A. Dilates veins but not arterioles
- B. Has low first pass metabolism
- C. Works best as single therapy for hypertension
- D. In patients with ischaemic heart disease may provoke angina or ischaemic arrhythmias
- E. Has a half life of 10-12 hours

480. Regarding antiarrhythmics

- A. Adenosine alters QRS duration
- B. Amiodarone has a short half life
- C. Lignocaine is also useful in supraventricular arrhythmias
- D. Flecainide is unsafe in people with ischaemic heart disease
- E. Quinidine has no effect on QRS duration

481. Which agonist is not correctly paired with its adrenoceptor

- A. Phenylephrine - Alpha 1
- B. Clonidine - Alpha 2
- C. Dobutamine - Beta 1
- D. Procaterol - Beta 2
- E. Prazosin - Alpha 2

482. Regarding beta-receptor antagonist drugs the following has no local anaesthetic action

- A. Labetolol
- B. Atenolol
- C. Metoprolol
- D. Propranolol
- E. Pindolol

483. Regarding isoprenaline

- A. It is a potent bronchodilator
- B. It is a selective B1 agonist
- C. It can be used in tachyarrhythmias to decrease AV conduction
- D. It has negative inotropic effects
- E. It causes peripheral vasoconstriction

484. Regarding Beta blockers

- A. Inhibit rennin release via beta 2 receptors
- B. Metoprolol has intrinsic sympathomimetic effects
- C. All are well absorbed
- D. B1 selective antagonists don't cause bronchoconstriction
- E. Can treat ventricular tachycardias

485. Amiodarone

- A. Has a short half life
- B. Stimulates Na⁺ channels
- C. Is only effective against arrhythmias
- D. Has antianginal effects
- E. Can cause emphysema in 5-15% of people

486. In the Vaughan-Williams classification

- A. Class I drugs affect potassium channels
- B. Class II drugs affect calcium channels
- C. Class II drugs affect sodium channels
- D. Class III drugs affect potassium channels
- E. Class IV drugs affect chloride channels

487. Glyceryl trinitrate

- A. Acts by affecting adenyl cyclase
- B. Acts by affecting nitric oxide
- C. Has high oral bioavailability
- D. Has significant effects on cardiac muscle
- E. Has no affect on pulmonary vascular pressure

488. In therapeutic doses, adenosine

- A. Acts by effecting sodium channels
- B. Is administered as a slow IV push
- C. Is metabolized in the liver
- D. Produces a bradycardia by vagal stimulation
- E. Affects adenosine receptors at the AV node

489. With regards antibiotics

- A. Tetracyclines inhibit transpeptidation by inhibiting peptidyl transferase activity
- B. Aminoglycosides bind to the 50S ribosomal subunit and inhibit translocation
- C. Sulphonamides inhibit cell wall synthesis
- D. Quinolones inhibit DNA gyrase and lead to unwinding if DNA supercoils
- E. Penicillin causes incorrect reading of mRNA at 30S subunit

490. The mechanism of action of beta-lactam antibiotic is
- A. To inhibit hydroxylation in bacterial cell wall synthesis
 - B. To inhibit transpeptidation in peptidoglycan synthesis
 - C. To add alanine to the peptidoglycan chain
 - D. To promote transpeptidation in peptidoglycan synthesis
 - E. To add amino sugar to N-acetyl muramic acid
491. Salbutamol
- A. Is useful for prophylaxis of asthma
 - B. Results in decreased camp in smooth muscle cells
 - C. Has no significant beta side effects
 - D. May cause arrhythmias in excessive doses
 - E. Is as effective orally as inhaled
492. The use of steroids in asthma
- A. Inhibits the phospholipase C pathway
 - B. Does not suppress the adrenocortical axis if used long term
 - C. Inhibits the formation of catecholamines
 - D. Inhibits the formation of prostaglandins and leukotrienes
 - E. Are useful in acute attacks
493. Aminoglycosides
- A. Are bacteristatic
 - B. Bind to receptors on the 40S subunit of the bacterial ribosome
 - C. Are well absorbed after oral administration
 - D. Generally reach higher levels in CSF
 - E. Are ineffective as monotherapy against streptococci

494. Which of the following drugs act as an antimicrobial agent by blocking the attachment of tRNA molecules to ribosomes

- A. Gentamicin
- B. Penicillin
- C. Chloramphenicol
- D. Tetracycline
- E. Clindamycin

495. The incidence of aplastic anaemia following use of chloramphenicol is approximately

- A. 1 in 100 (1%)
- B. 1 in 500 (0.2%)
- C. 1 in 1000 (0.1%)
- D. 1 in 10 000 (0.01%)
- E. 1 in 30 000 (0.003%)

496. Isoniazid

- A. Is a second line drug for the treatment of TB
- B. Acts by inhibition of DNA gyrase
- C. Causes clinical hepatitis in 1% of recipients
- D. Is active only against *M. tuberculosis* organisms which are extracellular
- E. Causes an irreversible neuropathy

497. With regard to cortisol

- A. 40% is converted to cortisone
- B. The physiologically active portion is normally around 50% of the total in the circulation
- C. Most cortisol is reduced and dehydrogenated in the liver
- D. CBG is decreased in pregnancy
- E. Stress decreases the half life of cortisol

498. In regards to penicillin

- A. Concentrations in most tissues are equal to serum
- B. Mostly excreted by glomerular filtration
- C. $T_{1/2} = 2$ hours
- D. Doesn't need to be adjusted in renal failure
- E. Can be used for enterococcal meningitis

499. With respect to antiviral therapy

- A. Indinavir is a reverse transcriptase inhibitor
- B. Acyclovir is only effective against Herpes Simplex and Varicella Zoster viruses
- C. Zidovudine (AZT) is a reverse transcriptase inhibitor and can only be administered orally
- D. Protease inhibitors prevent uncoating of viral nucleic acids
- E. Valcyclovir is converted to acyclovir when taken orally

500. Which of the following is NOT an effect of nitrates

- A. Vasodilation of coronary arteries
- B. Reflex tachycardia
- C. Decreased left ventricular diastolic pressure
- D. Increased ejection time
- E. Decreased ventricular volume

501. Which of these is NOT a major mechanism of action of antiarrhythmic agents?

- A. Sodium channel blockade
- B. Calcium channel blockade
- C. Potassium permeability blockade
- D. Prolongation of effective refractory period
- E. Blockade of sympathetic autonomic effects in the heart

502. Regarding vasodilators, which of the following is FALSE?

- A. Hydralazine is an arteriolar dilator
- B. Captopril is a combined arteriolar and venous dilator
- C. Nitrates act as venodilators
- D. Minoxidil is a combined arteriolar and venodilator

503. Class I antiarrhythmic agents act as sodium channel blockers. Which sub-division acts to shorten the action potential duration?

- A. Ia
- B. Ib
- C. Ic
- D. Id
- E. Ie

504. Which of these statements is incorrect?

- A. Class Ia agents lengthen the duration of the action potential
- B. Ib agents interact with no channels
- C. Class IV are calcium channel blockers
- D. Class II decrease the adrenergic activity of the heart
- E. Adenosine is a class Ia drug

505. Which is FALSE?

- A. Class I antiarrhythmic agents act as sodium channel blockers
- B. Class II agents reduce adrenergic activity in the heart
- C. Class III prolong effective refractory period by several mechanisms
- D. Class IV agents act as calcium channel blocker blockers
- E. Adrenaline is an unnamed class drug

506. Which of the following statements regarding digoxin is FALSE?

- A. Can be extracted from the foxglove plant
- B. Is a cardiac glycoside
- C. Is largely excreted unchanged by the kidney
- D. Increases cardiac contractility
- E. Is the drug of choice in patients with WPW syndrome

507. Which is not true of lignocaine

- A. Lignocaine is a class Ia drug
- B. Lignocaine blocks activated and inactivated sodium channels
- C. Lignocaine is cleared in the liver and has very extensive first-class liver metabolism
- D. Half life of about 2 hours
- E. Agent of choice for suppression of VT and VF after cardioversion

508. Which is the FALSE statement

- A. Adenosine acts to enhance potassium conductance and inhibit camp induced calcium influx therefore leading to marked hyperpolarization and suppression of calcium-dependent action potentials
- B. Adenosine directly inhibits arterioventricular nodal conduction more than sinoatrial nodal function
- C. Magnesium therapy has been found to have antiarrhythmic effects in some patients with torsades de pointes, acute myocardial infarction
- D. Hyperkalaemia causes a depolarizing action on resting potential
- E. Hypokalaemia stabilizes membrane potential by reducing membrane permeability

509. The following are toxic effects of methyldopa EXCEPT

- A. Positive Coomb's test
- B. Hepatitis
- C. Decreased glucose tolerance
- D. Lactation
- E. Sedation

510. With regard to adrenoceptor antagonists
- A. Propranolol is a selective beta 1 antagonist
 - B. Metoprolol blocks catecholamines at beta 1 and beta 2 receptors
 - C. Labetalol is a partial agonist
 - D. Propranolol inhibits stimulation of rennin production
 - E. Atenolol is highly lipid soluble
511. Which of the following statements regarding captopril is INCORRECT?
- A. Inhibits the converting enzyme peptidyl dipeptidase
 - B. Inhibits kininase II, hence stimulating the kallikrein-kinin system
 - C. Has a bioavailability of 70% if taken with food
 - D. Is metabolized to disulfide conjugates with sulfhydryl groups
 - E. Less than half is excreted in the urine
512. Which of the following are MAJOR determinants of myocardial oxygen demand?
- A. Wall thickness
 - B. Intraventricular pressure
 - C. Ventricular radius
 - D. Heart rate
 - E. All of the above
513. Regarding nitrates
- A. Nitroglycerine may lose potency when stored due to sensitivity to light
 - B. Nitroglycerine relaxes all types of smooth muscle
 - C. Sublingual route provides longer duration of action
 - D. Have beneficial effects in chronic left heart failure predominantly due to reduced preload
 - E. Cause platelet aggregation

