

PHARMACOLOGY

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General Pharmacology

1. Which has a half life of 6 hours
 - a) aspirin
 - b) digoxin
 - c) atenolol
 - d) diazepam
2. Irreversible antagonists; which is correct
 - a) requires regeneration of receptors for further agonist action
 - b) can be displaced by increasing concentration of agonist
 - c) can be displaced by increasing potency of agonist
 - d) can be displaced by increasing efficacy of agonist
3. Calculate a phenytoin loading dose for a 70 kg male; Target concentration 10 mg/L, Vd 0.5 L/kg
 - a) 350 mg
 - b) 300 mg
 - c) 400 mg
 - d) 3500 mg
4. Which of the following is a phase I reaction?
 - a) sulphation
 - b) glucuronidation
 - c) hydration
 - d) acetylation
5. 15) How many mg in 2ml of a 0.5% weight per volume solution?
 - a) 10mg
 - b) 1 mg
 - c) 100mg
 - d) 0.1 mg
 - e) 5mg
6. The volume of distribution
 - a) is calculated by dividing the amount of drug by it's clearance
 - b) if high suggests homogeneous distribution throughout tissues
 - c) if low suggests homogeneous distribution throughout tissues
 - d) of aspirin is greater than pethidine
 - e) of midazolam is greater than warfarin

7. The volume of distribution
- is proportional to half life
 - is inversely proportional to clearance
 - is used to work out maintenance dose
 - is measured in mg/L
 - is high in warfarin
8. Calculate the half life of digoxin in a patient with a renal clearance of 8.4L/min and Vd of digoxin of 5 L/Kg in a 70 Kg man
- 8 hours
 - 14 hours
 - 29 hours
 - 36 hours
 - 44 hours
9. The half life of lignocaine is
- 1 minute
 - 5 minutes
 - 10 minutes
 - 30 minutes
 - 120 minutes
10. The volume of distribution
- is less than 70 L for fluoxetine
 - is calculated by dividing rate of elimination by concentration
 - is inversely proportional to half life
 - is about 5L/kg for pethidine
 - is effected by the route of drug administration
11. The bioavailability of a drug
- must be 100% if given by inhalation (IV)
 - is typically 75 % if given intravenously (100% if IV)
 - is high if the drug is hydrophilic
 - is equal to 1 – the extraction ratio
 - is 70% for orally administered digoxin
12. Type 1 biotransformation reactions include
- methylation
 - acetylation
 - oxidation
 - glucuronidation
 - sulphonation

13. The half life of narcan is
- 1-2 minutes
 - 2-4 minutes
 - 40-60 minutes
 - 60-90 minutes
 - more than 2 hours
14. 5 ml of 2% wv is equal to
- 10 mg
 - 100 mg
 - 200 mg
 - 20 mg
 - 40 mg
15. With regard to a drug
- LD50 is 50 % of the dose necessary to kill experimental animals
 - Efficacy is the maximum response produced by a drug
 - Spare receptors are present if $K_c 50$ is the same as $EC 50$
 - Potency is the same as affinity
 - TD50 is the concentration of a drug necessary to produce toxic effects 50 % of the time
16. Half life
- $t_{1/2}$ may not be a good indication of clearance
 - does not increase with age
 - not dependant on V_d
17. 43. 2ml of 0.5% wv is equal to
- 1 mg
 - 10 mg
 - 100 mg
 - 20 mg
18. 44. What is an example of a phase II biotransformation phase 2 are
- oxidation
 - reduction
 - glycolysis
19. What is the half life a drug given: clearance = 8.4l/min; weight = 70 kg; $V_d = 5 \text{ l/kg}$ $t_{1/2} = 0.7 * V_d / CL$
- 24 hrs
 - 12 hrs
 - 30+ hrs

20. Regarding $t_{1/2}$
- Can be poor predictor of clearance
 - Is not affected by age
 - Is not related to V_d
 - Is related to volume of distribution and protein binding
21. Regarding efficacy
- It cannot be zero
 - It is regardless of route of administration
 - It refers to dose that has effect in 50% of population
 - It refers to effect at 50% of dose
 - Relates effect to amount of receptor occupancy
22. 40. Clearance
- Is proportional to liver blood flow
23. 41. Regarding PK's/PD's
- Diffusion is inversely proportionate to S.A. and directly proportionate to thickness
 - The LD50 is 50% of the dose that kills most people
 - The LD50 is 50% of the dose at which toxicity occurs
 - Efficacy is the maximum response produced by a drug
24. Regarding bioavailability
- PR drugs have no first pass
 - Transdermal drugs have first pass
 - IV drugs undergo first pass
25. 2 ml of 0.5% wv is equal to
- 1mg
 - 10mg
 - 100mg
 - 20mg
26. 10 ml of 1% wv is equal to
- 1 mg
 - 10 mg
 - 100 mg
 - 1000 mg
27. Regarding therapeutic index, which is correct
- It equals ratio ED_{50}/LD_{50}
 - It equals LD_{50}/ED_{50}
 - High therapeutic index means a drug is dangerous
 - Potent drugs are more likely to have a high therapeutic index

28. A 70 kg male patient has the following pharmacokinetic parameters; VD: 5liter/kg, clearance 8.4 litre per hour

What is the half life of digoxin if the bioavailability is 0.70?

- a) ~1800 minutes
- b) ~2300 minutes
- c) ~2900 minutes
- d) ~3400 minutes

29. Regarding pharmacokinetics

- a) Potency is maximal drug effect
- b) Potency is dose of maximal effect
- c) Efficacy is maximal drug effect
- d) Efficacy is measured by gram-for-gram effect

30. Regarding enzyme induction

- a) It is irreversible
- b) It takes 4 months to develop
- c) Causes increase in smooth endoplasmic reticulum
- d) Causes increase in rough endoplasmic reticulum

Respiratory System

1. Theophylline; which is incorrect
 - a. antidiuretic action it has a diuretic action
2. Salbutamol; which is correct
 - a. Low pO₂ initially
 - b. half life of 12 hours
3. Which of the following do not possess bronchodilator activity
 - a. sodium cromoglycate
 - b. theophylline
 - c. atropine
 - d. salbutamol
 - e. adrenaline
4. Theophylline; which is not an overdose effect
 - a. seizures
 - b. hypokalaemia
 - c. hyperglycaemia
 - d. hypocalcaemia
 - e. tachycardia
5. Salbutamol
 - a. it decreases the PaO₂ briefly
6. Regarding theophylline
 - a. it is a diuretic
 - b. it blocks adenosine receptors
7. Theophylline
 - a. is a positive chronotrope
 - b. reduces GFR
 - c. is thought to increase blood viscosity
 - d. is less potent than aminophylline
 - e. has a V_d of 10L/kg
8. The Beta 2 sympathomimetic with the longest duration of action is
 - a. Salbutamol
 - b. salmeterol
 - c. sotalol
 - d. terbutaline
 - e. isoprotenerol

9. Which is an effect of methylxanthines
- weak anti-diuresis
 - increased strength of muscle contraction
 - negative inotropic effect
 - medullary depression
 - stimulation of cell surface adenosine receptors
10. All of the following cause DIRECT bronchodilation EXCEPT
- atropine
 - adrenaline
 - salbutamol
 - theophylline
 - disodium cromoglycate
11. Salbutamol may cause all except
- hyperkalemia
 - decreased PO₂ initially
 - skeletal muscle tremor
 - nervousness
 - weakness
12. Ipratropium
- causes miosis
 - is well absorbed orally
 - inhibits mast cells
 - readily enters the CNS
 - onset of effect within 10 minutes
13. Cromolyn reduces bronchial reactivity chiefly by
- relaxing smooth muscle cells
 - inhibiting eosinophil chemotactic factor
 - direct bronchodilation
 - inhibiting IgE mediated mast cell degranulation
 - inhibiting basophil mediator release
14. Regarding ipratropium bromide
- peak onset is 10 mins post inhalation
 - gives rise to tolerance
 - has CNS effects
 - may precipitate narrow angle glaucoma

