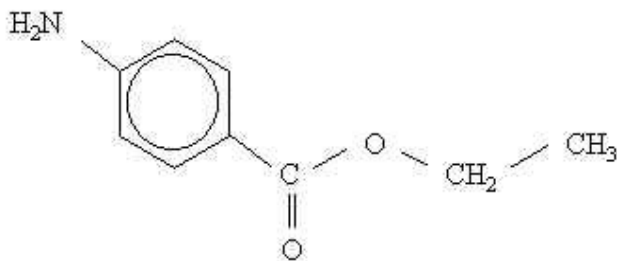


## Sample MCQ Questions

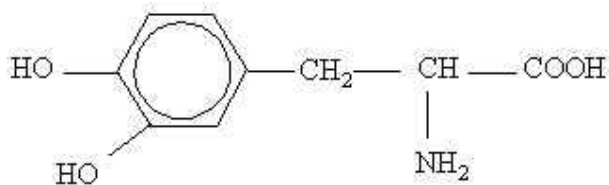
### PHARMACEUTICAL CHEMISTRY

1 Which is **NOT** true for the substance with the following chemical structure?



- A insoluble in water
- B used as a topical, local anaesthetic
- C a benzoic acid derivative
- D readily hydrolyzed in boiling water
- \*E insoluble in mineral acids

2 The compound with the following structure is ( )-3-(3,4-dihydroxyphenyl)-L-alanine. Select the most appropriate statement below.



- A the compound is adrenaline
- B it is a dextrorotatory compound
- \*C it is a precursor of dopamine
- D it is used to treat hypertension
- E it is an essential amino acid

3 Ibuprofen has a pKa of 5.5. If the pH of the patient's urine is 7.5. What is the ratio of dissociated to undissociated drug?

- A 1:100
- B 1:2
- C 2:1
- D 20:1
- \*E 100:1

4 Sulfonamides are metabolised by humans principally by

- \*A acetylation
- B deamination
- C oxidation
- D conjugation
- E methylation

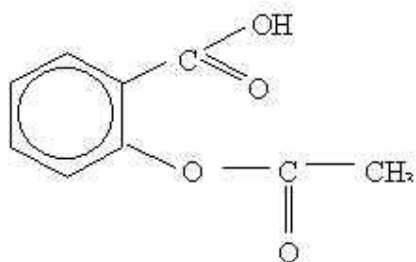
5 In which drug is the pharmacological activity associated with a specific optical isomer?

- \*A adrenaline
- B aspirin
- C phenobarbitone
- D acetylcholine
- E caffeine

6 The functional group which contributes to the instability of aspirin is

- A alcohol
- B ketone
- \*C ester
- D heterocycle
- E ether

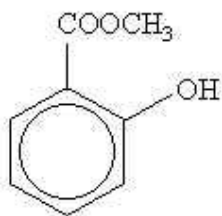
7



Which of the following therapeutic classifications does the chemical structure above belong to?

- A tranquilizer
- B anti-infective
- C antihistamine
- \*D analgesic
- E antidiuretic

8



The chemical formula above represents

- A aspirin
- \*B methyl salicylate
- C salicylic acid
- D salicylamide
- E methyl-2-hydroxysalicylate

9 Which of the following drugs would **NOT** be expected to show appreciable absorbance in the ultraviolet region of the electromagnetic spectrum?

- \*A glucose
- B tetracycline
- C folic acid
- D amitriptyline
- E prochlorperazine

10 The ultraviolet region of the spectrum used in drug analysis

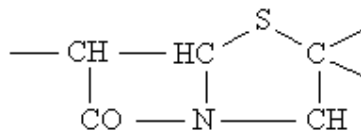
- A 50 - 200 nm
- \*B 200 - 400 nm
- C 200 - 750 nm
- D 400 - 600 nm
- E 600 - 800 nm

- 11 All optically active compounds
- A decompose in strong light
  - B undergo photochemical reactions
  - \*C contain a centre or plane of asymmetry
  - D contain a double bond
  - E racemize in solution

- 12 Which of the following drugs is **LEAST** likely to cause electrolyte imbalance?
- A hydrochlorothiazide
  - \*B aluminium hydroxide
  - C potassium chloride
  - D frusemide
  - E sodium bicarbonate