514. Calcium channel blockers have effects on the following organ systems EXCEPT

- A. Skeletal muscle
- B. Smooth muscle
- C. Cardiac muscle
- D. Brain
- E. Pancreas

515. Which of the statements regarding cardiac glycosides is INCORRECT?

- A. 10% of individuals have enteric bacteria which inactivate digoxin
- B. Useful for use in WPW arrhythmia
- C. Digoxin has a narrow therapeutic margin
- D. May be dangerous in presence of hypokalaemia
- E. Cholestyramine decreases absorption of digoxin

516. Which of the following calcium channel blockers has the least cardiac depressant effect?

- A. Verapamil
- B. Diltiazem
- C. Nifedipine

517. Which of the following classes of cardiac antiarrhythmics shortens the action potential duration?

- A. Class Ia
- B. Class Ib
- C. Class II
- D. Class III
- E. Class IV

518. Concerning digoxin, which of the following statements is INCORRECT?

- A. Inhibits Na / K ATPase at therapeutic levels
- B. Low extracellular K⁺ enhances binding of digoxin to its receptor
- C. High Mg²⁺ increases the risk of arrhythmias with digoxin
- D. High Ca²⁺ increases the risk of arrhythmias with digoxin
- E. Is excreted unchanged in the kidneys

519. Amiodarone has properties in common with which of the following classes

- A. I
- B. II
- C. III
- D. IV
- E. All of the above

520. Antipsychotic drugs cause extra pyramidal side effects because they

- A. Deplete noradrenaline in the substantia nigra
- B. Antagonize acetyl choline
- C. Suppress inhibitory pathways in the spinal cord
- D. Are dopamine antagonists
- E. None of the above

521. Compared to first generation cephalosporins, ceftriaxone exhibits

- A. Increased staphylococcal cover
- B. Better CNS penetration
- C. Reduced clearance in renal failure
- D. Decreased gram negative cover
- E. Increased susceptibility to cephalosporinases

522. Isoprenaline exerts its cardiovascular effects on

- A. Alpha receptors causing increased systolic pressure
- B. Beta 1 causing reflex tachycardia
- C. Beta 2 causing increased contractility
- D. Beta 1 and Beta 2 receptors causing increased pulse pressure
- E. Beta 1, Beta 2 and Alpha receptors causing increased cardiac output

523. Beta-blockers may cause the following EXCEPT

- A. Bronchospasm
- B. Skeletal muscle tremor
- C. Bradycardia
- D. Cardiac failure
- E. Nightmares

524. Which of the following diuretics is contraindicated in hyperkalaemia

- A. Acetazolamide
- B. Chlorothiazide
- C. Frusemide
- D. Ethacrynic acid
- E. Amiloride

525. The following are actions of morphine EXCEPT

- A. Nausea and vomiting
- B. ADH release
- C. Decreased urethral tone
- D. Decreased peristalsis
- E. Respiratory depression

526. Verapamil is / does the following EXCEPT

- A. Is a less potent vasodilator than nifedipine
- B. Has a bioavailability of 20%
- C. Binds to the dihydropyridine receptor on the L-type calcium channel
- D. Increases the ERP at the AV node
- E. Is 90% protein bound

527. Lignocaine is / does the following EXCEPT

- A. Is a type 1b antiarrhythmic
- B. Blocks active and inactive Na channels
- C. Shares similar antiarrhythmic action to phenytoin
- D. Causes increased QT
- E. Has greatest effect on depolarized cardiac tissue

528. Regarding Vd of a drug, which statement is FALSE

- A. $V_d = \text{amount of drug in the body} / \text{concentration at steady state}$
- B. Vd is affected by plasma protein binding, pKa, age, gender, disease
- C. Vd of warfarin is about 10litres/kg
- D. Vd of verapamil is about 350 litres
- E. Vd for drugs retained in the vascular space will be 0.04 litres/kg

529. The following is true regarding opioid receptors / drugs EXCEPT

- A. Mu and delta stimulation cause analgesia at the spinal and supraspinal levels, euphoria and respiratory suppression
- B. They hyperpolarize and inhibit postsynaptic neurons
- C. Kappa stimulation causes analgesia at the spinal level
- D. Sigma stimulation may cause dysphoria
- E. Constipation will lessen with repeated exposure to opioids

530. Regarding clearance of a drug which statement is FALSE

- A. It is the volume of fluid that would be cleared of a drug in unit time
- B. The clearance of a drug is constant at all concentrations
- C. It is the major determinant of dosing interval
- D. It is the sum of clearance by various organs
- E. Clearance = rate of elimination / concentration

531. Enalapril is / does the following EXCEPT

- A. Can cause acute renal failure and hyperkalaemia
- B. Reduces the secretion of aldosterone
- C. Potentiates bradykinin
- D. Eliminated by the kidney
- E. Has a longer duration of action than captopril

532. Diazepam is / does the following EXCEPT

- A. Enhances the effect of GABA inhibitory pathways
- B. Its oral availability is 80%
- C. Is highly protein bound
- D. Has active metabolites: desmethyldiazepam and oxazepam
- E. Has a half life of 50+ hours

533. Suxamethonium is / does the following EXCEPT

- A. Is a depolarizing agent structurally related to acetylcholine
- B. Is mostly metabolized by plasma cholinesterase prior to binding at the motor end plate
- C. Causes malignant hyperthermia
- D. Causes bradycardia by stimulating vagal ganglia
- E. Dose [mg/kg] is reduced in children

534. The following are true regarding amitriptyline EXCEPT

- A. Blocks muscarinic cholinergic, and alpha adrenergic receptors
- B. Blocks reuptake of 5HT and noradrenaline to nerve terminals in the CNS
- C. Causes cardiac depression and quinidine-like toxicity in overdose
- D. Blocks uptake of dopamine
- E. Is metabolized by the liver and has an active metabolite (nortriptyline)

535. Maximum efficacy

- A. Is independent of route of administration
- B. Gives information about degree of receptor binding and response

536. Propranolol

- A. Is a selective beta blocker
- B. Is largely protein bound

537. Local anaesthetics preferentially

- A. Affects large fibres before small fibres
- B. Affect unmyelinated before myelinated nerves
- C. Block C fibres before A fibres

538. Which of the following antiarrhythmics has a shorter than usual QT interval?

- A. Quinidine
- B. Procainamide
- C. Lignocaine
- D. Sotalol

539. Which of the following antiarrhythmics doesn't affect healthy myocardial cells (or affects the least)?

- A. Lignocaine

540. Regarding antiparkinsonian drugs which is INCORRECT

- A. Carbidopa blocks dopa decarboxylase peripherally
- B. Dopamine cannot cross the BBB
- C. Carbidopa decreases side effects of L-dopa
- D. Bromocryptine causes more reduction of BP compared to L-dopa
- E. Bromocryptine causes more CNS changes compared to L-dopa

541. Bromocryptine

- A. Acts on D1 receptors for its antiparkinsonian effect

542. Salbutamol

- A. Is a selective beta agonist
- B. May cause transient reduction in O₂ tension in blood

543. Phenytoin

- A. Is well absorbed orally
- B. Displays 1st order kinetics at low concentrations and zero order kinetics at higher concentrations

544. Ipratropium Bromide

- A. Lasts for greater than 4 hours after inhalation
- B. Is well absorbed when given orally

545. Isoprenaline

- A. Increases myocardial O₂ consumption compared to dobutamine and ???
- B. Is contraindicated down an ETT
- C. Affects alpha and beta receptors

546. Cromoglycate

- A. Is absorbed when taken orally
- B. Stabilizes the mast cell in response to IgA and IgE

547. Metformin

- A. Is a sulphonylurea
- B. Does not require functioning beta islet cells
- C. Is associated with obesity
- D. Has been known to cause lactic acidosis

548. How many mg in 2ml of 0.5% w/v

- A. 1mg
- B. 10mg
- C. 100mg
- D. 1000mg
- E. 10kg

549. Which of the following regarding relaxants is true?

- A. Aminoglycosides increase the efficacy of suxamethonium
- B. Gallium is excreted in bile after liver metabolism

550. GTN

- A. Acts after being converted to nitric oxide
- B. Is metabolized to methaemoglobin

551. Regarding cephalosporins

- A. There is no cross reactivity with penicillins
- B. Cefoxitin (?) is a third generation cephalosporin
- C. 2nd generation have less gram positive activity than 1st generation

552. Which of the following is OK in pregnancy

- A. ACE inhibitors
- B. Heparin
- C. Phenytoin

553. Amiodarone

- A. Has type I and IV antiarrhythmic properties
- B. Its most serious side effect is decreased renal function
- C. It increases the clearance of digoxin

554. Which of the following acts at the NMDA receptors

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

555. Regarding the GABA receptor

- A. GABA A causes increased conductance of K⁺
- B. GABA A causes increased efflux of Cl⁻
- C. Agonists at GABA A hyperpolarize the cell

556. Which of the following doesn't cause constipation

- A. Verapamil
- B. Digoxin

557. Regarding the opioids

- A. There is no withdrawal syndrome following prolonged use of naloxone
- B. Tolerance develops readily to miosis and constipation
- C. Kappa receptors are responsible for supraspinal analgesia and addiction

558. Dextropropoxyphene

- A. Is structurally very similar to methadone
- B. Is a potent analgesic opioid
- C. When combined with paracetamol has good anti-inflammatory properties

559. Aspirin

- A. Has anti-inflammatory, analgesic and antipyretic properties
- B. Increases prostaglandin and leukotriene levels

560. Digoxin

- A. Acts to increase intracellular calcium

561. Heparin

- A. Inhibits antithrombin III
- B. Decreases formation of fibrin
- C. Acts on VII
- D. Acts on prothrombin

562. Streptokinase

- A. Increases the amount of plasmin formed

563. Which is incorrect regarding corticosteroids

- A. It affect fetuses in a bad way
- B. Causes changes by binding to intracellular proteins

564. Salbutamol

- A. May cause a transient decrease in O₂ tension
- B. Acts via adenylate cyclase
- C. Increases serum K⁺

565. Frusemide
- A. Is not as strong as thiazide diuretics
 - B. Decreases urinary calcium
 - C. Acts in the thin ascending limb of the LOH
 - D. Relaxes smooth muscle
 - E. Is useful prophylaxis in acute mountain sickness
566. Which of the following alkalinizes the urine
- A. Acetazolamide
567. Zidovudine
- A. Inhibits thymidine kinase
 - B. Causes thrombocytosis
568. The toxic metabolite of paracetamol
- A. Increases with decreased glutathione levels
569. Which of the following is oxidized in the liver
- A. Paracetamol
 - B. Phenytoin
 - C. Procainamide
 - D. Adrenaline
570. Which of the following isn't a phase II reaction
- A. Oxidation
 - B. Acetylation
 - C. Glucuronidation
 - D. Sulphation
 - E. ???