15. Regarding theophylline, which is CORRECT
- causes increased K⁺
 - Seizures may not have warning neurological signs
 - Overdose of slow release tablets will give a peak serum level in 6 hrs
16. Regarding theophylline
- Vd is 2L/kg
 - Diuretic
17. Which causes bronchodilation?
- Cromoglycate
 - Propranolol
 - Prednisone
 - Histamine
18. Salbutamol
- gives a low PO₂ initially
 - beta-1 mimetic agent *b*₂
 - gives bradycardia
19. Oxygen toxicity
- Lung effects more related to FiO₂ than PiO₂
 - Occurs when breathing 50% oxygen for more than 16 hours
 - Has an effect on the retina in children
 - rarely gives central nervous system effects
20. Sodium Cromoglycate
- main route of administration is orally
 - increases airway sensitivity long term
 - inhibits IgE mediated mast cell degranulation
21. 21. Regarding cromolyn, which is incorrect?
- It inhibits IgG mediated mast cell degranulation

Cardiovascular System: Thrombosis/coagulation

1. What drugs do not effect warfarin metabolism
 - a. Phenobarbitone
 - b. Rifampicin
 - c. Cimetidine
 - d. benzodiazepines
2. Which does not interact with warfarin
 - a. Phenobarbitone
 - b. loop diuretics
 - c. benzodiazepines
 - d. cephalosporins
3. Heparin; which is correct
 - a. causes alopecia
 - b. is a homogenous mixture
 - c. is contraindicated in pregnancy
 - d. can be given intramuscularly
 - e. protamine blocks its receptor effects
4. Which of the following statements is correct
 - a. aspirin makes platelets sticky
 - b. ticlopidine inhibits the ADP pathway
 - c. aspirin versus diclofenac
5. Fibrinolytics; which is correct
 - a. urokinase is cheap
 - b. streptokinase is a human product
 - c. aminocaproic acid is an inhibitor of fibrinolysis
 - d. gastrointestinal bleed within 12 months is a contraindication
 - e. TIMI trial shows that GI haemorrhage is the most common adverse effect
6. What is true of heparin?
 - a. it is a mix of complex mucopolysaccharides?
 - b. it causes alopecia
7. Regarding fibrinolytics
 - a. all thrombolytics act to convert free plasminogen to plasmin
 - b. urokinase is a human product
 - c. tPA and APSAC lack the streptococcal antigen
 - d. tPA does not occur naturally
 - e. reactions to tPA and antistreptolysin are preparation related

8. In a patient on warfarin which of the following drugs cause an increased INR
- cholestyramine
 - barbituates
 - benzodiazepines
 - rifampicin
 - amiodorone
9. Which is not true of warfarin
- it has 100% bioavailability
 - it is reversed by FFP
 - it is 99% protein bound
 - it affects vitamin K synthesis
 - Half life is 6 hours
10. Streptokinase
- is a complex lipopolysaccharide
 - is synthesised by the human kidney
 - binds to the proactivator plasminogen
 - activates the plasminogen that is bound to fibrin
 - is more dangerous than tPA in those over 75 years of age
11. Heparin induced mild thrombocytopenia is caused by
- release of lipoprotein lipase
 - platelet aggregation
 - thrombosis
 - anti-platelet antibodies
 - none of the above
12. With respect to the pharmacokinetics of warfarin. All the following cause altered INR EXCEPT
- cephalosporins
 - benzodiazepines
 - barbituates
13. All of the following are known to potentiate the effects of oral anticoagulants EXCEPT
- Cimetidine
 - ceftriaxone
 - rifampicin
 - metronidazole
 - trimethoprim

14. Heparin * look this up*
- decrease the rate of conversion of VII to VIIa
 - decreases the rate of fibrinogen to fibrin
 - slows the rate of prothrombin to thrombin
 - inhibits the action of antithrombin III
 - inhibits the action of protein C
15. Regarding heparin
- dose reduction is necessary in the elderly
 - LMW fractions have more effect on thrombin than HMW fractions
 - It may cause alopecia
 - It inhibits antithrombin III
 - Protamine is a competitive antagonist of heparin
16. Ticlodipine
- inhibits ADP induced platelet aggregation
17. Warfarin
- is completely broken down in the duodenum
 - decreases levels of thromboplastins
18. Regarding fibrinolytics
- TIMI trial showed increased incidence of GI bleed as the major side effect of administration
 - Aminocaproic acid inhibits fibrinolysis
19. Regarding fibrinolytics
- urokinase is cheap but less selective
 - streptokinase comes from human cells
 - HIMA says GIT haemorrhage is most common haemorrhagic complication
 - GIT haemorrhage within 12 months is a contraindication
 - Actriylitic acid is a potent fibrinolytic inhibitor
20. Which is CORRECT regarding warfarin
- broken down in GIT
 - added to transfused blood
 - decreases thromboplastins
21. Regarding warfarin (terrible question)
- Works by affecting metabolism of VitK dependant clotting factors
 - 75% protein bound
 - half-life 6 hours (36)
 - increases levels of protein C early on

22. Regarding ticlopidine (repeat)
- Works by antagonising ADP binding of platelets
 - Something about platelet acuity
23. concerning heparin
- low molecular weight variety work by binding to ATIII
 - comes in preparations of standardised units against a bioassay
 - LWH more potent than heparin
 - Nothing about alopecia
 - Another wordy option
24. Heparin induced severe thrombocytopenia is caused by
- release of lipoprotein lipase
 - aggregation
 - antiplatelet antibodies HITS 2. HITS 1 platelet aggregation
 - all of the above
25. Heparin
- Inhibits antithrombin III
 - Causes alopecia
 - Decreases rate conversion prothrombin to thrombin
 - Decreases rate conversion fibrinogen to fibrin
 - Decreases rate conversion VII to VIIa
26. The following drugs increase warfarin's action, except
- metronidazole
 - amiodarone
 - disulfiram
 - phenobarbitone
27. Regarding heparin, which is correct
- causes alopecia
 - is not a racemic mixture
 - is contra indicated in pregnancy
 - can be given IM
 - protamine blocks heparin receptors
28. Ticlopidine:
- Decreases platelet aggregation by inhibiting the ADP pathway of platelets
 - Has no GI side effects
 - Inhibits prostaglandin metabolism

Cardiovascular System: **Antiarrhythmics**

1. Which shortens the refractory period in normal cells
 - a. amiodarone
 - b. sotalol
 - c. quinidine
 - d. lignocaine
 - e. procainamide

2. Digoxin; which is correct
 - a. is a negative inotrope
 - b. has atropine like effects on heart acetylcholine receptors
 - c. inhibits central vagal effects
 - d. increases ventricular excitability
 - e. increases conduction through Bundle of His

3. Digoxin
 - a. is a positive inotrope

4. All of the following may increase the effect of digoxin EXCEPT
 - a. amiodorone
 - b. frusemide
 - c. carbamazepine
 - d. verapamil
 - e. quinidine

5. Coronary artery dilation occurs with
 - a. adenosine
 - b. high potassium
 - c. propranolol
 - d. enalapril
 - e. none of the above

6. Regarding adenosine
 - a. its receptors are ion channels
 - b. it increases AV nodal conduction
 - c. it enhances potassium conductance
 - d. it is the drug of choice in VT
 - e. it has a half life of 2 minutes

7. Which does not prolong the refractory period of normal cells
- amiodorone
 - lignocaine
 - quinidine
 - sotalol
 - procainamide
8. Verapamil + diltiazem are I type ca channel antagonists. Others are dihydropyridones
- is a positive inotrope
 - inhibits activated and inactivated sodium channels
 - is a dihydropyridone
9. The calcium channel blocker with the most rapid onset of action when given orally is
- diltiazem
 - nifedipine
 - verapamil
 - felodopine
 - nicardipine
10. Adenosine
- has a half life of only minutes *seconds*
 - is drug of choice in VT (can be used but not drug of choice)
 - decreases SA nodal conduction (san)
 - enhances K⁺ conductance
11. Digitalis
- is positive inotrope
12. Adenosine
- opens K⁺ channel
 - opens Cl⁻ channel
 - half like of 10 mins (seconds)
 - profoundly blocks SA node (avn)
 - blocks Ca⁺⁺ dependant action potential
13. Which is an example of a Class IV antiarrhythmic verapamil/ diltiazem
14. Verapamil
- increases myocardial contractility
 - is a positive inotrope
 - causes skeletal muscle weakness (vascular smooth muscle)
 - blocks active and inactive Ca⁺⁺ channels