- 13 Which one of the following elements is radioactive?
- A  $^{13}\text{C}$
  - B  $^{81}\text{Br}$
  - \*C  $^{32}\text{P}$
  - D  $^2\text{H}$
  - E  $^{10}\text{B}$

- 14 The structure pictured below is characteristic of

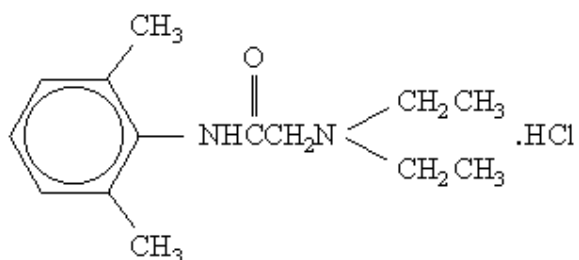


- A cephalosporins
  - B thiazides
  - C thiobarbiturates
  - \*D penicillins
  - E thioguanines
- 15 Which of the following co-factors are required for drug metabolising enzymes?
- \*A reduced nicotinamide-adenine dinucleotide phosphate (NADPH) and oxygen
  - B reduced nicotinamide-adenine dinucleotide (NADH) and oxygen
  - C NADPH and hydrogen peroxide

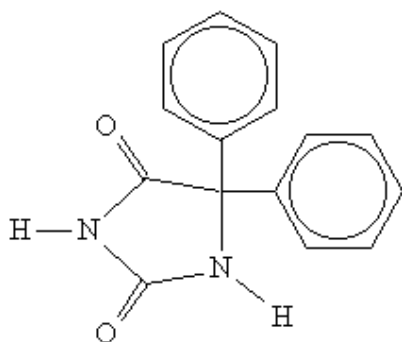
- D NADH and hydrogen peroxide
- E NADPH, NADH and hydrogen peroxide

16.

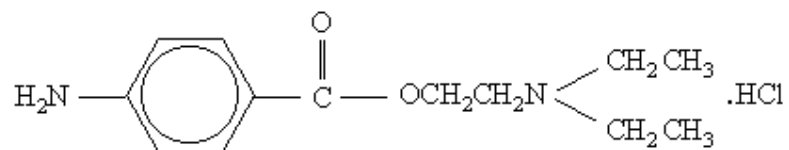
A.



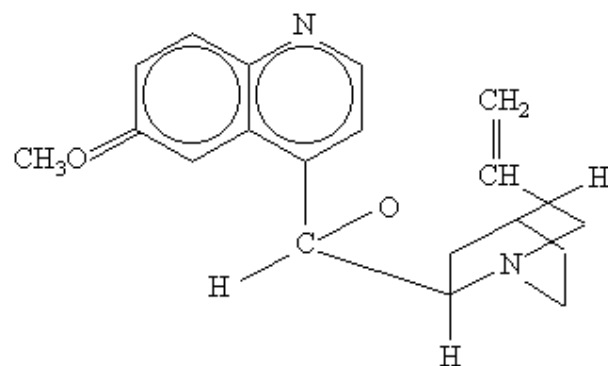
B.



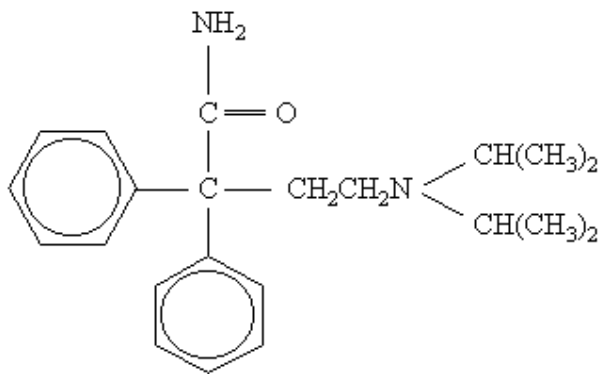
C.



D.



E.