571. Regarding barbiturates

- A. Alkalinizing the urine is useful in phenobarbitone overdose

572. Calculate the $t_{1/2}$ of digoxin using the following facts

- A. $V_d = x/kg$, Subject weight = 80kg & Clearance = y

573. Which of the following is charcoal no good for

- A. KCl
- B. Iron
- C. Lithium

574. Dantrolene acts by

- A. Blocking ryanodine receptors in the sarcoplasmic reticulum

575. Cimetidine – which of the following is incorrect

- A. Induces enzymes

576. Regarding cardiac glycosides

- A. Fab fragment Ab's (Digibind) are useful only in digoxin toxicity
- B. Digoxin is recommended for control of atrial arrhythmias in WPW syndrome
- C. Hypokalaemia, hypomagnesaemia and hypocalcaemia exacerbate digoxin toxicity
- D. Arrhythmias due to digoxin toxicity are often made worse by attempts at DCR
- E. Action is via increased Na^+ / Ca^{2+} exchange at the cell membrane antiport

577. The following are true of antiarrhythmics EXCEPT

- A. Quinidine and sotalol may precipitate torsades de pointes
- B. Class IA drugs decrease QT interval
- C. Adenosine inhibits AV node conduction
- D. Amiodarone may abolish conduction in aberrant pathway in WPW
- E. Verapamil increases PR interval

578. The following are true of ACE inhibitors EXCEPT

- A. All are pro-drugs, converted to active metabolites by hepatic hydrolysis
- B. They inhibit bradykinin breakdown
- C. They act on angiotensin converting enzyme in lung and peripheral tissue
- D. Captopril's basic action, but not its antihypertensive effect, is reduced by oral administration with food
- E. They may be useful in diabetic patients to stabilize renal function

579. Regarding antihypertensives, which is INCORRECT

- A. Prazosin has a significant 1st dose phenomenon causing postural hypotension
- B. Minoxidil (a vasodilator) can be used topically to treat baldness
- C. Dihydropyridine Ca²⁺ channel blockers have less cardiac depressant effects than verapamil or diltiazem
- D. ACE inhibitors are contraindicated in the 2nd and 3rd trimesters of pregnancy
- E. Metoprolol is relatively beta 2 selective

580. Which of the following is true?

- A. The major mechanism of blood pressure lowering by clonidine is by reducing peripheral vascular resistance
- B. Metoprolol is approximately 10 fold less potent than propranolol in blocking beta 2 receptors
- C. Sodium nitroprusside causes vasodilation by increasing intracellular cAMP levels which relaxes vascular smooth muscle
- D. Indapamide has both diuretic and vasodilator activity
- E. Methyldopa does not produce orthostatic effects

581. With regards to phenytoin, which one of the following is correct?

- A. It is poorly bound to plasma proteins
- B. The metabolites are clinically active
- C. The pharmacokinetics are dose dependent
- D. The loading dose is 5mg/kg
- E. It has almost no side effects

582. Regarding digoxin, which one of the following is true?

- A. It exerts its effect by augmentation of the Na / K ATPase pump
- B. It is 25% bound to plasma proteins
- C. Its negative chronotropic effects are primarily due to a centrally mediated increase in vagal tone
- D. It increases the refractory period of atrial and ventricular cells leading to decreased heart rate
- E. Hypokalaemia, hypomagnesaemia and hypocalcaemia can all produce digoxin toxicity

583. With respect to the treatment of gout, which one of the following is true?

- A. Colchicine has no role in prevention
- B. Indomethacin inhibits urate crystal phagocytosis in addition to inhibiting prostaglandin synthetase
- C. Uricosuric agents act by increasing the net reabsorption of urate in the proximal tubule
- D. Allopurinol acts to increase uric acid excretion
- E. Combinations of drugs should not be given

584. Which one of the following is true of thiopental?

- A. It is a commonly used benzodiazepine
- B. It is unable to cross the blood brain barrier
- C. It has low solubility
- D. It rapidly diffuses out of the brain and redistributes to muscle and fat
- E. Metabolism is primarily through the kidney

585. Which one of the following is not an amide local anaesthetic?

- A. Cocaine
- B. Lignocaine
- C. Mepivacaine
- D. Bupivacaine
- E. Prilocaine

586. With respect to levodopa, which one of the following is true?

- A. Oral absorption is not influenced by pH
- B. Peak plasma concentration takes more than four hours after an oral dose
- C. The majority of an administered dose enters the brain unaltered
- D. It is the L-isomer of dopa
- E. It rarely causes gastrointestinal side effects

587. Which one of the following is true?

- A. Ethacrynic acid is a thiazide diuretic
- B. Thiazide diuretics increase the urinary excretion of calcium
- C. Frusemide decreases renal blood flow
- D. Loop diuretics inhibit NaCl transport from the luminal side of the thick ascending LOH
- E. Amiloride is extensively metabolized in the liver

588. Which one of the following is true regarding ethanol and its handling?

- A. Ethanol has a Vd of 0.07 l/kg
- B. Ethanol is a small water soluble molecule and is completely absorbed by the GIT
- C. Ethanol is mainly metabolized by the microsomal ethanol oxidating system
- D. Acute ethanol exposure down regulates GABA receptors in the brain potentiating its toxicity
- E. Disulfuram inhibits ethanol dehydrogenase

589. Which one of the following is true of sotalol

- A. It is absolutely contraindicated in heart failure
- B. It shortens the QT interval
- C. It is less effective in reverting ventricular tachycardia than lignocaine
- D. It is associated with ventricular fibrillation
- E. It has class II and class III antiarrhythmic affects

590. Which one of the following is true of salbutamol

- A. It can cause acidosis by increasing intracellular camp
- B. When it is associated with tachyphylaxis, it has a high mortality rate
- C. It exaggerates V/Q mismatch only when given IV
- D. It causes tachycardia, tremor and confusion
- E. When it is given by nebuliser, it is only effective as 1–2 μm sized particles

591. Which of the following is true of succinylcholine?

- A. It reduces intragastric pressure
- B. It is indicated in a patient with extensive burns
- C. It induces hyperkalaemia which can persist for three to seven days
- D. Bradycardia can occur after a second dose
- E. The dosage requirement is increased in myasthenia gravis

592. Cholinergic toxicity produces which one of the following effects?

- A. Dry mouth
- B. Cutaneous vasoconstriction
- C. Constipation
- D. Urinary retention
- E. Diaphoresis

593. Which one of the following is true of inhaled anaesthetics?

- A. They do not result in a change in MAP
- B. They cause a decrease in tidal volume and an increase in RR, resulting in an overall reduction in minute volume
- C. They cause an increase in tidal volume and an increase in respiratory rate, resulting in an increase minute volume
- D. They cause a decreased hepatic blood flow

594. Which one of the following is true?

- A. Trimethoprim binds on the 30S subunit of the bacterial ribosome
- B. Tetracyclines are bactericidal against many gram positive and negative bacteria
- C. Erythromycin binds to the 50S subunit of the bacterial ribosome
- D. Sulphonamides inhibit bacterial dihydrofolate reductase
- E. Penicillins act by inhibition of nucleic acid synthesis

595. With reference to drug receptors

- A. The total number of receptors is unrelated to the maximal effect of a drug
- B. Pure pharmacological antagonists bind to receptors and directly alter the receptors function
- C. They include regulatory proteins, enzymes, transport proteins and structural proteins
- D. Receptor-mediated responses to drugs usually remain constant over time, even in the continued presence of the agonist
- E. Receptor desensitization is usually irreversible

596. For a drug that is present in a concentration 4 times its EC₅₀

- A. The time course of effect is linear, initially
- B. The time course of effect will follow the exponential decline in concentration
- C. Toxicity can be expected
- D. All of the above may be true depending upon the drug
- E. Toxicity would not be expected

597. All of the following statements about spare receptors are correct EXCEPT

- A. Spare receptors are identical in the absence of a drug to non spare receptors
- B. Spare receptors do not bind drug when the maximal drug effect occurs
- C. Spare receptors influence the sensitivity of the receptor system to the drug
- D. Spare receptors activate the effector machinery of the cell without the need for a drug
- E. Spare receptors may be detected by finding that the EC₅₀ is less than the K_D for the agonist

598. Which of the following drug metabolizing systems has been shown to differ in populations in genetically pre-determined ways?