Cardiovascular System: Antihypertensives

1. Coronary artery dilation occurs with
 - a. adenosine
 - b. high potassium
 - c. propranolol
 - d. enalapril
 - e. none of the above

2. Prazosin; which is correct
 - a. it is non-selective
 - b. reduces afterload and preload
 - c. half life is 18 hours
 - d. alters lipid levels
 - e. causes lupus like syndrome

3. Diuretics; which is the correct drug-MOA pairing
 - a. thiazides – proximal DCT
 - b. triamterene – ascending loop of Henle
 - c. spironolactone – loop of Henle
 - d. frusemide – collecting duct
 - e. acetazolamide – DCT

4. GTN; which is correct
 - a. works via NO and cGMP
 - b. moderate incidence of Methb
 - c. works well to increase coronary blood flow in atherosclerosis
 - d. tolerance is due to ? consumption of sulfhydryl groups

5. Calcium channel blockers; which is correct
 - a. verapamil slows AV conduction
 - b. diltiazem is the prototypical Dihydropyridine
 - c. causes postural hypotension

6. Propranolol; which is correct
 - a. has Na⁺ blocking activity
 - b. is beta 1 selective
 - c. has intrinsic sympathomimetic activity
 - d. is poorly lipid soluble

7. Which does not cause vasoconstriction
- Lactate
 - serotonin
 - adrenaline
 - angiotensin 2
 - antidiuretic hormone
8. regarding Simvastatin
- it has a half life of between 5 and 8 hours
 - bioavailability is...
 - NO option about rhabdomyolysis
9. Ace Inhibitors
- cause angioedema
10. An old lady has a K⁺ of 6.7 mmol/L, she was previously stable on Lithium. Which drug is most likely to have done this?
- a thiazide
11. Regarding nitrates, which is true?
- tolerance is due to sulphydral groups in tissue
 - increased collateral flow even if there is a fixed constriction
 - they cause significant Methaemaglobinaemia
 - they relieve spasm
 - they cause an increase in LVED volume
12. Regarding Calcium channel blockers, all are true EXCEPT:
- they have low protein binding
 - verapamil blocks sodium channels
 - they have a high first pass metabolism
13. Diazoxide. Which of the following is NOT true ?
- is used to treat severe hypertension
 - acts by direct smooth muscle relaxation
 - causes salt and water retention
 - is a thiazide derivative
14. Hydralazine
- Causes an abrupt but transient fall in blood pressure
 - Displays a biphasic blood pressure response

15. The most lipid soluble beta blocker is
- propranolol
 - atenolol
 - metoprolol
 - pindolol
 - sotalol
16. Propranolol
- is a highly selective beta receptor antagonist
 - is poorly lipid soluble
 - has sodium channel blocking action
 - has intrinsic sympathomimetic activity
 - has an oral bioavailability of > 50 %
17. Nitrates
- increase collateral blood flow
 - demonstrate tolerance
 - demonstrate physical dependence
18. The CAST trial highlighted the adverse effects of
- metoprolol
 - verapamil
 - sotalol
 - flecainide
 - bretylum
19. Losartan differs from enalapril in:
- its selective action on angiotensin type one receptors
 - its enhanced effect on bradykinin metabolism
 - its prolonged half life
 - its higher incidence of drug related angioedema
 - its increased incidence of cough
20. All of the following anti-hypertensives act directly on vascular smooth muscle EXCEPT
- felodipine
 - nitroprusside
 - indapamide
 - prazosin
 - hydralazine
21. Which of the following is an aldosterone antagonist
- spironolactone

22. An example of an ADH antagonist is
- ethanol
 - amiloride
 - lithium
 - aldosterone
 - triamterene
23. Carbonic anhydrase inhibitors
- were developed from early antibiotics
 - are closely related to thiazide diuretics
 - cause metabolic acidosis
 - decrease the pH of CSF
 - all of the above
24. Which is NOT true of diuretics
- loop diuretics can be used to treat hypercalcemia
 - furosemide is used in the prophylaxis of acute mountain sickness (acetazolamide)
 - cirrhotic patients respond to spironolactone
 - they may enhance the effect of ACE inhibitors
 - hydrochlorothiazide is useful in treating diabetes insipidus
25. Which is not the correct site of action
- Spironolactone and the collecting duct
 - Triamterene and the ascending loop of Henle
 - Thiazides and the proximal part of the distal tubule
 - Acetazolamide and the collecting tubule
 - Furosemide and the ascending loop of Henle
26. Sodium nitroprusside
- increases cGMP by release of nitric oxide
 - decreases vascular resistance but increases blood pressure
 - is a complex of calcium and cyanide groups
 - is predominantly an arteriodilator
 - has its onset of action in 10-15 minutes
27. Methyldopa
- is a potent vasoconstrictor
 - can cause Coombs positive test after prolonged use

28. ACE inhibitors
- cause a concomitant reduction in bradykinin
 - directly inhibit angiotensin receptors
 - work predominantly by venodilation
 - can cause angioneurotic oedema
 - are only available intravenously
29. Hydralazine
- classically has a biphasic response in BP control
 - should not be used in eclampsia
 - causes significant post hypotension
 - predominantly a vasodilator
30. Diazoxide
- can be used in a hypertensive emergency
 - structurally related to thiazide
31. ACE inhibitors
- can be used in second and third trimesters
 - have been associated with angio oedema
32. Regarding hydralazine
- Works by direct vasodilation
 - Shows biphasic blood pressure response
 - Causes postural hypotension
33. Regarding simvastatin
- Low bioavailability
 - Half life 5 – 8 hours
34. Adenosine (repeat)
- Half life 10 mins
35. Which is an inhibitor of aldosterone (repeat)
36. Regarding Frusemide
- Is more potent than trimeterne
 - Has no effect on digoxin function
 - Causes hyperkalaemia
 - Causes hypercalcaemia
37. Regarding nitrates
- Direct activity is coronary artery vasodilation
 - Cause water and sodium retention

38. Regarding nitrates, they do not
- Increase collateral coronary blood flow
 - Demonstrate tachyphylaxis/tolerance
 - Demonstrate physical dependence
39. Regarding propranolol
- Is a highly selective B receptor antagonist
 - Is poorly lipid soluble
 - Has sodium channel blocking activity
40. A 42 year old male with typical ischemic chest pain. Further investigation leads to diagnosis of "vasospasm". Which is most likely to cause this?
- Adrenaline
41. Prazosin
- is non-selective
 - worsens lipid levels
 - causes SLE like syndrome
 - reduces BP by affecting both resistance + capacitance vessels
42. Regarding nitrates
- increase coronary blood flow
 - rarely demonstrate tolerance
 - decrease myocardial contractility
 - give relief of coronary spasm
43. ACE inhibitors
- are safe in pregnancy
 - can cause angioedema
 - do not interact with NSAID
 - have no effect on bradykinin
44. Mannitol
- Inhibits H₂O absorption in proximal tubule, loop of henle and collecting tubule
 - Is metabolised to glycerol
 - Decreases TBW and total body cation content equally
 - Is of no value when renal haemodynamics are compromised
45. Female patient on ACE inhibitor, which is most likely to impair hypotensive effects
- Prostaglandin inhibitor

46. 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

Nervous System

1. Dantrolene in malignant hyperthermia; which is the correct MOA
 - a. it antagonises the effects of suxamethonium
 - b. it inhibits prostaglandin formation
 - c. it decreases calcium release from skeletal muscle sarcoplasmic reticulum

2. Which agent has a pure beta agonist effect in the circulation
 - a. adrenaline
 - b. noradrenaline
 - c. isoprenaline

3. Methyldopa; which is correct
 - a. causes a positive Coombs test with prolonged use

4. Propofol; which is correct
 - a. accumulates in the body
 - b. can produce abnormal muscle movements
 - c. has minimal effects on the CVS

5. Carbamazepine; which is correct
 - a. overdose causes seizures
 - b. is an enzyme inhibitor
 - c. metabolises to non-active metabolites
 - d. has antihistamine properties

6. L-dopa; which is correct
 - a. abrupt stop can increase tremour
 - b. precursor to dopamine
 - c. ? 25% reaches the brain