In the scheme above, the structural formula for quinidine is

- A
- B
- C
- \*D
- E

17 Lactic acid is

- A ethandioic acid
- B dihydroxysuccinic acid
- \*C 2-hydroxypropionic acid
- D ethanoic acid
- E cis-butenedioic acid

### PHARMACOLOGY and PHYSIOLOGY

18 The long term administration of a thiazide diuretic may also require the administration of

- \*A potassium
- B sodium
- C calcium
- D bicarbonate
- E acetate

- 19 Which one of the following symptoms is associated with drug-induced Parkinsonism?
- A dry mouth
  - B constipation
  - \*C muscular rigidity
  - D convulsions
  - E elevation of blood pressure
- 20 Pantoprazole
- A is used for treatment of allergic rhinitis
  - B inhibits the release of histamine from mast cells
  - \*C reduces gastric acid secretion
  - D prevents bronchoconstriction due to histamine
  - E may be used for the treatment of asthma
- 21 Cyproheptadine can best be classified pharmacologically as an
- A antihypertensive agent
  - B antipsychotic
  - C antidepressant
  - D anti-inflammatory agent
  - \*E antihistamine
- 22 Which of the following drugs has an anti-inflammatory action?
- A codeine
  - B pethidine
  - \*C meloxicam
  - D paracetamol
  - E propoxyphene
- 23 Which of the following statements regarding the stimulation of peripheral alpha1-adrenoceptors is true?
- A increases heart rate
  - \*B elevates systolic blood pressure
  - C is the major action of phentolamine
  - D causes flushing
  - E constricts bronchioles

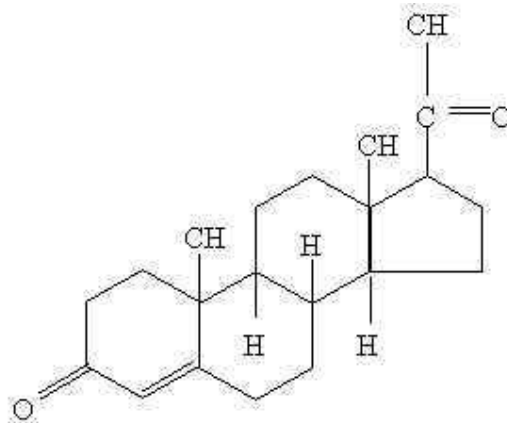
24 The antimicrobial action of the cephalosporins can best be explained on the basis of

- A competitive antagonism of purine precursors
- B stimulation of nucleic acid production
- C inhibition of protein synthesis
- \*D inhibition of cell wall synthesis
- E inhibition of DNA synthesis

25 Which of the following is not a white blood cell?

- A basophil
- B eosinophil
- \*C reticulocyte
- D lymphocyte
- E neutrophil

26 The compound with the following structure is a hormone



By which of the following is this hormone secreted?

- \*A corpus luteum
- B testis
- C posterior pituitary
- D anterior pituitary
- E pancreas

27 The major determinant of myocardial oxygen consumption is

- A heart rate
- B diastolic blood pressure
- \*C cardiac output



- D blood volume
- E myocardial fibre tension

28 Which of the following is a pharmacological action of histamine?

- A capillary constriction
- \*B stimulation of gastric secretion
- C elevation of blood pressure
- D skeletal muscle paralysis
- E slowing of the heart rate

29 Which of the following antibiotics is **NOT** readily destroyed by penicillinase enzymes?

- A phenoxymethylpenicillin
- B ticarcillin
- \*C flucloxacillin
- D ampicillin
- E amoxicillin

30 Labetalol is

- A similar in action to ergotamine
- B similar in action to tubocurarine
- C used as an antihistamine
- D used in the treatment of cardiac arrhythmias
- \*E a combined  $\alpha/\beta$  adrenergic receptor blocker

31 Streptokinase may be indicated for the treatment of

- A impaired fat absorption
- \*B pulmonary emboli
- C tuberculosis
- D neoplastic disorders
- E psoriasis

32 Exophthalmic goitre is associated with

- \*A diffuse hyperplasia of the thyroid gland
- B lowered basal metabolic rate
- C decreased body temperature

- D increased body weight
- E decreased responses to mental and emotional stimuli

33 Which of the following statements applies to the use of 8.4% sodium bicarbonate solution, given intravenously, as a treatment for cardiac arrest? [Atomic weights - Na = 23, H = 1, C = 12, O = 16]

- A the solution has a pH very close to the pH of blood
- \*B the solution provides 1000 millimoles per litre of sodium ion
- C the bicarbonate ion has a stimulating effect on the heart
- D in an emergency, a similar effect can be obtained by breathing forcibly into the patients mouth
- E the solution must be given slowly