- A. Reductions
- B. Acetylation of amines
- C. Methylation
- D. Methylation
- E. Glucuronidation
- F. Sulphate conjugation

599. Regarding salbutamol, which is NOT true?

- A. It is metabolized by COMT
- B. It causes relaxation of smooth muscle in bronchi and uterus
- C. It is approximately equipotent with isoprenaline as a bronchodilator
- D. Side effects include tremor, weakness and nervousness
- E. It is less cardio-accelerant than isoprenaline

600. Aminophylline

- A. Reduces rate and depth of respiration
- B. Reduces venous filling pressure of the heart
- C. Antagonizes the inotropic action of beta agonists
- D. May cause spasm of the biliary system
- E. None of the above is true

601. Ipratropium bromide is useful in asthma because

- A. It inhibits antigen induced release of mediators from mast cells in the respiratory tract
- B. It inhibits synthesis of mediators
- C. It has beta agonist activity
- D. It inhibits phosphodiesterase activity
- E. None of the above account for its activity

602. With regard to phenytoin, which is NOT true

- A. Metabolism is saturable within the therapeutic concentration range
- B. Small changes in dose may cause swings from toxicity to sub therapeutic levels
- C. Steady state can be relied on to be achieved within 7 days of a dose change
- D. It may induce microsomal enzymes
- E. IV doses should be given over at least 20-30 minutes to avoid toxicity

603. With regard to the general pharmacokinetics of anticonvulsants

- A. They are generally highly protein bound
- B. Bioavailability is low
- C. Volumes of distribution are usually many times the free water volume
- D. Clearance is hepatic
- E. Extraction ratios are high

604. Haloperidol

- A. Is more sedative than chlorpromazine
- B. May lower the convulsive threshold
- C. Is a potent dopamine agonist
- D. Has potent anti-cholinergic activity
- E. Has a low incidence of extrapyramidal reactions

605. Regarding chlorpromazine, which is NOT true?

- A. It is more than 80% protein bound
- B. It has a plasma half life of approximately 6 hours
- C. It is excreted in urine and faeces
- D. It induces hepatic microsomal enzymes
- E. Plasma levels are increased by concomitant administration of anticholinergic antiparkinson agents

606. The duration of action of which of these drugs is NOT significantly prolonged in renal failure?

- A. Tubocurarine
- B. Pancuronium
- C. Gallamine
- D. Atracurium
- E. Suxamethonium

607. The local anaesthetic agent prilocaine

- A. Is metabolized by butyrylcholinesterase
- B. Has a very short duration of action
- C. Has the same intermediate chain as procaine
- D. Is more likely to cause toxicity in patients with liver disease
- E. Should not be used in patients with a known hypersensitivity to para amino benzoic acid

608. With regard to susceptibility to block by local anaesthetic agents, which is NOT true?

- A. Dorsal root pain fibres are more sensitive than proprioceptive fibres
- B. They preferentially block small fibres
- C. Myelinated nerve fibres tend to be blocked before non-myelinated ones of the same size
- D. Motor fibres may be blocked before pain fibres in the brachial plexus
- E. Block starts at the distal parts supplied by the nerve and proceeds proximally

609. Regarding inhaled anaesthetics, which is NOT true

- A. The depth of anaesthesia is related to the alveolar concentration of the gas
- B. The potency of these agents is directly proportional to their fat solubility
- C. The alveolar concentration is not influenced by cardiac output
- D. Nitrous oxide when administered alone cannot produce surgical anaesthesia
- E. More than 95% of halothane is excreted by the lungs

610. Chronic alcohol consumption

- A. Has no significant effect on the lethal dose of alcohol
- B. Causes tolerance via an increase in its own metabolism
- C. Causes malnutrition primarily as a result of dietary insufficiency
- D. Inhibits liver metabolism of other drugs
- E. None of the above is true

611. Regarding salicylates, which is NOT true?

- A. Orally administered, they are mostly absorbed in the small intestine
- B. When urine is acid, (pH 6.0), clearance of salicylates is above GFR
- C. Salicylates are distributed to transcellular fluids including synovial and spinal fluids
- D. Salicylates are more than 50% protein bound
- E. Biotransformation of salicylates principally takes place in the liver

612. Regarding colchicines

- A. Acute toxicity causes haemorrhagic enteritis
- B. It is mainly excreted in the urine
- C. It has no role in prophylaxis against gout
- D. Interaction with allopurinol may cause profound leucopenia
- E. It acts in gout by increasing the renal excretion of urate

613. Which of the following does not act primarily by inhibiting protein synthesis

- A. Gentamycin
- B. Vancomycin
- C. Erythromycin
- D. Clindamycin
- E. Chloramphenicol

614. Which of the following is a contra-indication to the use of griseofulvin

- A. Diabetes mellitus
- B. Multiple myeloma
- C. Porphyria
- D. Alcoholic hepatic cirrhosis
- E. Sickle cell disease

615. Which of the following is NOT an adverse effect of gentamycin

- A. Haemolytic anaemia
- B. Prolonged neuromuscular blockade
- C. Eighth cranial nerve damage
- D. Impairment of renal function
- E. Vestibular damage

616. Regarding magnesium, which is NOT true

- A. It suppresses seizure activity in patients with eclampsia
- B. When used in pre-eclampsia, it potentiates neuromuscular blockade by suxamethonium
- C. In excess, it causes vasodilatation
- D. Acute toxicity cause brisk deep tendon reflexes
- E. It slows the rate of SA node impulse formation

617. Regarding methotrexate, which is NOT true?

- A. It readily crosses the BBB
- B. It may be displaced from albumin by salicylates
- C. It is excreted by the kidney by glomerular filtration and tubular secretion
- D. It seriously interferes with embryogenesis
- E. It acts by inhibiting dihydrofolate reductase

618. With regard to verapamil, which of the following is NOT true?

- A. Serum digoxin levels are significantly increased via a pharmacokinetic interaction
- B. Alpha blockade contributes to peripheral vasodilation
- C. At therapeutic levels end systolic volume is decreased
- D. Vasospastic angina is an indication for its use
- E. Combination with a beta blocker may cause AV block

619. The primary mechanism of action of digoxin involves

- A. An increase in action potential amplitude
- B. An increase in ATP synthesis
- C. Modification of the actin molecule
- D. An increase in the intracellular Ca^{2+} levels
- E. Block of the Na^{+} - Ca^{2+} exchange

620. Nitrates, either directly or via reflexes, cause all of the following EXCEPT

- A. Tachycardia
- B. Decrease in contractility
- C. Increase in venous capacitance
- D. Decrease in myocardial fibre tension
- E. Decrease in afterload

621. With regard to calcium channel blockers, which is NOT a characteristic feature?

- A. They have a high first pass effect
- B. They are highly protein bound
- C. They are extensively metabolized
- D. They act primarily at T type voltage gated channels
- E. They bind more effectively to channels in depolarized membranes

622. Lignocaine displays all of the following EXCEPT

- A. Increased action potential duration
- B. Binding to both activated and inactivated sodium channels
- C. Predominant hepatic metabolism
- D. Decreased clearance associated with concomitant propranolol administration
- E. Ineffectiveness against arrhythmias in normally polarized tissues

623. Which of the following DOES NOT prolong the effective refractory period in the AV node

- A. Propranolol
- B. Amiodarone
- C. Flecainide
- D. Verapamil
- E. Phenytoin

624. Adenosine

- A. Is effective in converting AF
- B. Depresses conduction through the AV node
- C. Requires reduction of dose in patients with hepatic failure
- D. Has a half life of 30-60 seconds
- E. Is safe in sick sinus syndrome

625. With respect to angiotensin converting enzyme inhibitors

- A. Decreased levels of bradykinin are associated with their use
- B. They cause reflex tachycardia
- C. There is a strong correlation between renin activity and antihypertensive response
- D. Concomitant use of NSAIDs may decrease the hypotensive effects
- E. Most ACE inhibitors are cleared by hepatic metabolism

626. Which of the following is selective for arteriolar dilation only?

- A. Glyceryl trinitrate
- B. Nifedipine
- C. Prazosin
- D. Hydralazine
- E. Clonidine

627. With regard to sodium nitroprusside, which is NOT true

- A. It dilates both arterial and venous vessels
- B. Toxicity can be managed with sodium thiosulphate and hydroxycobalamin
- C. It is rapidly metabolized by the liver to cyanide and then to thiocyanate
- D. It acts by inactivating guanylyl cyclase
- E. Its effects disappear within 1 to 10 minutes of discontinuing an infusion

628. Regarding methyldopa, which is NOT true

- A. It undergoes extensive metabolism by GIT mucosa resulting in low bioavailability
- B. It is metabolized to alpha-methylnoradrenaline in order to be active
- C. Its antihypertensive effects result primarily from peripheral action
- D. Long term use is associated with a positive Coomb's test and haemolytic anaemia
- E. Common side effects are sedation and impairment of concentration

629. Regarding prazosin, which is NOT true

- A. It is a selective alpha 1 blocker
- B. It dilates arterioles only, not veins
- C. It undergoes extensive first pass metabolism
- D. Recipients may develop a positive test for anti-nuclear factor
- E. Negative feedback of noradrenaline on its own release can still occur

630. Propranolol

- A. Has no central effects
- B. Can be used safely in type 1 respiratory failure because of its reliable beta 1 selectivity
- C. In overdose, may be effectively treated by administering glucagons
- D. Needs to be given in relatively large oral doses because of its poor absorption
- E. Does not produce withdrawal symptoms on abrupt cessation because beta receptors do not 'up-regulate'

631. Hyoscine

- A. May potentiate the anti-cholinergic effects of phenothiazines
- B. Is well absorbed from the GIT
- C. Readily crosses the blood brain barrier
- D. Has its main effect at nicotinic receptors
- E. Produces pronounced tachycardia in therapeutic doses

632. Metoclopramide

- A. Reduces peristalsis in the duodenum
- B. Increases the resting tone of the lower oesophageal sphincter
- C. Is a dopamine agonist
- D. Is principally cleared by the liver
- E. Is highly (more than 80%) protein bound

633. Activated charcoal will bind all of the following EXCEPT

- A. Theophylline
- B. Carbamazepine
- C. Paracetamol
- D. Potassium
- E. Sodium phenobarbitol

634. Regarding ipecac

- A. It produces its emetic effects solely by action on the chemoreceptor trigger zone
- B. It has amoebicidal activity
- C. It produces its emetic effects solely by its action on the GIT
- D. It is effective when co-administered with charcoal
- E. It has no significant side effects

635. Ranitidine

- A. At therapeutic levels, inhibits the action of cytochrome P450 linked oxygenase in the liver
- B. Has its absorption reduced by concurrent antacid administration
- C. Is mainly excreted by the kidney
- D. Hepatic impairment significantly increases its elimination half life
- E. Has no role in the treatment of reflux oesophagitis