7. Ergot
 - a. In overdose produces hypertension and severe vasospasm which is treated with an alpha antagonist

8. Ergotamine; which is incorrect
 - a. can be given parenterally
 - b. causes vasoconstriction
 - c. causes GI haemorrhage
 - d. good early in acute migraine
 - e. can cause nausea and vomiting

9. Drugs used to treat glaucoma; which is correct drug-MOA pairing
- pilocarpine – ciliary muscle contraction
 - timolol – ciliary muscle contraction
 - acetazolamide – increased aqueous production
 - latanoprost – increased aqueous production
 - dipivefrine – decreased outflow
10. Neuromuscular junction blockers; which is incorrect
- vecuronium is predominantly kidney excreted
 - atracurium is inactivated by Hofmann elimination
 - pancuronium has a longer duration of action than vecuronium
 - pancuronium and vecuronium have the same structure
11. Which is true of local anaesthetics?
- they act on the most rapidly firing neurons
 - they act on the biggest diameter neurons first
 - they work from the outside fibres to the inside ones
12. Carbamezapine
- induces enzymes
 - has active metabolites
13. Match these eye drugs with their mechanism of action
- pilocarpine and ciliary contraction
 - prostaglandins and decreased aqueous production
 - b-blockers and increased outflow
14. Which drug decreases the effect of neuromuscular blockade?
- Atropine
 - tubocurarine
 - gentamicin
15. Which statement is true regarding recovery from irreversible neuromuscular blockade?
- it relies on receptor turnover
16. Ergotamine
- overdose can be treated with alpha blockers
 - is a partial alpha 1 agonist
17. Regarding flumazenil, which is INCORRECT?
- it can cause hypertension
 - it has a half life of 4 hours

18. A young male punter comes in with a high blood pressure, mydriasis and a high temperature. Which drug has he most likely taken?
- Atropine
 - adrenaline
 - aspirin
 - naloxone
 - cocaine
19. Regarding Valproate, what is true?
- it's VD is.....a number
 - it is lipid soluble
 - it has high FPM
20. What is true of L-Dopa?
- 33% reaches the CNS
 - it is the precursor of dopamine
 - suddenly stopping it will cause tremor
 - it's half life is about 5 hours
 - 40% less is required if it is given with a peripheral carboxylase inhibitor
21. Regarding Phenytoin, what is true?
- it demonstrates auto induction
 - low doses exhibit 1st order kinetics
22. The most common adverse effect of procainamide is
- bradycardia
 - pulmonary infiltrates
 - fever
 - hypotension
 - anaphylaxis
23. A patient complains of pain post-operatively. This is most likely to be due to
- propfol
 - isoflurane
 - suxamethonium
 - atracurium
 - ketamine
24. The muscle relaxant with the longest duration of action is
- atracurium
 - mivacurium
 - pancuronium
 - vecuronium
 - rocuronium

25. The MAC is greatest for
- nitrous oxide
 - halothane
 - isoflurane
 - methoxyflurane
 - ketamine
26. All the following are anaesthetic agents EXCEPT
- midazolam
 - glycopyrolate
 - propofol
 - fentanyl
 - etomidate
27. Prochlorperazine
- can cause neuroleptic malignant syndrome
28. Local anaesthetics
- act on the most rapidly firing neurones
 - have an increased effect on large fibre diameter
29. The muscle relaxant most commonly associated with tachycardia is low dose
- Suxamethonium
 - Atracurium
 - Vecuronium
 - Pancuronium
 - Tubocurare
30. All of the following are amide local anaesthetics EXCEPT
- lignocaine
 - bupivacaine
 - benzocaine
 - prilocaine
 - etidocaine
31. Which is an ester local anaesthetic
- tetracaine
 - lignocaine
 - bupivacaine
 - etidocaine
 - prilocaine

32. Which of the following statements are FALSE regarding vecuronium
- it has minimal cardiovascular effects
 - it is predominantly renally excreted
 - it has a significantly longer duration of action than pancuronium
33. Which is true of neuromuscular blockers
- atracurium causes hypotension in volume depleted patients
 - pancuronium causes histamine release
 - vecuronium is an isoquinolone derivative
 - gallium is eliminated by the liver
 - gentamicin increases their efficacy
34. The cholinesterase inhibitor with the shortest duration of action is
- physostigmine
 - edrophonium
 - neostigmine
 - parathion
 - malathion
35. Which of the following is a direct serotonin agonist
- fluoxetine
 - amitriptyline
 - moclobemide
 - ondansetron
 - sumatriptan
36. Regarding SSRI's
- they are preferred in the treatment of obsessive compulsive disorders over TCA's
37. Barbituates act by
- opening GABA chloride ion channels
38. Which of the following regarding carbamazepine is FALSE
- it is greater than 50 % protein bound
 - it has active metabolites
 - it induces p450 liver cytochromes
39. Carbamazepine is closely related to
- vigabatrin
 - quinidine
 - sodium valproate
 - metoprolol
 - imipramine

40. The drug that acts by MAO inhibition is
- paroxetine
 - sertraline
 - trazodone
 - moclobemide
 - clomipramine
41. The most dangerous drug in overdose is
- imipramine
 - moclobenide
 - sertraline
 - trazodone
 - paroxeteine
42. Fluoxetine
- has minimal drug interactions
 - is associated with seretonin syndrome with muscle weakness, hyperpyrexia and confusion
 - induces hepatic p450 enzymes
43. Patient on phenytoin is found to have a low blood phenytoin level. Which of the following is LEAST likely to cause this
- carbamazepime
 - non-compliance
 - disulfiram
 - erythromycin
 - hypoalbuminemia
44. Carbamazepime
- enhances sodium channel conductance
 - causes seizures in overdose
 - inhibits cytochrome p450
 - has active metabolites
 - is not a tricyclic
45. Regarding SSRI
- They are safe in OD due to minimal drug interactions
 - Can cause malignant hyperpyrexia
 - Are readily removed by dialysis
 - May cause seizures in OD
 - May be associated with seretonin syndrome with muscle weakness, hyperpyrexia and confusion

46. The opiate associated with seizures when given in high dose to patients with renal failure is
- morphine
 - pethidine
 - methadone
 - fentanyl
 - codeine
47. Regarding neurotransmitters in the brain
- strychnine stimulates glycine receptors
 - atropine antagonises GABA receptors
 - butyrophenones stimulate dopamine receptors
 - ondansetron antagonises serotonin receptors
 - atenolol stimulates noradrenaline receptors
48. Buspirone relieves anxiety without sedation by:
- direct GABA stimulation
 - indirect GABA stimulation
 - direct noradrenaline receptor stimulation
 - indirect noradrenaline stimulation
 - none of the above
49. The most potent sedative is
- diazepam
 - midazolam
 - temazepam
 - phenobarbitone
 - chloral hydrate
50. The drug used as an antipsychotic most likely to cause extrapyramidal effects is
- chlorpromazine
 - lorazepam
 - risperidone
 - haloperidol
 - clozapine
51. A man presents with dilated pupils, confusion, hyperpyrexia. Which of the following drugs would not account for this
- atropine OD
 - morphine
 - datura
52. A healthy young man receives a normal dose of a drug which induces midriasis and increased systolic blood pressure .
The drug could be
- adrenaline
 - acetylcholine

53. Characteristics of propranolol include all EXCEPT
- lipid solubility
 - local anaesthetic action
 - half life of 3-6 hours
 - bioavailability of 30 %
 - beta sympathetic selectivity
54. A patient arrives in the DEM staggering, agitated, hyperthermic with dilated pupils. Which is least likely to produce this effect
- atropine OD
 - amphetamine OD
 - aspirin OD
 - tricyclic OD
 - angels trumpet
55. A young man is injected with an iv drug. He shows a resultant tachycardia, midriasis, normal blood pressure and reduced sweating. The most likely drug is
- nicotinic antagonist
 - muscarinic antagonist
 - cholinomimetic
 - adrenergic agonist
 - adrenergic antagonist
56. A woman is hypertensive with a potassium of 6.7. which of the following is LEAST likely to cause this
- potassium supplements
 - furosemide
 - ACE inhibitor
 - Suxamethonium
 - Spironalactone
57. The major side effect of benztropine is
- miosis
 - confusion
 - diarrhoea
 - GIT haemorrhage
 - Bronchorrhoea
58. Stemetil
- useful in tardive dyskinesia
 - can cause neuroleptic malignant syndrome
 - has antiemetic effect via 5-HT antagonist activity
59. Alpha -methy- dopa
- can cause a positive Coombs test