### **PHARMACEUTICS**

34 An ingredient that is added to a tablet formula to improve flow properties into a die for compression is known as a/an

- A disintegrant
- B dissolution-enhancing agent
- \*C lubricant
- D surfactant
- E emollient

35 Which of the following when dispensed should carry the cautionary label: "REFRIGERATE - DO NOT FREEZE"?

- A doxycycline capsules
- \*B ampicillin syrup
- C slow release potassium supplements
- D co-trimoxazole suspension
- E chlorpromazine syrup

36 Which of the following is the first process that must occur before a drug can become available for absorption from a tablet dosage form?

- \*A dissolution of the drug in the GI fluids
- B dissolution of the drug in the epithelium
- C ionisation of the drug
- D dissolution of the drug in the blood
- E dissolution of the drug in the saliva

37 Which route of administration would provide the most rapid onset of pharmacological response to morphine?

- A oral
- B subcutaneous
- \*C intravenous
- D rectal
- E intramuscular

38 Following a constant infusion:

- A the time to reach a plateau concentration depends upon the rate of infusion
- \*B all drugs having the same clearance reach the same plateau concentration when infused at the same rate
- C drugs with the same clearance generally reach the plateau concentration at the same time
- D the amount of drug in the body at the plateau cannot be the same when drugs with different clearance values are infused at the same rate
- E the time to go from one plateau concentration to another depends upon both the half-life of the drug and the new infusion rate

39 An antibiotic which has a half-life of one day is formulated as a 200 mg tablet. How many milligrams of antibiotic would remain after three days?

- \*A 25
- B 50
- C 100
- D 150
- E 200

40 Which one of the following drugs exhibits nonlinear pharmacokinetics at normal therapeutic doses?

- A sodium valproate
- \*B phenytoin
- C lithium
- D quinidine
- E carbamazepine

41 Sodium chloride equivalents are used to estimate the amount of sodium chloride needed to render a solution isotonic. The sodium chloride equivalent or "E" value may be defined as the

\*A amount of sodium chloride that is theoretically equivalent to one gram of a specified chemical

B amount of a specified chemical theoretically equivalent to one gram of sodium chloride

C milliequivalents of sodium chloride needed to render a solution isotonic

D weight of a specified chemical that will render a solution isotonic

E percent sodium chloride needed to make a solution isotonic

42 For many drugs, bioavailability can be evaluated using urinary excretion data. This is based on the assumption that

A bioavailability studies can be done only on drugs that are completely excreted unchanged by the kidneys

B drug levels can be measured more accurately in urine than in blood

\*C a drug must be first absorbed into the systemic circulation before it can appear in the urine

D all of the administered dose can be recovered from the urine

E only drug metabolites are excreted in the urine

43 The renal excretion of a weakly acidic drug of pKa 3.5 will be more rapid in alkaline urine than in acidic urine because

A all drugs are excreted more rapidly in alkaline urine

B the drug will exist primarily in the unionised form, which cannot easily be reabsorbed

\*C the drug will exist primarily in the ionised form, which cannot be easily reabsorbed

D weak acids cannot be reabsorbed from the kidney tubules

E active transport mechanisms function better in alkaline urine

44 If a fixed dose of a drug that is eliminated by first-order kinetics is administered at regular intervals, the time required to achieve a steady-state plasma level depends only on the

A dose of the drug

B volume of distribution of the drug

\*C elimination half-life of the drug

- D dosing interval
- E fraction of dose absorbed (bioavailability)

45 Active immunity can be conferred by the administration of

- A antitoxins
- B antisera
- C prostaglandins
- \*D vaccines
- E antibiotics

46 The presence of *Pseudomonas aeruginosa* would be of particular danger in an ophthalmic solution of

- A atropine sulphate
- \*B fluorescein sodium
- C pilocarpine hydrochloride
- D timolol
- E physostigmine salicylate

47 The correct method of parenteral administration of potassium chloride is by

- A fast intravenous injection
- B intramuscular injection
- \*C intravenous fusion
- D intraperitoneal injection
- E intra-arterial injection

48 The antibacterial activity of phenols is increased by

- \*A increasing the temperature
- B increasing the pH
- C the presence of 10% vegetable oil phase
- D the presence of 1% polysorbate 20 (tween 20)
- E the addition of a quaternary ammonium compound