636. Regarding prochlorperazine, which is NOT true

- A. It can cause hypotension secondary to alpha blockade
- B. It can cause urinary retention secondary to anticholinergic effects
- C. It is metabolized by the liver
- D. It increases gastric motility
- E. Long term use may cause tardive dyskinesia

637. Regarding paracetamol

- A. Absorption is related to the rate of gastric emptying
- B. Is more than 30% excreted in the urine unchanged
- C. Half life is increased in renal failure
- D. Antagonizes the effects of uricosuric agents
- E. Causes detectable liver enzyme abnormalities within 6 hours of overdose

638. Regarding amiodarone

- A. It has no alpha adrenergic effects
- B. It has no beta adrenergic effects
- C. It has low affinity for activated sodium channels
- D. It increases warfarin clearance
- E. It enhances conduction through accessory pathways

639. With regard to aspirin

- A. It is slowly absorbed from the stomach and small intestine
- B. Reversibly blocks the enzyme cyclo-oxygenase
- C. Prolonged bleeding time takes eight days to correct
- D. Elimination is constant at all dose levels
- E. None of the above

640. Regarding local anaesthetics

- A. They are weak acids
- B. Unmyelinated nerves tend to become blocked before myelinated nerves of the same diameter
- C. Lignocaine is more likely to cause an allergic reaction compared to procaine
- D. Bupivacaine is less cardiotoxic than other local anaesthetics
- E. Hyperventilation is recommended during treatment of anaesthetic induced seizures

641. Ketamine

- A. Stimulates GABA receptors
- B. Exerts its sympathomimetic effects by increasing release of noradrenaline at nerve terminals
- C. Reduces cerebral blood flow
- D. Blocks NMDA receptors
- E. Does not obtund upper airway reflexes

642. Regarding opioid analgesics

- A. They localize in poorly perfused tissues
- B. They cause relaxation of biliary smooth muscle
- C. Tolerance to miosis occurs with chronic use
- D. Cross-tolerance is not an important characteristic of opioids
- E. Patients with adrenal insufficiency (Addison's disease) may have prolonged responses to opioids

643. Regarding aspirin

- A. It has a pKa of 8
- B. Acidification of the urine increases the rate of excretion of free salicylates
- C. It is a potent inhibitor of the enzyme lipo-oxygenase
- D. Has antiplatelet activity secondary to inhibition of prostacyclin synthesis
- E. It blocks pyrogen induced production of prostaglandin

644. Regarding skeletal muscle relaxants

- A. Atracurium relies on renal elimination
- B. Pancuronium is an isoquinolone derivative
- C. The neurotoxic metabolite of atracurium is laudanosine
- D. 3-hydroxyl metabolites of the steroid derivatives are at least as potent as their parent drug, except vecuronium
- E. They only act on the nicotinic receptor

645. Amiodarone

- A. Is approved for use in ventricular arrhythmias
- B. Is commonly used in angina
- C. Main mode of action is a calcium blocker
- D. Shortens action potentials
- E. Is a non-competitive inhibitor of alpha-adrenoceptors

646. All these are true of calcium channel antagonists EXCEPT

- A. They block voltage dependent calcium channels
- B. Diltiazem reduces cardiac contractility
- C. Nifedipine has no vasodilatory action
- D. They are used as antianginal prophylaxis
- E. One of their side effects is constipation

647. Prochlorperazine

- A. May cause severe extrapyramidal dystonic symptoms
- B. Is predominantly used as an antipsychotic
- C. Exerts most of its action by blocking dopamine receptors in the gut
- D. Is limited in its use due to its degree of excitation / agitation at antiemetic doses
- E. Is a thioxanthene antipsychotic

648. Regarding Gentamicin

- A. Is effective against strict anaerobes
- B. Binds to the 50S subunit of bacterial ribosomes
- C. Is contraindicated in neonates due to deposition in bone and teeth
- D. Acts synergistically with penicillins
- E. Decreases the neuromuscular block of non-depolarizing neuromuscular blocking drugs

649. In the use of theophylline

- A. Cigarette smoking may increase plasma clearance of the drug
- B. It leads to decreased intracellular cAMP and therefore to bronchial smooth muscle relaxation
- C. More frequent dosing is required in children, owing to their more rapid clearance of the drug
- D. Higher doses are required in children, owing to their more rapid clearance of the drug
- E. While toxic effects correlate well with plasma theophylline levels, there is little or no correlation with therapeutic levels

650. Which of the following effects of metoclopramide is mostly responsible for the drug's antiemetic effect

- A. Increased oesophageal and gastric clearance
- B. Increased lower oesophageal sphincter pressure
- C. Decreased gastric-pancreatic secretion
- D. Increased acetylcholine release in myenteric plexus
- E. Central dopamine antagonism

651. Regarding acyclovir

- A. It cannot be given topically
- B. It is active against EBV, HIV, and CMV
- C. It has significant toxicity on the bone marrow
- D. Dosage should be reduced in patients with renal impairment
- E. It is a glycoprotein manufactured by recombinant DNA technologies

652. With regard to cephalosporin antibiotics

- A. First generation agents have broad gram negative activity
- B. They are inactive against methicillin resistant staphylococci
- C. They act by inhibiting DNA synthesis in bacteria
- D. Third generation agents have poor CNS penetration
- E. They have a 40% cross reactivity with penicillin allergy

653. Phenytoin

- A. Is ineffective against generalized seizures
- B. Is a sedating antiseizure agent
- C. May cause coarsening of facial features
- D. Causes inhibition of P450 enzymes
- E. Commonly causes idiosyncratic reactions

654. Regarding the Vaughan Williams classification of antiarrhythmic drugs, all of the following are correct, EXCEPT

- A. All class I drugs block Na⁺ channels
- B. Class III drugs include: amiodarone, sotalol and adenosine
- C. Class II drugs include sympathoplegic drugs such as beta blockers
- D. Subclass Ib includes: lidocaine, phenytoin, mexiletine and tocainide

655. Regarding antiarrhythmic drugs, all of the following are correct EXCEPT

- A. Hyperkalaemia increases the toxicity of most class I drugs
- B. One of the main indications for the use of flecainide is for treatment of WPW syndrome
- C. Subclass Ib drugs, shorten the action potential duration but do not change the effective refractory period
- D. It is safe to use disopyramide as a single agent in a patient with atrial flutter and a 2:1 block

656. Which of the following is FALSE in relation to verapamil

- A. Verapamil acts as a sodium channel blocker
- B. Verapamil is a useful agent in the reversion of flutter
- C. Verapamil blockade is minimally reversed by calcium
- D. Verapamil binds to a different L receptor site than does nifedipine
- E. Verapamil has low bioavailability

657. Which of the following is FALSE in relation to calcium antagonists

- A. Short release nifedipine preparations can precipitate cardiac infarction
- B. Nimodipine is a useful preparation in cerebral artery spasm
- C. Diltiazem can decrease the frequency of post infarction angina
- D. Verapamil and digoxin should be used together with caution as they increase digoxin blood levels through pharmacologic interaction
- E. Amlodipine is an antihypertensive medication which also depresses skeletal muscle contraction

658. Warfarin

- A. Is an orally administered anticoagulant with low bioavailability
- B. Block the alpha carboxylation of glutamate residues in protein
- C. Has an anticoagulant action which is immediate
- D. Does not cross the placental-blood barrier
- E. Causes increased prothrombin time when given with diuretics

659. Heparin

- A. It consists of a heterogeneous group of glycoprotein
- B. Acts by decreasing activity of blood coagulant factor VII
- C. Is associated with osteomalacia
- D. Increases the reaction rate of antithrombin III on clotting factors
- E. Is consumed in anticoagulation activity

660. Aspirin

- A. Decreases plasma level of phenytoin
- B. Increases the activity of spironolactone
- C. Will cause penicillin G level in plasma to reduce
- D. Inhibits the uricosuric effect of probenecid
- E. Toxicity will be enhanced by acetazolamide

661. Chloramphenicol acts by

- A. Binding to DNA dependent RNA polymerase
- B. Inhibiting cell wall synthesis
- C. Interfering with binding of new amino acids to peptide chain
- D. Blocking the normal activity of the initiation complex of peptide formation
- E. Inhibiting action of DNA gyrase

662. Treatment of malarial infection (*P. ovale*) should be with

- A. Chloroquine alone
- B. Chloroquine and primaquine
- C. Chloroquine and mefloquine
- D. Quinine dihydrochloride
- E. Primaquine alone

663. Mefloquine is contraindicated if there is a history of

- A. Epilepsy or psychiatric disorder
- B. Psoriasis
- C. Ischaemic heart disease
- D. Porphyria
- E. Syphilis infection

664. Which of the following statements regarding antifungals is INCORRECT

- A. Amphotericin B binds to ergosterol
- B. Flucytosine is a pro-drug
- C. Ketoconazole inhibits cell membrane synthesis
- D. Griseofulvin may interfere with nucleic acid synthesis
- E. Nystatin inhibits ergosterol synthesis

665. Mechanism of antibacterial activity of tetracyclines

- A. Inhibition of peptide synthesis
- B. Interference with synthesis of ergosterol
- C. Inhibition of beta lactamases
- D. Inhibition of DNA gyrase
- E. None of the above

666. Cephalosporins

- A. Bind penicillin binding proteins
- B. Are unaffected by beta lactamases
- C. Generally cross the blood brain barrier
- D. Have 50% cross hypersensitivity with penicillins
- E. Are not renally secreted

667. Regarding penicillins

- A. Ampicillin has greater bioavailability than amoxicillin
- B. Hypersensitivity is more likely to occur with cow's milk ingestion in penicillin allergy
- C. There is a cross-hypersensitivity of 70% of penicillins to cephalosporins
- D. Elimination of penicillins is mainly via bile
- E. The rash which can be caused by ampicillin is always allergic in nature

668. Which statement regarding zidovudine (AZT) is INCORRECT

- A. inhibits activity of viral DNA polymerase (reverse transcriptase)
- B. increases CD4+ counts
- C. CSF levels are about 60% of plasma levels
- D. Adverse effects include drowsiness and coma
- E. Significant hepatic metabolism