60. Termination of irreversible neuromuscular block involves
- regeneration of receptors
 - increase in end plate Ach
61. Regarding antidepressants
- fluoxetine is more sedating than tricyclics
 - SSRI's are more effective in OCD
62. Carbamazepine
- is metabolised to active metabolites
 - in overdose causes seizures
 - is an enzyme inhibitor
63. What has pure beta agonist effect in the circulation
- adrenalin
 - noradrenalin
 - isoprenalin
64. Regarding the treatment of Parkinsons, which is INCORRECT
- L-dopa is contraindicated in acute psychoses
 - Bromocriptine has less CNS effects than L-dopa
 - Administration of L-dopa with a dopa decarboxylase inhibitor decreases side effects
65. GABA receptor
- barbituates increase the time GABA opens
 - barbituates do not effect warfarin metabolism
66. In TCA overdose
67. Regarding the treatment of glaucoma, which of these decreases aqueous outflow?
- Timolol
 - Lantanoprost
 - Carbechol
 - Adrenaline
 - Acetazolamide
68. Regarding sedatives
- Barbiturates increased the time of GABA channel opening
 - Carbamazepine has no active metabolites
 - Phenytoin has low plasma protein binding
69. Which causes methaemaglobinaemia (repeat)
- Prilocaine

70. How does pralidoxime work? (repeat)
71. Regarding St Johns Wort
- It is more effective than placebo
 - It has a side effect profile comparable/same as placebo
 - Can cause hyperthermic/hypertensive reaction
 - It has more side effects than placebo
72. What is the correct order of catecholamine synthesis?
- Tryptophan – dopa – dopamine – adrenaline – noradrenaline
 - Tyrosine - dopa- dopamine – adrenaline – noradrenaline
 - Tyrosine – dopa – dopamine – noradrenaline – adrenaline
 - Tyrosine – dopamine – dopa – noradrenaline – adrenaline
 - Tyrosine – dopamine – dopa – adrenaline – noradrenaline
73. A young man presents with dilated pupils, confusion and hyperpyrexia. Which of the following could not account for these effects.
- Atropine
 - Datura
 - Morphine
74. Pralidoxime acts to
- Inhibit presynaptic ACh release
 - Cleave acetylcholinesterase
 - Regenerate ACh
75. Vecuronium, all of the following are true except
- Has minimal CVS effects
 - Is predominantly renally excreted
 - Has a significantly longer duration of action than pancuronium
76. In the treatment of parkinsons disease
- Antimuscarinics are better for the treatment of (?) tremor than dopamine agonists
 - Administration of L-dopa with a dopa decarboxylase inhibitor decreases side effects
77. Dantrolene is a good choice in treatment of malignant hyperpyrexia because
- It antagonises the effects of suxemethonium
 - It inhibits prostaglandin formation
 - It decreases calcium release from sarcoplasmic reticulum in skeletal muscle
78. Atracurium
- Has a longer duration of action than vecuronium
 - Is not associated with histamine release
 - Is a steroid derivative
 - Is eliminated by non renal/liver dependant mechanisms

79. Regarding pancuronium - which is incorrect?
- It is a steroid
 - It does not release histamine
 - It is renally excreted
 - It has a shorter duration of action than vecuronium
80. Phenytoin
- Is lowly protein bound
 - Causes agranulocytosis in 5% of patients
 - Can cause abnormalities of vitamin D metabolism
81. Match the drug and effect - which is wrong?
- Phenytoin - gum hypertrophy
 - Carbamazepine - blood dyscrasias
 - Phenobarbitone -
 - Ethosuximate - hirsutism
82. Which local anaesthetic causes methaemaglobinaemia?
- Lignocaine
 - Tetracaine
 - Bupivacaine
 - Procaine
 - Prilocaine
83. Benztropine causes
- Miosis
 - Diarrhoea
 - Confusion
 - Bronchorrhea
 - GIT haemorrhage
84. A patient on phenytoin has a seizure and is found to have a low level, which is least likely to cause this?
- Phenobarbitone
 - Non-compliance
 - Hypoalbuminaemia
 - Disulfiram
 - Erythromycin
85. Diazepam
- Does not engender psychological dependence
 - Is metabolized to oxazepam

86. Regarding fluoxetine
- Serotonin syndrome = muscle weakness, hyperpyrexia and confusion
 - It is removed by dialysis
 - Can cause malignant hyperpyrexia
 - Is an enzyme inhibitor
 - Is safe in overdose due to minimal drug interactions
87. Dobutamine
- Results in ATP → AMP
 - Can decrease systemic vascular resistance / afterload
88. All prolong refractory period in normal cells, except
- amiodarone
 - lignocaine
 - quinine
 - pracainamide
 - sotalol
89. Propofol
- Does accumulate
 - Can produce abnormal muscle movements
 - Has minimal effects on the CVS
90. Benztropin
- causes confusion
 - causes diarrhoea
 - causes GI hemorrhage
 - causes miosis
91. Barbiturates
- Only Phenobarbital is excreted unchanged by the kidney
 - stimulates the medullary vasomotor center
 - have more benign side-effect spectrum than benzodiazepine
92. L-Dopa
- 1-3% reaches the brain
 - Precursor to tyrosine
 - abrupt stop can increase tremor
 - rarely needs increase in dose once effective

93. Stemetil
- can cause neuroleptic malignant syndrome
 - can cause malignant hyperthermia
 - can cause serotonin syndrome
 - never causes tardive dyskinesia
 - has anti-emetic effect through serotonin antagonism
94. Treatment of glaucoma does not include
- alpha blocker
 - beta blocker
 - carbonic anhydrase inhibitor
 - cholino-mimetic agents
95. Praloxidime
- regenerates acetylcholine
 - regenerates acetylcholine receptors
 - regenerates acetylcholinesterase
 - regenerates succinylcholine
96. SSRI's
- Have more pronounced side effects than TCA's
 - are the treatment of choice in bipolar disease
 - usually have short half-lives
 - are effective in obsessive compulsive disorders
97. Diazepam
- is metabolised to lorazepam
 - is metabolised to oxazepam
 - has a half life of 4 hours
 - should not be used in convulsions of unknown origin
98. Which local anaesthetic causes methemoglobinemia?
- lignocaine
 - prilocaine
 - bupivacaine
 - procaine
99. Cisapride
- Has a half life of 6-8 hours
 - Decreases lower oesophageal sphincter pressure
 - Is well absorbed orally
100. Sumatriptan
- Is a partial alpha 1 agonist

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

- a. Adrenaline
- b. Atropine

102. Dantrolene is used in malignant hyperthermia. Its mechanism of action is:

- a. Succinylcholine antagonist
- b. decrease in calcium release from sarcoplasmic reticulum
- c. hypothermia through muscle relaxation
- d. antipyretic through prostaglandin inhibition

Antimicrobial Agents

1. Sulphonamides are a structural analogue of
 - a. PABA
 - b. Dihydrofolate
 - c. Tetrahydrofolate
 - d. Folic acid
2. Interferons; which is incorrect
 - a. has virus specific antiviral activity
 - b. antiviral to all viruses
3. Amphotericin B; which is correct
 - a. can be given orally to treat systemic illness
 - b. can cause fever, headache and confusion
 - c. dose needs to be reduced in renal impairment
 - d. can cause liver toxicity/damage/problems (unsure of exact statement)
4. Antibiotic resistance; which pair is incorrect
 - a. vancomycin – alteration in D-ALA-D-ALA
 - b. penicillin – beta lactamase
 - c. gentamicin - ? penetration into cell
 - d. erythromycin - ? esterase
 - e. fluoroquinolones - ? binding sites
5. Zidovudine (AZT); which is correct
 - a. has a short half life
 - b. blocks thymidine kinase
 - c. not used to treat retroviruses
 - d. similar mechanism of action to amantadine
6. Cephalosporins; which is incorrect
 - a. ceftazadime has activity against pseudomonas
 - b. cefaclor is second generation
 - c. third generation have greater gram negative spectrum than first generation
 - d. not as sensitive to beta-lactamase as penicillins (giving a wider spectrum)
7. Norfloxacin
 - a. has increased concentration in tubular fluid when given with probenecid
 - b. something to do with nucleic acid synthesis
8. Sulphonamides
 - a. are structurally related to PABA