### **THERAPEUTICS**

49 Patients prescribed irreversible monoamine oxidase inhibitors should be warned not to consume foods containing tyramine because the combination may cause

- A postural hypotension
- \*B acute adrenergic crisis including severe hypertension

- C muscle weakness and tremor
- D anaphylactic reactions
- E hallucinations

50 Early symptoms of aspirin poisoning are

- A lethargy
- B skin rash
- C throbbing headache
- D fluid retention
- \*E ringing in the ears and blurred vision

51 When central nervous system depressants are prescribed which of the following should **NOT** be ingested at the same time?

- A milk
- B coffee
- C aspirin
- \*D alcohol
- E orange juice

52 Which of the following drugs would be most likely to produce intestinal perforation if used in the treatment of a patient with ulcerative colitis and diarrhoea?

- \*A loperamide
- B methylcellulose
- C propantholine
- D kaolin with pectin
- E metoclopramide

53

Amethocaine 0.5%Dextrose q.s

Make an isotonic solution Prepare 25 mL.

(NaCl equivalent of amethocaine hydrochloride = 0.19)

(NaCl equivalent of dextrose = 0.18)

How many grams of anhydrous dextrose are needed to prepare an isotonic solution of amethocaine in the above prescription?

- A 0.20
- B 0.24

- \*C 1.12
- D 3.6
- E 36.0

54 A 5 mg dose of nitrazepam administered to an adult will act as

- A an analgesic
- \*B an hypnotic
- C a diuretic
- D an antihistamine
- E an antiulcerant

55 A pharmacist has 50mL of 0.5% chlorhexidine solution. What will be the final ratio strength if the pharmacist dilutes this solution to 1250mL with purified water?

- A 1:8
- B 1:100
- C 1:200
- D 1:1000
- \*E 1:5000

56 The concentration of benzalkonium chloride used as a preservative in eye drops is

- A 1.0%
- \*B 0.5%
- C 0.25%
- D 0.1%
- E 0.01%

57 The usual adult daily dose of phenytoin is in the range of

- A 300 - 600  $\mu\text{g}$
- B 1 - 5 mg
- C 15 - 60 mg
- \*D 300 - 600 mg
- E 1 - 2 mg

58 How many millimoles of potassium are there in 500mg of potassium chloride?  
(Mol. Wt. 74.6)

- \*A 6.7 mmoles
- B 13.4 mmoles
- C 67.0 mmoles
- D 74.6 mmoles
- E 134.0 mmoles

59 You are requested to prepare an admixture of isoprenaline hydrochloride 2mg, in 500 mL of 5% Dextrose Injection. Available are 5 mL ampoules of Isoprenaline Hydrochloride Injection 1 in 5000. How much of the additive is to be added?

- A 2.5 mL
- B 5.0 mL
- C 7.5 mL
- \*D 10.0 mL
- E 20.0 mL

60

Potassium 10 mMoles Orange syrup to make 5 mL

Take 5 mL four times a day and sufficient for three days

How many grams of potassium gluconate  $C_6H_{11}O_7K$ , molecular weight = 234, will be required for this prescription?

- A 140.4 g
- B 51 g
- \*C 28.08 g
- D 14.04 g
- E 2.808 g

61 What is a major contraindication to the use of over-the-counter medications containing sympathomimetic drugs?

- A gastric ulcer
- B hypotension
- C asthma
- D rheumatoid arthritis
- \*E hypertension



62 Glucose-6-phosphate dehydrogenase (G6PDH) deficiency is an inherited error of metabolism estimated to occur in over 100 million persons. The enzyme is needed to reduce oxidized glutathione, and in deficient persons, red blood cells are susceptible to haemolysis in the presence of oxidising agents, including certain drugs. The antimalarial drug to avoid in G6PDH deficiency is

- \*A primaquine
- B quinine
- C chloroquine
- D chloroguanide
- E amodiaquine

63 What advice would you give to a patient prescribed rifampicin tablets?

- A take this medication with food or milk
- B avoid multi-vitamin preparations while undergoing treatment with this medication
- C avoid taking paracetamol while undergoing treatment with this medication
- D possible discolouration of the skin is of no importance
- \*E this medication may cause discolouration of the urine