669. Which statement regarding acyclovir is INCORRECT

- A. It is a prodrug
- B. Inhibits viral DNA replication
- C. Active against cytomegalovirus
- D. Predominantly excreted unchanged by kidney
- E. Can cause convulsions

670. Toxicity of aminoglycosides is enhanced by all of the following EXCEPT

- A. Cefotaxime
- B. Vancomycin
- C. Penicillin
- D. Mannitol
- E. Cisplatin

671. Which of the following is NOT a means of microbial resistance

- A. Alteration of metabolic pathways
- B. Penicillin binding proteins
- C. Alteration of structure of target
- D. Enzymes such as beta lactamases
- E. Alteration of cell permeability

672. Adverse reactions of gentamycin DO NOT include

- A. Irreversible deafness
- B. Pseudotumour cerebri
- C. Renal toxicity
- D. Neuromuscular blockade
- E. A high rate of pain at injection site

673. Which statement regarding tetracyclines is INCORRECT

- A. Prototype broad-spectrum antibiotics
- B. Irreversibly bind 30S subunit of microbial ribosome
- C. Resistance is usually transmitted by plasmids
- D. Not effective against malarial gametocytes
- E. Combine firmly with divalent metal ions

674. Regarding adverse effects of tetracycline, which statement is INCORRECT

- A. Inhibit clotting mechanisms
- B. Leads to clostridial overgrowth in GIT
- C. Often malabsorbed in a breast-fed infant
- D. Fair-skinned patients may exhibit photosensitivity
- E. Causes hepatic necrosis if greater than 4 grams/day administered IV

675. Which of the following is INCORRECT regarding erythromycin

- A. It is a macrolide antibiotic
- B. It inhibits protein synthesis by binding to an rRNA component of the 50S subunit to prevent ribosomal translocation
- C. Resistance results from plasmid mediated formation of enzymes that prevent drug binding
- D. The drug is only bacteriostatic
- E. Clinical uses include action against gram positive cocci, neisseria, mycoplasma, chlamydia and legionella

676. Trimethoprim – sulphamethoxazole

- A. Utilizes drugs that inhibit parallel pathways
- B. Inhibits cell wall synthesis
- C. Inhibits protein synthesis
- D. Inhibits nucleic acid synthesis
- E. Action is enhanced by co-administration of PABA

677. Regarding isoniazid

- A. Is less likely to cause resistance to mycobacterium tuberculosis when used alone
- B. B. Pyridoxine is usually given concurrently to combat resistance
- C. Addition of isoniazid to a patient on phenytoin, is more likely to cause dilantin toxicity
- D. Adverse effects usually include neurotoxicity, hepatotoxicity, nephrotoxicity and G6PD deficiency
- E. The drug is excreted in the bile

678. Regarding the pharmacokinetics of tetracycline, which statement is INCORRECT

- A. Biliary concentration is about 10 times serum level
- B. Absorption is inhibited by milk and antacids
- C. Binds to growing bones and teeth
- D. Crosses placenta to reach fetus
- E. Minocycline reaches very high concentrations in tears and sweat

679. Which of the following drugs is an aminoglycoside

- A. Vancomycin
- B. Clindamycin
- C. Azithromycin
- D. Tobramycin
- E. Lincomycin

680. Metronidazole is useful against all of the following EXCEPT

- A. Protozoa
- B. Most gram positive cocci
- C. Bacteroides species
- D. Gardnerella vaginalis
- E. Clostridium species

681. Which of the following drugs acts by inhibition of protein synthesis

- A. Ceftriaxone
- B. Carbapenem
- C. Chloramphenicol
- D. Trimethoprim
- E. Ketoconazole

682. The following drug is excreted largely in bile

- A. Ciprofloxacin
- B. Cephalexin
- C. Trimethoprim
- D. Erythromycin
- E. Chloroquine

683. Which of the following statements regarding vancomycin is INCORRECT

- A. Can cause 'red man syndrome' if injected too rapidly
- B. Not absorbed following oral administration
- C. Exhibits cross-resistance with beta-lactams
- D. Penetrates CNS in irregular amounts
- E. Can be synergistic with aminoglycosides, despite additive risk of ototoxicity and nephrotoxicity

684. Which statement regarding nitrofurantoin is INCORRECT

- A. Mechanism of action is unknown
- B. Requires alkaline urine for maximal efficacy
- C. Has no systemic antibacterial activity
- D. Inactive against *Pseudomonas aeruginosa*
- E. Can cause haemolytic anaemia

685. Trimethoprim

- A. Is structurally similar to PABA
- B. Is a selective inhibitor of dihydropteroate synthetase
- C. Prevents formation of the active forms of folic acid
- D. Is mainly excreted in bile
- E. Is a weak acid

686. Match the following antibiotics with their distinctive side effect

- Ampicillin
- Tetracycline
- Chloramphenicol
- Sulphonamides
- Metronidazole

- | | |
|-------------------------------|-------------------------|
| i. Grey baby syndrome | A. viii, ii, i, vii, vi |
| ii. Fanconi's syndrome | B. vii, viii, ii, v, vi |
| iii. Reye's syndrome | C. iii, ii, i, viii, v |
| iv. Kartagener's syndrome | D. viii, iii, I, v, vi |
| v. Haemorrhagic rash | E. vii, ii, i, viii, v |
| vi. Disulfuram-like effect | |
| vii. Stevens Johnson syndrome | |
| viii. Maculopapular rash | |

687. The following is NOT TRUE about trimethoprim

- A. Being a weak base (pKa 7.2) it concentrates in prostatic and vaginal secretions
- B. Simultaneous administration of folinic acid decreases megaloblastic anaemia incidence
- C. There is a higher incidence of adverse reactions in AIDS sufferers treated for pneumocystis carinii
- D. Can be given in a ratio of 1:2 with sulphamethoxazole in which is the optimum in vitro efficiency
- E. Can be given intravenously

688. Which statement regarding metronidazole is INCORRECT

- A. Absorption reduced by presence of food
- B. Drug of choice in urogenital trichomoniasis
- C. May lead to lithium toxicity
- D. Action is bactericidal
- E. Resistance is not a feature

689. Regarding the adverse effects of metronidazole, which statement is INCORRECT

- A. Urine may turn dark or reddish brown
- B. Vertigo and ataxia fully resolve upon drug withdrawal
- C. Peripheral neuropathy may develop with prolonged use
- D. Alcohol may cause a disulfiram-like effect
- E. May cause drowsiness and headache

690. Which of the following antibiotics is NOT excreted predominantly in the bile

- A. Erythromycin
- B. Rifampicin
- C. Ceftriaxone
- D. Vancomycin
- E. Nafcillin

691. Morphine

- A. Has high oral to parenteral potency ration
- B. Is a naturally occurring phenylpiperidine found in the extract of the opium poppy
- C. Exerts its effect at the spinal cord through kappa receptor
- D. Causes a decrease in ureteric smooth muscle tone
- E. Reduces urticaria by decreasing itching sensation

692. Naloxone

- A. Has an increased half life in the presence of renal failure
- B. Does not produce an abstinence syndrome after withdrawal subsequent to chronic administration
- C. Is a weak opiate agonist / antagonist
- D. Has a half life of 30 minutes
- E. Binds specifically with kappa receptors

693. Methadone

- A. Has a low oral to parenteral potency ration
- B. Has one-tenth the analgesic potency of morphine
- C. Withdrawal signs and symptoms are more prolonged than those of morphine
- D. Has a duration of analgesia of approximately 10 hours
- E. Is safe in patients with impaired pulmonary function

694. Morphine

- A. Does not produce dysphoric effects
- B. Undergoes extensive enterohepatic excretion
- C. Increases the release of substance P from presynaptic membrane
- D. Tolerance and dependence is a cellular adaptive response due to chronic elevation of intracellular calcium
- E. Does not induce miosis in the tolerant patient

695. Amiodarone

- A. Is only effective in suppression of ventricular arrhythmias
- B. Causes peripheral vasodilation via alpha adrenergic effects
- C. Commonly causes corneal opacification
- D. Increases warfarin clearance
- E. Deceases the AV nodal refractory period

696. Verapamil

- A. Does not effect the delayed after-potentials seen in digitalis toxicity
- B. Preferentially blocks depolarized Ca²⁺ channels
- C. Has a marked effect on the SA node as this tissue relies predominantly on Ca²⁺ channels for impulse production
- D. Toxicity causes AV nodal block refractory to atropine
- E. Is not associated with development of peripheral oedema

697. Quinidine

- A. Causes sinus tachycardia both by direct and indirect effects
- B. Lengthens the QT interval by its effects on Na⁺ channels
- C. Has no direct effect on K⁺ channels
- D. Is largely excreted unchanged in the urine
- E. Excretion is enhanced in alkaline urine

698. Carbonic anhydrase inhibitors

- A. Are enhanced as diuretics by alkyl-substitution of their sulphonamide group
- B. Cause the formation of alkaline urine
- C. Are poorly orally absorbed
- D. Have a duration of action of 4 hours following a single dose
- E. Are of limited clinical use due to marked Na⁺ depletion

699. Frusemide

- A. Causes dose-related ototoxicity that is characteristically irreversible
- B. Decreases Na and water delivery to the distal nephron
- C. Enhances renal H⁺ secretion in the collecting tubule
- D. Causes hypokalaemic metabolic acidosis in overdose
- E. Has no effect on body Mg²⁺ stores in chronic use

700. Atropine

- A. Is a competitive antagonist of acetylcholine at the nicotinic receptor
- B. Can exacerbate symptoms of Parkinsons disease
- C. In low dose can cause bradycardia by central parasympathetic stimulation
- D. May cause bronchospasm in patients with chronic obstructive airways disease
- E. Causes papillary mydriasis