9. Gentamicin
- is an oxygen dependant antibiotic
10. Which is true of penicillin-V?
- it can be used for eyes
 - it should be given on an empty stomach
11. regarding AZT
- it has a short half life
12. Regarding metronidazole
- it is indicated for trichomonas
 - it is NOT indicated for gardnerella
 - it inhibits aldehyde dehydrogenase
13. Which is the correct combo of AB and mechanism of resistance?
- Gentamicin and ?cell entry
 - erythromycin and esterase production
 - quinolones and point mutation
 - vancomycin and ALA-ALA-ALA repeat
 - penicillin and esterase production
14. A patient with impetigo would be most likely to respond to
- streptomycin
 - kanamycin
 - metronidazole
 - cephalexin
 - phenoxymethylpenicillin
15. Which of the following is a live virus vaccine
- typhoid
 - tetanus
 - HBV
 - Rabies
 - Measles
16. Which skin antiseptic is commonly used
- ethyl alcohol 70%
 - ethanol 30%
 - isopropyl alcohol 10%
 - formaldehyde
 - boric acid

17. Macrolide antibiotics
- are usually active against neisseria species
 - are bacteriostatic but not bactericidal
 - bind at the 30 s ribosome sub-unit
 - are unaffected by plasmid mediated resistance
 - enhance metabolism by cytochrome pathways
18. Which of the following is a second generation cephalosporin
- cefaclor
 - ceftazidime
 - cephalexin
 - cefotaxime
 - cephalothin
19. The cephalosporin with the highest activity against G +ve bacteria is:
- cefuroxime
 - cefotaxime
 - cefaclor
 - cefipime
 - cephalothin
20. Which of the following antibiotics does not possess a beta-lactam ring
- penicillins
 - cephalosporins
 - fluoroquinolones
 - carbapenams
 - monobactams
21. Which of the following drugs does not exert its action by inhibiting cell wall synthesis
- vancomycin
 - erythromycin
 - penicillin
 - ceftriaxone
 - imipenem
22. Erythromycin
- has a large cross-reactivity with the penicillins
 - is bacteriostatic only
 - is ineffective against G +ve organisms
 - is inactivated by beta-lactamases
 - binds to the 50 s sub-unit of the bacterial ribosome
23. Erythromycin
- is effective against campylobacter jejuni

24. Metronidazole
- inhibits alcohol dehydrogenase
 - is effective for vaginal trichomoniasis
 - does not cause a metallic taste in the mouth
 - turns urine green
25. Penicillins reach high concentrations in
- vitreous humour
 - CSF with normal meninges
 - Proximal tubular fluid in kidneys
26. Zidovudine (AZT)
- has a short half life
 - inhibits viral thymidine kinase
 - has no activity against retroviruses
27. The antiviral drug which acts on reverse transcriptase is:
- Acyclovir
 - zidovudine
 - ganciclovir
 - vidarabine
 - all of the above
28. Regarding metronidazole which is not true
- it is used to treat giardiasis
 - it inhibits alcohol dehydrogenase
 - it causes a metallic taste in the mouth
 - it is used to treat gardenella
 - it is useful against trichomonas vaginalis
29. Acyclovir is active against all the following EXCEPT
- HSV
 - CMV
 - HZV
 - Varicella
 - None of the above
30. Acyclovir
- is commonly given in doses of 10-20 mg TDS
 - is used to treat CMV
 - is a guanosine analogue
 - acts to inhibit viral entry into cells
 - is only available intravenously

31. Amantadine
- is an antiviral drug
 - produces insomnia not sedation
 - causes acute psychosis
 - potentiates dopaminergic function
 - all of the above
32. Doxycycline
- acts to inhibit nucleic acid synthesis
 - may cause photosensitivity
33. Metronidazole
- may cause a disulfiram-like reaction
 - is only available intravenously
34. All of the following inhibit nucleic acid synthesis except
- norfloxacin
 - trimethoprim
 - rifampicin
 - sulfasalazine
 - chloramphenicol
35. Gentamicin
- is not nephrotoxic
 - increases the effect of neuromuscular junction blocking drugs
36. Gentamicin
- may be given orally
 - enters cells by an oxygen dependent influx
 - has a large therapeutic index
37. Which of the following is not true of trimethoprim
- it is useful in the treatment of UTI
 - it is bactericidal
 - it is an anti-folate anti-metabolite drug
38. Regarding trimethoprim, which is INCORRECT
- synergistic with sulphonamides
 - folate synthesis disruption
 - less toxic to humans than bacteria
 - is bacteriocidal

39. Aminoglycosides
- resistance is plasmid mediated
 - does not cross species
40. Which is INCORRECT
- disinfectants clean non-living fields
 - antiseptics clean living fields
 - antiseptics in low dose can promote bacterial growth
 - alcohol kills all bacteria and spores
41. Aciclovir
- dose is 10-20 mg five times daily
 - does not work on viruses with thymidine kinase
 - does not work on CMV
 - is a guanosine analogue
42. Metronidazole
- shown to be teratogenic in humans
 - causes a disulfiram like reaction
 - inhibits alcohol dehydrogenase
 - is recommended as a single dose for Giardiasis
43. Which of the following is a cell wall inhibitor
- cephalosporin
 - tetracyclin
 - ciprofloxacin
44. Tetracyclin
- may cause photosensitivity
 - does not cause enamel discolouration
45. Gentamicin
- is water soluble but unstable in solution
 - is an antibiotic which is O₂ dependant
46. Which antibiotic is resistant to beta – lactamase
- piperacillin
 - cloxacillin
 - amoxicillin
 - penicillin

47. Regarding penicillins
- Doesn't cause hypernatremia
 - Can cause seizures
 - 50% of people with previous reaction will have another reaction
 - foods treated with tetracycline can cause reaction
48. Erythromycin
- Treats campylobacter jejuni
49. Which of these is INCORRECT?
- Disinfectants clean non-living fields
 - Antiseptics clean tissue
 - Alcohol kills fungi and spores
50. Which of these inhibit cell membrane function?
- Amikicin
 - Erythromycin
 - Vancomycin
 - Amphotericin B
51. Regarding cephalosporins, which is INCORRECT
- Cefaclor is a second generation
 - 2nd generation have greater gram negative activity than first
 - ceftriaxone has anti-pseudomonal activity
 - 3rd generation has good cover for penicillin resistant strep
 - Generally have wider spectrum of activity compared to penicillins due to beta-lactamase resistance
52. Regarding erythromycin (repeat)
- Affects 30S subunit
 - Is bactericidal
 - Effective against Campylobacter jejuni
53. Penicillins reach high concentrations in
- Vitreous humour
 - CSF with normal meninges
 - Proximal tubular fluid in kidneys
54. Which antibiotic is a cell wall inhibitor?
- erythromycin
 - streptomycin
 - vancomycin
 - gentamycin

55. Pentamidine
- Is an antiretroviral agent
 - is a protease inhibitor
 - can cause iatrogenic diabetes
 - should be avoided in HIV patients
56. Pentamidine
- Is toxic to pancreatic B cells
57. Interferons;
- Are directly antiviral
 - Exert virus-specific anti-viral activities
 - Can be used to treat Kaposi's sarcoma
58. Zidovudine;
- Is a protease inhibitor
 - Has a short serum half life
 - Has no activity against retroviruses
 - Inhibits viral thymidine kinase
59. Penicillin G
- Hypernatraemia is not reported
 - Has good penetration to the eye
 - 100 000u intrathecally can cause seizures
 - 50% of people who claim allergy will have an allergic reaction on further exposure
60. Which causes hypoprothrombinaemia & bleeding disorders?
- Cefuroxime
 - Cephalexin
 - Cefaclor
 - Cefotetan
 - Ceftazidime
61. Which antiseptic is commonly used in medical practice/
- Ethyl alcohol 70%
 - Ethanol 30%
 - Formaldehyde
 - Isopropyl alcohol 10%
 - All of the above
62. Metronidazole
- Commonly causes constipation
 - Inhibits alcohol dehydrogenase
 - Is useful in treatment of urogenital trichomonas