701. Regarding certain specific sympathomimetic drugs

- A. Adrenaline activates beta 2 receptors in skeletal muscle blood vessels leading to vasoconstriction
- B. Dopamine activates noradrenaline release via oxygen receptors
- C. Isoproterenol increases cardiac output via potent alpha receptor activity
- D. Dobutamine is a relatively beta 1 synthetic catecholamine
- E. Phenylephrine is a relatively pure beta agonist

702. Propranolol

- A. Has no central effects
- B. Can be used safely in type I respiratory failure because of its reliable beta 1 selectivity
- C. In overdose may be effectively treated by administering glucagons
- D. Needs to be given in relatively large oral doses because of its poor absorption
- E. Does not produce withdrawal symptoms on abrupt cessation because beta receptors do not 'up-regulate'

703. Organophosphate poisoning may present with the following symptoms and signs

- A. Euphoria
- B. Constipation
- C. Urinary retention
- D. Hyperthermia from inhibition of sweating
- E. Cutaneous vasodilation

704. Beta receptors pass signals to the interior of the cell via

- A. DNA transcription
- B. Diffusion
- C. Adenylyl cyclase
- D. Passage of ions through a ligand gated channel
- E. The Ca^{2+} / phosphoinositide pathway

705. The volume of distribution of a drug

- A. Relates its dose to its clearance
- B. Is not an apparent volume
- C. If high, implies greater concentration of drug in extravascular tissue
- D. If high, implies greater plasma protein binding of the drug
- E. If high, implies easier clearance of the drug by haemodialysis in overdose

706. Lignocaine

- A. Is an amide local anaesthetic with a half life of 6 hours in healthy people
- B. Is metabolized in the liver by liver microsomal enzymes
- C. Does not interact with propranolol at any time in any way
- D. Affects type A nerve fibres before affecting type C nerve fibres
- E. Is not as potent as procaine

707. Regarding inhaled anaesthetics

- A. The concentration of an individual gas mixture of gases is inversely proportional to its partial pressure
- B. The blood gas partition coefficient of nitrous oxide is about 0.5
- C. The rate of rise of anaesthetic gas tension in arterial blood does not depend on minute alveolar ventilation
- D. Have no effect on right atrial pressure or contractility of myocardium
- E. Nitrous oxide is probably the only inhaled anaesthetic that causes a decrease in tidal volume and an increase in respiratory rate

708. Thiopental

- A. Given in sufficient dose produced hypnosis after three minutes following intravenous injection
- B. Has low lipid solubility
- C. Is metabolized in adipose tissue
- D. Can depress blood pressure, stroke volume and cardiac output
- E. Increases the sensitivity of the medullary respiratory center to carbon dioxide

709. Suxamethonium

- A. Is a non-depolarizing neuromuscular blocker
- B. Is not metabolized effectively at the synapse
- C. Does not produce fasciculation of muscle
- D. Is rapidly hydrolysed by cholinesterase in muscle tissue and renal tubule
- E. Does not raise intraocular pressure

710. As an antiarrhythmic, lignocaine

- A. Uniformly blocks polarized and non-depolarized Na⁺ channels
- B. Is particularly effective in the treatment of digoxin-induced arrhythmias
- C. Can cause seizures
- D. Cannot be given orally, due to poor absorption from the gut
- E. Is contraindicated in WPW syndrome

711. Phenytoin

- A. Blocks sodium channels and inhibits the generation of repetitive action potentials
- B. Does not bind to plasma proteins
- C. Is excreted in bile
- D. In high doses, obeys first order metabolism
- E. Does not affect carbamazepine levels

712. Tricyclic anti-depressants

- A. Have a predictable bioavailability
- B. Enhance amine re-uptake pumps
- C. More commonly cause cardiac arrhythmias in patients with metabolic acidosis
- D. Cause urinary frequency
- E. Increase gastric emptying

713. Sodium cromoglycate

- A. Reverses asthmatic bronchospasm
- B. Is well absorbed orally
- C. Prevents antigen-induced release of histamine by mast cells
- D. Has no role before exercise
- E. Is used to treat acute asthma

714. Flumazenil

- A. Can precipitate a withdrawal state in patients who are dependent on benzodiazepine
- B. Is a competitive agonist
- C. Antagonizes opioids
- D. Has a long duration of action of 4 hours
- E. Is safe to give in tricyclic overdoses

715. EC₅₀ is

- A. Drug concentration with 50% receptors bound
- B. Drug concentration with 50% of maximal drug effect
- C. A representation of the receptors affinity for drug binding
- D. Always equal to K_d
- E. Measured with radioactive receptor

716. Benzyl-penicillin is

- A. Lipid soluble
- B. Predominantly excreted by glomerular filtration
- C. Effective against most species of staphylococcus aureus
- D. An inhibitor of microbial cell wall synthesis
- E. Active against mycoplasma species

717. Chloramphenicol use has been associated with the following EXCEPT

- A. Grey baby syndrome
- B. Red man syndrome
- C. Aplastic anaemia
- D. Inhibition of liver microsomal enzymes
- E. Oesophageal candidiasis

718. Trimethoprim exerts an antimicrobial effect by

- A. Inhibition of cell wall synthesis
- B. Inhibition of dihydropteroate reductase
- C. Increasing permeability of the cell membrane
- D. Selective inhibition of the synthesis of purines
- E. Selective inhibition of the synthesis of pyrimidines

719. The properties of aminoglycosides include

- A. Inhibition of protein synthesis in gram positive organisms
- B. Elimination of drug by biotransformation
- C. Non-depolarizing neuromuscular blockade in high doses
- D. Increased drug levels in hepatic impairment
- E. Good oral bioavailability

720. Aspirin in appropriate doses

- A. yields peak plasma salicylate level within 6 hours
- B. reversibly blocks the enzyme cyclo-oxygenase
- C. decreases the formation of prostaglandins
- D. decreases the formation of leukotrienes
- E. increases the formation of thromboxane A₂

721. Regarding paracetamol

- A. Absorption is related to the rate of gastric emptying
- B. Is more than 30% excreted in urine unchanged
- C. Half life is increased in renal failure
- D. Antagonizes the effects of uricosuric agents
- E. Causes detectable liver enzyme abnormalities within 6 hours post overdose

722. Which of the following is UNTRUE

- A. Isoprenaline is equally selective at B1 and B2 receptors
- B. Repeated exposure to sympathomimetics leads to tachyphalaxis
- C. Propranolol has a high oral bioavailability
- D. Pindolol and labetalol exhibit partial agonist activity
- E. Combined propranolol and verapamil can lead to adverse cardiac effects

723. Which of the following is a false statement

- A. Hydralazine and minoxidil are arteriolar dilators with no action on veins
- B. Losartan is a newly released angiotensin II receptor antagonist
- C. The cough associated with ACE inhibitors is thought to be due to increased levels of bradykinin
- D. All ACE inhibitors except fosinopril are eliminated by the kidneys
- E. Methyldopa, clonidine and prazosin are centrally acting alpha 2 agonists

724. All of the following are true except

- A. Nitrates inhibit both smooth muscle contraction and platelet aggregation
- B. Nifedipine and diltiazem are peripheral rather than cardiac acting
- C. The Ca²⁺ channel blockers are highly protein bound
- D. Beta blockers act primarily to decrease cardiac oxygen demands
- E. Nitrates act to increase cGMP which leads to smooth muscle relaxation

725. Select the FALSE statement

- A. Digoxin acts as an antiarrhythmic by inhibiting the Na / K ATPase pump
- B. Digoxin toxicity arrhythmias are due to shortened action potentials and delayed afterdepolarizations
- C. Digoxin should not be used in AF with aberrant AV pathways
- D. Torsades is more likely with drugs that prolong the duration of the action potential
- E. Lignocaine has its greatest effect in abnormally polarized cells

726. With respect to antipsychotics, which is false

- A. Chlorpromazine has low potency
- B. The volume of distribution of antipsychotics is in the order of 7 l/kg
- C. Thioridazine has an active metabolite
- D. Their mechanism of action involves stimulation of the dopaminergic pathway between the substantia nigra and the neocortex and limbic system
- E. An average $t_{1/2}$ of 24 hours

727. With respect to antipsychotic agent side effects (especially chlorpromazine), which is false

- A. Hypotension occurs secondary to alpha 1 receptor blockade
- B. Urinary retention can occur
- C. Women have a higher chance of pregnancy
- D. Tardive dyskinesia can occur in approximately 30% of recipients
- E. Deposits in cornea and lens can occur with chlorpromazine

728. With respect to antipsychotic agent side effects, which is false

- A. Thioridazine can cause prolonged QT
- B. Clozapine causes agranulocytosis in approximately 20% of recipients
- C. Risperidone can cause hypotension
- D. Neuroleptic malignant syndrome is caused by dopamine receptor block
- E. Haloperidol has the most and olanzepine the fewest severe extrapyramidal side effects

729. Regarding digoxin, which is FALSE

- A. Digoxin is a cardiac glycoside
- B. Hypercalcaemia, hypokalaemia and hypomagnesaemia all potentiate digoxin toxicity
- C. Inhibition of the Na / K ATPase pump results in a more positive resting membrane potential
- D. Early and late afterdepolarizations are caused by decreased intracellular Ca²⁺ load

730. Which statement about antiarrhythmics is UNTRUE

- A. Lignocaine works best on depolarized membranes
- B. Flecainide has little / no effect on the duration of the action potential
- C. Treatment of torsades may involve Mg²⁺ administration or overdrive pacing
- D. Adenosine causes AV conduction block by inhibition of Na⁺ channels

731-734. For each statement answer TRUE or FALSE

- A. The development of the 'lupus-like' syndrome occurs with both procainamide and hydralazine
- B. Na⁺ nitroprussides main vasodilatory effects are on arterioles only leading to decreased TPR
- C. Hydralazine is a vasodilator of both veins and arterioles
- D. Minoxidils vasodilatory effects are due to ???

735. Which of the following statements regarding drug toxicity is FALSE

- A. The main side effect from diazoxide use in treatment of hypertension is excessive hypotension
- B. The toxicity of Ca²⁺ channel blockers is mainly related to an exaggeration of their clinical therapeutic effects
- C. Quinidine toxicity may result in torsade induced syncope
- D. Sotalols toxicity profile relates to its properties as a beta blocker rather than to any effects on prolongation of the QT interval

736. With respect to diuretics

- A. Acetazolamide acts to block Na⁺ reabsorption in the PCT
- B. Mannitol works as an osmotic diuretic in the proximal and distal tubules
- C. Frusemide has a potent diuretic effect on the cells of the descending LOH
- D. Use of thiazides may result in an increased serum urea because they decrease excretion of urea

737. Which of the following is FALSE

- A. Clonidine can produce a rise in blood pressure after IV injection
- B. Methyldopa and clonidine produce their greatest hypotensive effects with increased dose
- C. Withdrawal of clonidine can lead to an hypotensive crisis
- D. Toxicity of methyldopa induces a positive Coombs test, drug fever and sedation

738. Regarding control of BP. Which statement is the MOST CORRECT

- A. The anatomical site of blood pressure control includes the nucleus tractus solitarius in the pons
- B. Baro-receptor firing results in inhibition of sympathetic neurons resulting decreased MAP and vasomotor tone
- C. Increasing baroreceptor firing works in combination with decreased rennin levels resulting in increased serum levels of aldosterone and increased Na⁺ / H₂O retention
- D. Rising from lying position causes an immediate increased aldosterone secretion and subsequent increased blood pressure

739. Regarding antihypertensives, which of the following statements is TRUE

- A. In essential hypertension serum renin levels are increased in the majority of individuals
- B. Beta blockers have a direct effect on juxtaglomerular cells in the kidney to cause rennin release
- C. ACE inhibitors should not be used in patients with diabetes
- D. Propranolol is excreted largely unchanged by the kidney

740. Regarding prazosin

- A. Prazosin's mechanism of action involves alpha 2 blockade
- B. Alpha blockers reduce MAP by vasodilation of only resistance vessels (i.e. arterioles)
- C. Prazosin can produce marked orthostatic hypotension on the first dose only
- D. The oral bioavailability of prazosin is 80-90%

741. With respect to the management of angina

- A. Ca²⁺ antagonists work via relaxation of vascular smooth muscle via cGMP
- B. Nitrates decrease venous preload and overall contractility in left ventricular failure
- C. Beta blocker and Ca²⁺ channel blockers are useful in the treatment of Prinzmetal angina because of their effect on smooth muscle
- D. Diminished release of NO is thought to play a part in the development of nitrate tolerance

ANSWERS

1	?	11	?	21	D	31	B	41	A
2	?	12	?	22	A	32	A	42	A
3	?	13	A	23	B	33	D	43	B
4	?	14	A	24	E & B	34	D	44	C
5	?	15	C	25	E	35	A	45	E
6	?	16	A	26	D	36	C	46	A
7	?	17	D	27	E	37	D	47	C
8	?	18	B	28	C	38	A	48	C
9	?	19	?	29	D	39	C	49	D
10	?	20	D	30	B	40	A	50	B
51	?A	61	C	71	B	81	A	91	B
52	D	62	A	72	A	82	?	92	?
53	?	63	A	73	?	83	A	93	?
54	C	64	?	74	D	84	C & D	94	?
55	C	65	C	75	B	85	D	95	A
56	A	66	B	76	A	86	?	96	C
57	C	67	A	77	A	87	D	97	B
58	?	68	C	78	B	88	A	98	D
59	A	69	C	79	B	89	?	99	A & B
60	?	70	C	80	?	90	?	100	B
101	?	111	A	121	A	131	B	141	B
102	A	112	A	122	E	132	E	142	E
103	A	113	A	123	C	133	E	143	C
104	A	114	A	124	B	134	A	144	C
105	B	115	?	125	C	135	D	145	A
106	A	116	D	126	B	136	E	146	E
107	B	117	D	127	A	137	C	147	E
108	?	118	D	128	B	138	A	148	B
109	?	119	B	129	E	139	A	149	A
110	A	120	C	130	E	140	D	150	A
151	B	161	C	171	E	181	A	191	C
152	B	162	E	172	C	182	B	192	A
153	B	163	E	173	C	183	E	193	C
154	E	164	C	174	D	184	D	194	D
155	B	165	B	175	C	185	C	195	E
156	B	166	E	176	C	186	E	196	A
157	D	167	E	177	D	187	A	197	E
158	A	168	D	178	B	188	C	198	D
159	B	169	A	179	C	189	E	199	E
160	A	170	A	180	C	190	D	200	C

201	C	211	D	221	C	231	B	241	C
202	C	212	B	222	E	232	C	242	A
203	D	213	B	223	B	233	D	243	C
204	E	214	B	224	D	234	D	244	E
205	D	215	D	225	C	235	B	245	D
206	E	216	E	226	C	236	E	246	C
207	A	217	B	227	A	237	D	247	C
208	E	218	E	228	C	238	E	248	E
209	E	219	B	229	D	239	C	249	C
210	E	220	C	230	E	240	A	250	D
251	B	261	C	271	D	281	D	291	E
252	D	262	A	272	D	282	B	292	D
253	A	263	C	273	E	283	A	293	A
254	B	264	E/C	274	D	284	A	294	E
255	A/C	265	E	275	E	285	B	295	C
256	E	266	B	276	C	286	D	296	C
257	D	267	R	277	C	287	D	297	A
258	E	268	D	278	C	288	A	298	C
259	E	269	E	279	B	289	B	299	E
260	B	270	C	280	C	290	E	300	B
301	C	311	D	321	D	331	D	341	B
302	D	312	C	322	B	332	E	342	C
303	B	313	C	323	A	333	D	343	C
304	D	314	E	324	C	334	C	344	D
305	E	315	C	325	C	335	C	345	C
306	C	316	B	326	C	336	D	346	A
307	A	317	C	327	D	337	D	347	C
308	C	318	A	328	B	338	B	348	E
309	C	319	B	329	B	339	D	349	C
310	C	320	E	330	C	340	D	350	D
351	B	361	E	371	C	381	B	391	A
352	E	362	A	372	A	382	D	392	D
353	B	363	C	373	C	383	C	393	C
354	D	364	D	374	C	384	D	394	B
355	C	365	E	375	C	385	A	395	D
356	E	366	A	376	D	386	A	396	C
357	B	367	D	377	B	387	C	397	E
358	B	368	B	378	A	388	D	398	D
359	A	369	D	379	D	389	E	399	A
360	D	370	B	380	A	390	D	400	D

401	C	411	E	421	C	431	E	441	C
402	B	412	B	422	B	432	D	442	C
403	A	413	D	423	C	433	A	443	B
404	C	414	A	424	E	434	D	444	MULTIPLE
405	A	415	B	425	A	435	D	445	D
406	D	416	C	426	D	436	D	446	C
407	B	417	B	427	A	437	A	447	D
408	C	418	E	428	C	438	D	448	E
409	D	419	E	429	E	439	A	449	D
410	D	420	B	430	E	440	C	450	B
451	D	461	E	471	C	481	E	491	D
452	B	462	D	472	E	482	B	492	D / E
453	D	463	A	473	A	483	A	493	E
454	B	464	E	474	C	484	E	494	E
455	D	465	B	475	D	485	D	495	E
456	D	466	A	476	C	486	D	496	C
457	B	467	E	477	E	487	B	497	C
458	A	468	B / E	478	E	488	E	498	A
459	C	469	B	479	D	489	D	499	E
460	B / D	470	E	480	D	490	B	500	D
501	C	511	C / E	521	B	531	D	541	INCORRECT
502	? / D	512	E	522	D / E	532	B	542	B
503	B	513	B / E	523	B	533	E	543	?
504	? / E	514	A	524	E	534	D	544	?
505	E	515	B	525	B / C	535	B	545	?
506	? / E	516	C	526	C	536	B	546	?
507	A	517	B	527	D	537	C	547	?
508	E	518	C	528	E	538	C	548	?
509	C	519	E	529	E	539		549	?
510	D	520	D	530	B	540	C	550	?
551	C	561	B	571	?	581	C	591	D
552	B	562	CORRECT	572	?	582	B	592	E
553	A	563	?	573	?	583	A/B	593	B
554	B	564	?	574	?	584	D	594	C
555	C	565	?	575	A FALSE	585	A	595	C
556	B	566	?	576	D	586	D	596	A
557	A	567	BOTH F	577	?	587	D	597	D
558	?	568	?	578	A	588	B	598	D
559	?	569	B	579	E	589	E	599	A
560	?	570	A	580	D	590	A	600	B

601	E	611	B	621	D	631	A	641	D/E
602	C	612	A	622	A	632	B	642	E
603	B	613	B	623	E	633	D	643	E
604	D	614	C	624	B	634	B	644	C
605	E	615	A	625	D	635	C	645	A
606	D	616	D	626	D	636	D	646	C
607	D	617	A	627	C	637	A	647	A
608	E	618	C	628	C	638	C	648	D
609	E	619	D	629	B	639	C	649	A
610	A	620	B	630	C	640	E	650	E
651	D	661	C	671	B	681	C	691	C
652	B	662	B	672	E	682	D	692	B
653	C	663	A	673	B	683	C	693	C
654	B	664	E	674	A	684	B	694	D
655	D	665	A	675	D	685	C	695	C
656	B	666	A	676	D	686	A	696	D
657	E	667	B	677	C	687	D	697	B
658	E	668	D	678	E	688	A	698	B
659	D	669	C	679	D	689	E	699	C
660	D	670	C	680	B	690	D	700	C
701	D	711	A	721	A	731	?	741	?
702	C	712	C	722	C	732	?F	742	
703	E/A	713	C	723	E	733	?F	743	
704	C	714	A	724	B	734	?T	744	
705	C	715	B/C	725	?A	735	D	745	
706	B	716	D	726	?	736	D	746	
707	B	717	B/C	727	?	737	B	747	
708	D	718	D	728	?	738	B	748	
709	B	719	C	729	D	739	?B	749	
710	C	720	C	730	D	740	?	750	