63. Erythromycin

- d. Is predominantly renally excreted
- e. Is a cell wall inhibitor
- f. Is bacteriostatic only
- g. Is effective against *Campylobacter jejuni*

64. Sulphonamides are a structural analogue of

- h. Folate
- i. Vit B12
- j. PABA
- k. penicillin

65. Acyclovir is active against all except;

- a. CMV
- b. VZV
- c. HSV
- d. EBV

Autocoids

1. On administration of an anti-histamine which of the following effects are caused by receptors other than histamine receptors
 - a. sedation
 - b. postural hypotension
 - c. nausea and vomiting
 - d. LA
 - e. All of the above

2. Antihistamines have significant effects at which other receptors? (only definite option I could remember was alpha and probably dopamine. The other ones may be confabulatory)
 - a. Dopamine
 - b. Alpha adrenergic
 - c. Muscurinie
 - d. Nicotinic
 - e. Serotonin

3. Histamine
 - a. decreases smooth muscle spasm
 - b. gives vasoconstriction and therefore hypertension
 - c. increase myocardial contractility
 - d. has no effect on local edema

4. Histamine when injected locally could be expected to produce all of the following except
 - a. Increase contractility of GI smooth muscle
 - b. Decrease systemic vascular resistance
 - c. Decrease myocardial contractility

Endocrine System

1. Which of these has a different mode of action
 - a. insulin
 - b. glucagon
 - c. ACTH
 - d. PTH
 - e. All of the above
2. Glucocorticoids; which is correct
 - a. prednisolone is 5 times more potent than hydrocortisone
 - b. fludrocortisone can only be given intravenously
 - c. methylprednisolone has mineralocorticoid effects
 - d. dexamethasone has a short half life
3. With regard to the mechanism of action of steroids
 - a. they cause bronchodilation
 - b. something to do with interferons
4. Regarding thyroid hormones
 - a. the half life of T3 is greater than that of T4
 - b. other options to do with endogenous vs man-made hormones
5. With regard to oral hypoglycaemics
 - a. tolbutamide and glipizide are sulphonylureas
 - b. chlorpropamide has a half life of 4-6 hours
 - c. metformin is more effective once weight is controlled
 - d. glipizide has one of the longest half lives
 - e. lactic acidosis is more common with metformin than phenformin
6. The most potent mineralocorticoid is
 - a. hydrocortisone
 - b. prednisolone
 - c. methylprednisolone
 - d. dexamethasone
 - e. betamethasone
7. Metformin
 - a. does not require functioning pancreatic beta cells for its action

8. Which is most potent
- cortisol
 - cortisone
 - aldosterone
 - corticosterone
 - deoxycorticosterone
9. Which action of glucagon is INCORRECT
- Smooth muscle relaxant
 - Positive inotrope
 - Positive chronotrope
 - Stimulates gluconeogenesis
10. Insulin does not cause
- Decrease glycogenolysis in the liver
 - Increase glycogen synthesis in the liver
 - Increase lipolysis in the liver
11. Metformin
- Is a sulphonylurea
 - Can cause a significant lactic acidosis (?)
 - Is similar to chlorpropamide
 - Their action is (or is not - can't remember exact option) dependant on insulin
 - Does not require functioning pancreatic B cells for its action
12. Insulin causes
- Decrease lipolysis in liver
 - Decrease glycogenesis in liver
 - Increase glycogen synthesis in liver
 - Decrease lipolysis in skeletal muscle

Gastrointestinal Tract

1. Cisapride; which is correct
 - a. is a serotonin antagonist
 - b. is a dopamine antagonist
 - c. slows colonic motility
 - d. atropine opposes its effects
2. Antiemetics; which is incorrect
 - a. diphenoxylate
 - b. dexamethasone
 - c. THC
 - d. Ondansetron
 - e. Diphenhydramine
3. Metoclopramide; which is correct
 - a. decreases lower oesophageal sphincter tone
 - b. increases antral contractility
 - c. decreases ileal peristalsis
 - d. is a dopamine agonist
4. Regarding Cisapride, what is true?
 - a. it makes Parkinson's disease worse
5. Cisapride
 - a. slows gastric emptying
 - b. delays oesophageal clearance
 - c. raises lower oesophageal sphincter pressure
 - d. increases pancreatic secretions
 - e. increases gastric secretions
6. 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
7. Regarding antiulcer/antireflux drugs
 - a. Oral antacids completely safe in people with renal failure
8. Metoclopramide
 - a. Increases antral contractility

9. Cimetidine

- a. blocks both H1 and H2 receptors
- b. $t_{1/2}$ is 22 hours
- c. inhibits cytochrome P450
- d. never causes gynaecomastia

10. regarding antiemetics

- a. metoclopramide increased lower oesophageal sphincter tone
- b. metoclopramide is a dopamine agonist
- c. THC works at the chemoceptor trigger zone

Analgesics & NSAIDs

- Which pathway produces the toxic metabolite in paracetamol overdose
 - N-hydroxylation
 - Glucoronidation
 - Sulfation
 - Conjugation with glutathione
- Opiates; which is correct
 - morphine acts as a mu, kappa and delta agonist
- Aspirin; which is correct
 - has a pKa of 6.5
 - moderate doses increase respiratory rate
 - high doses cause alkalosis
 - reversible inhibitor of cyclo-oxygenase
 - alkalinising the urine will decrease excretion
- Ketamine; which is correct out of the following options
 - cardiovascular stimulant via a central mechanism
 - increases respiratory rate initially
- Ketamine
 - has a brief period of increased resp rate
 - decreases the brains oxygen use/requirement
 - is a negative ionotrope
- Tolerance to morphine involves all of these features EXCEPT
 - miosis and resp depression
 - euphoria
 - analgesia
 - cough suppression
- Which is true of aspirin?
 - it has a pKa of 6.5
 - causes cutaneous vasodilation
- what is correct regarding salicylates?
 - they demonstrate capacity limited clearance at low doses
 - they have a pKa of 6.5
 - they cause platelets to have a half life of 2 days
- In an overdose of paracetamol
 - metabolism of paracetamol requires glutathione

10. Paracetamol
- has anti-inflammatory properties
 - is highly protein bound
11. Dextropropoxyphene
- is structurally related to methadone
12. Ketamine is closely chemically related to
- phencyclidine
 - LSD
 - Propofol
 - Thiopentone
 - Enflurane
13. A high degree of tolerance can be expected to all these effects of morphine EXCEPT
- miosis
 - nausea
 - cough suppression
 - analgesia
 - respiratory depression
14. Methadone is used in the treatment of narcotic addiction because
- it does not produce constipation
 - it is a phenylpiperidine class narcotic agonist
 - it produces a short withdrawal when ceased
 - it produces predictable effects when given orally
 - it is a less efficacious analgesic than morphine
15. What do kappa receptors mediate
- supraspinal analgesia and euphoria
 - truncal rigidity
 - hallucinations and dysphoria
 - respiratory depression and dependence
 - spinal analgesia and miosis
16. Allopurinol
- metabolised by xanthine oxidase
 - has no side effects
 - useful in acute gout
 - low oral bioavailability

17. Regarding paracetamol toxicity
- toxicity is related to glutathione consumption
 - enhanced with cimetidine
 - toxic metabolite is due to sulphanation
18. Paracetamol
- is only given orally
 - highly protein bound
 - doesn't cause hyperuricaemia
19. Dextropropoxyphene
- when combined with paracetamol is a strong anti inflammatory
 - overdose causes death from hepatotoxicity
 - structurally related to methadone
20. Regarding paracetamol
- It has significant anti-inflammatory effects
 - No effect on uric acid levels
21. Regarding Aspirin
- Low doses causes hypoventilation
 - High doses cause metabolic alkalosis
 - Reversibly inhibits COX
22. Regarding ibuprofen
- More gastric side effects than aspirin
 - Low bioavailability
 - Irreversibly inhibits COX
23. Naloxone
- Has a half life of over 4 hours
 - Has a half life of less than one hour
 - Has a half life of between 2 and 3 hours
 - Has a half life of between 1 and 2 hours
 - Has a half life of between 3 and 4 hours
24. Pethidine
- Causes raised CSF pressure
25. Dextropropoxyphene
- should never be used in combination with paracetamol
 - should be avoided in renal failure
 - is structurally similar to methadone

26. Allopurinol

- a. metabolised by xanthine oxidase
- b. used in acute gout
- c. low bioavailability

27. Ketamine

- d. is a bronchoconstrictor
- e. increases respiratory rate initially
- f. has no cardiovascular effects
- g. can cause agitation and 'emergence' in children

Toxicology

1. Ethylene glycol overdose; which is correct
 - a. toxicity is due to polycyclic hydrocarbon ring structure
 - b. causes formic acid crystals in urine
 - c. causes metabolic alkalosis
 - d. (some drug) is the antidote (NOT ethanol, may have been fomepizole?)

2. Cocaine; which is incorrect
 - a. inhibits monoamine oxidase
 - b. blocks uptake of catecholamines
 - c. enhances dopamine activity
 - d. has central and peripheral effects
 - e. has local anaesthetic effects

3. Yet another overdose rocks up to your ED. You examine them and find them to have: blurred vision, urinary retention, dilated pupils and to be very agitated. What have they taken?
 - a. cocaine
 - b. TCAs
 - c. morphine

4. Another dodgy young male has had an overdose of a drug....he is hyperthermic, agitated and has rhabdomyolysis...which drug has he taken to excess?
 - a. cocaine
 - b. MDMA
 - c. Aspirin

5. repeat question regarding ethyl alcohol PhK and PhD
 - a. is excreted unchanged by the lungs

6. Methanol intoxication
 - a. is partly due to inhibition of aldehyde dehydrogenase
 - b. is due to formation of oxalic acid
 - c. is treated in part with activated charcoal
 - d. produces renal damage due to crystal formation
 - e. can be treated with 4 methylpyrazole

7. Cannabinoids
 - a. produce tachycardia
 - b. have an antipsychotic action
 - c. act on a number of non-specific receptors
 - d. constrict the pupils
 - e. all of the above

8. Regarding ethyl-alcohol
 - a. excreted unchanged in the lungs
 - b. causes CNS excitation then depression

9. regarding marijuana
 - a. it causes miosis
 - b. hydroponic indoor-grown varieties are no more potent than soil grown
 - c. it causes conjunctival hyperaemia and tachycardia

10. A 30 year old male patient presents with an acute myocardial infarction. Which drug has most likely caused this?
 - a. alpha-1 effect of cocaine
 - b. increased adrenalin production due to heroin
 - c. increased serotonin due to fluoxetine
 - d. monoamineoxidase inhibition by amphetamine derivative

11. 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

12. The metabolism of paracetamol to its toxic metabolite is via which reaction
 - a. Glucuronidation
 - b. Sulphation
 - c. Hydroxylation

Extremes of Age & Pregnancy

1. Drug toxicity and the foetus; which is correct
 - a. ACE inhibitors – renal failure/damage
 - b. Thalidomide – neural tube defects
 - c. Alcohol – Ebstein's anomaly
2. Which of the following drugs is safest in pregnancy?
 - a. heparin
 - b. warfarin
 - c. enoxaparin
3. Which is the correct combo of agent and teratogenic effect?
 - a. Lithium – Epstein Barr anomaly
 - b. ACE inhibitors – hydronephrosis
4. Which of the following drugs is the most safe to give in pregnancy
 - a. heparin
 - b. lithium
 - c. phenytoin
 - d. captopril
 - e. gentamicin
5. Regarding drugs in the elderly
 - a. the dose of lithium should be increased
 - b. phase II biotransformation is much poorer
 - c. they have an increased lean body mass
 - d. side effects are proportional to the amount of medication
 - e. they have higher serum albumin
6. Which is safest to give in pregnancy
 - a. Lithium
 - b. Phenytoin
 - c. Warfarin
 - d. ACE inhibitor
 - e. Heparin
7. Neonates have
 - a. increased total body water
 - b. decreased bioavailability
 - c. increased clearance of drugs by glomerular filtration
 - d. increased hepatic enzymes
 - e. increased protein binding

8. Elderly people have reduced hepatic clearance of
- a. ethanol
 - b. warfarin
 - c. prazosin
 - d. tolbutamide
 - e. salicylate

Miscellaneous Agents

1. Which agent does not cause constipation
 - a. verapamil
 - b. digoxin
 - c. warfarin
2. Allopurinol; which is correct
 - a. metabolised by xanthine oxidase
 - b. has no side effects
 - c. useful in acute gout
 - d. low oral bioavailability
3. Hyperkalaemia; which drug is unlikely to have caused
 - a. methyldopa
 - b. potassium supplement
 - c. spironolactone
 - d. ACE inhibitor
 - e. Naproxen
4. Drug interactions; which pairing is correct
 - a. Rifampicin induces warfarin metabolism
 - b. Carbamazepine inhibits
5. Which drug has a half life of 6 hours?
 - a. Atenolol
 - b. aspirin
 - c. lignocaine
 - d. adenosine
6. Regarding drugs that affect thyroid function, which is true?
 - a. amiodarone.....mech
 - b. Lithium inhibits T4 absorption
 - c. Iodide decreases the amount of TBG
 - d. phenytoin alters T3 and T4 metabolism
7. With regard to the side effects of N-Acetyl Cysteine, all are true EXCEPT:
 - a. bronchoconstriction
 - b. increased endogenous histamine production and release
 - c. it causes glutathione regeneration
 - d. it inhibits P450 enzymes
 - e. cimetidine increases its toxicity

8. Which of the following has its metabolism inhibited by limiting liver blood flow
- verapamil
 - lignocaine
 - labetalol
 - trimethoprim
 - propoxyphene
9. Allopurinol
- is metabolised by xanthine oxidase
10. Which of the following drugs causes methaemoglobinemia
- lignocaine
 - prilocaine
 - bupivacaine
 - benzocaine
 - cocaine
11. Which of the following drugs can cause alopecia
- warfarin
 - heparin
 - verapamil
 - ticlodopine
 - digoxin
12. Which of the following drugs DOES NOT cause constipation
- verapamil
 - digoxin
 - imipramine
 - codeine
 - chlorpromazine
13. Which of the following drugs can cause hypothermia
- cefuroxime
 - cefotetan
 - cefazolin
 - cefaclor
 - ceftriaxone
14. Which of the following drugs does not cause the same effect
- muscarine
 - acetylcholine
 - hyoscine
 - carbachol
 - methacholine

15. Which of the following side effects for given drugs is wrong

- a. phenytoin and gum hypertrophy
- b. phenobarbitol and enzyme induction
- c. carbamazepine and ataxia
- d. ethosuximate and hirsutism
- e. valproate and idiosyncratic hepatic toxicity

16. Which of these has a different mode of action

- a. insulin
- b. glucagon
- c. ACTH
- d. PTH
- e. All of the above

17. Chose the odd one out

- a. muscarine
- b. Ach
- c. Hyoscine
- d. Bethanachol

18. Which drug does not interact with warfarin

- a. phenobarbitone
- b. loop diuretic
- c. benzodiazepine
- d. cephalosporins

19. Which agent does not cause constipation

- a. verapamil
- b. digoxin
- c. warfarin

20. Fosamax working mechanism:

- a. increasing hydroxyapatite
- b. increasing calcium resorption
- c. decrease in phosphate excretion

21. Which applies to Simvastatin

- a. half life is 5-8 hours
- b. has a low bioavailability
- c. is associated with peptic ulcer disease
- d. is not known to give rhabdomyolysis

Genito-urinary Agents

1. Which raises the pH of the urine the most
 - a. frusemide
 - b. acetazolamide
 - c. chlorothiazide
 - d. phenobarbitone

2. Ph of urine is increased mostly by
 - a. acetazolamide
 - b. furesemide
 - c. chloorthiazide
 - d. spironolacton

3. Which raises the pH of the urine the most
 - a. Acetazolamide
 - b. Frusemide
 - c. Chlorthiazide