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OPRA™ Exam Sample

Sample 1

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Version Control History

Version	Release Date	Remarks	Author
1.0	31 July 2024	New	Australian Pharmacy Council
1.1	06 Aug 2024	Question 103 options amended	Australian Pharmacy Council
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Information

This is a sample paper of the *OPRA*[™] exam (Overseas Pharmacist Readiness Assessment) produced by the Australian Pharmacy Council (APC) for **practice purposes only**.

The *OPRA*[™] exam consists of 120 multiple-choice-questions and candidates have 2 hours and 30 minutes to complete it.

This sample paper demonstrates questions from all content areas assessed in the exam.

For additional information on the *OPRA*[™] exam please refer to the [OPRA[™] exam information page](#).

The questions in this sample paper are no longer used in our exams and have been chosen to allow candidates to familiarise themselves with the format and layout of questions in the exam.

Live or actual *OPRA*[™] exams will vary from this sample paper and are delivered by computer. An [online tutorial](#) is available and provides candidates with the opportunity to learn how to navigate through the exam software.

We have also included an answer sheet at the end of the paper.

Please note that while the sample paper is reviewed frequently, the APC does not guarantee that the answers are accurate once published due to changes that may occur in pharmacy practice guidelines or legislation.

Sample questions

1. Gemfibrozil is used to treat which condition?

- A. Hyperlipidaemia
- B. Hyperglycaemia
- C. Hyperaldosteronism
- D. Hypertension

2. What is the usual range of hydrochlorothiazide daily dose for an adult?

- A. 0.5 - 1 mg
- B. 2 - 5 mg
- C. 6.25 - 25 mg
- D. 50 - 100 mg

3. A 30 kg child is to be administered 250 mg of metronidazole every 8 hours.

Each mL of a 500 mg/500 mL ampoule of metronidazole contains 0.135 millimol/mL of sodium.

What is the amount of sodium the child will receive in 24 hours?

- A. 33.8 millimol
- B. 101.3 millimol
- C. 202.5 millimol
- D. 1852 millimol

4. What amount of chlorinated lime (available chlorine = 30% w/w) is required to obtain a chlorine concentration of 1.5 ppm in an animal drenching facility of 6000 L?

- A. 3 g
- B. 27 g
- C. 30 g
- D. 270 g

5. Where are alpha-1 adrenoreceptors primarily located?

- A. Arterioles
- B. Bronchioles
- C. Atria
- D. Cardiac ventricles

6. Sodium polystyrene sulfonate exerts its therapeutic effect by acting as an exchange resin.

Which ONE of the following ions is exchanged with sodium?

- A. Potassium
- B. Phosphorus
- C. Calcium
- D. Chloride

7. What is the daily recommended calcium intake for post-menopausal women?

- A. 300 - 600 mg
- B. 700 - 900 mg
- C. 1000 - 1500 mg
- D. 1600 - 2000 mg

8. Which ONE of the following drugs is generally avoided in children under 12 years of age?

- A. Norfloxacin
- B. Amoxicillin
- C. Azithromycin
- D. Rifampicin

9. Which ONE of the following is **NOT** an official pharmacopeial testing procedure for tablets?

- A. Dissolution
- B. Hardness
- C. Disintegration
- D. Friability

10. Which ONE of the following parameters does **NOT** influence the steady state plasma concentration of a drug administered intravenously?

- A. Dose
- B. Drug clearance
- C. Volume of distribution
- D. Dosing interval

11. Wool fat is not available and needs to be replaced by lanolin (contains water 28% w/w and wool fat 72% w/w). How many grams of lanolin and water should be used to compound the prescription below?

Ingredient	Quantity
Zinc oxide	2 g
Calamine	2 g
Wool fat	36 g
Water	to 60 g

- A. 34 g lanolin, 22 mL water
- B. 40 g lanolin, 16 mL water
- C. 46 g lanolin, 10 mL water
- D. 50 g lanolin, 6 mL water

12. Which ONE of the following is a major determinant of myocardial oxygen demand?

- A. Systolic blood pressure
- B. Diastolic blood pressure
- C. Cardiac output
- D. Blood volume

13. What is the mode of action of allopurinol?

- A. To increase renal excretion of uric acid
- B. To inhibit formation of uric acid
- C. To inhibit absorption of dietary purines
- D. To inhibit prostaglandin synthesis

14. Which ONE of the following can be used to separate an enantiomer from its racemate?

- A. Acid-base reaction
- B. Boiling point
- C. Chromatography
- D. Infrared spectrometry

15. After initial immunisation with tetanus toxoid, how often should booster injections be given?

- A. Every 2 years
- B. Every 3 years
- C. Every 5 years
- D. Every 10 years

16. Which drug is the **MOST** useful for the management of metastatic bone pain?

- A. Meloxicam
- B. Fentanyl
- C. Amitriptyline
- D. Carbamazepine

17. Data obtained from 2 different batches of tablets of a new hypoglycaemic agent undergoing clinical trial revealed the following:

	Drug amount	Bioavailability
Batch 1	100 mg	55%
Batch 2	200 mg	165%

What is the absolute bioavailability of Batch 2?

- A. 33.33%
- B. 61.6%
- C. 90.75%
- D. 300%

18. Which penicillin is effective in the presence of penicillinase?

- A. Amoxicillin
- B. Flucloxacillin
- C. Phenoxymethylpenicillin
- D. Ticarcillin

19. Which of the following causes muscle fatigue?

- A. Ischaemia due to atherosclerotic plaques
- B. Accumulation of lactic acid
- C. Lack of sufficient ATP molecules
- D. Accumulation of carbon dioxide

20. Ferrous Sulphate Mixture contains 300 mg of Ferrous Sulphate/10 mL. A person is required to take 10 mL of the mixture three times a day.

What is the total daily amount of iron (Fe) the patient is ingesting?

[Data: Ferrous Sulphate ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$) Mol. Wt. = 278 | Iron (Fe) Mol. Wt. = 55.9]

- A. 3.23 mg
- B. 17.1 mg
- C. 60.0 mg
- D. 181.0 mg

21. What is the pain associated with angina pectoris caused by?

- A. Spasm of the aorta
- B. Ventricular tachycardia
- C. Aortic stenosis
- D. Myocardial ischaemia

22. Uncomplicated urinary tract infections (UTIs) are **MOST** commonly caused by which organism?

- A. *Staphylococcus saprophyticus*
- B. *Campylobacter jejuni*
- C. *Giardia lamblia*
- D. *Moraxella catarrhali*

23. Bipolar disorder **CANNOT** be treated using which medication?

- A. Lithium
- B. Haloperidol
- C. Sodium valproate
- D. Paroxetine

24. Why are methylcellulose and similar agents used for ophthalmic solutions?

- A. To increase ocular exposure time
- B. To reduce inflammation of the eye by their soothing effect
- C. To suspend soluble drugs
- D. To reduce drop size

25. Which ONE of the following should be avoided in a patient taking moclobemide?

- A. Ranitidine
- B. Nitrazepam
- C. Sumatriptan
- D. Furosemide

26. Which ONE of the following is **NOT** a central neurotransmitter?

- A. Serotonin
- B. Noradrenaline
- C. Dopamine
- D. Cyclic adenosine phosphate

27. Which ONE of the following is **NOT** used for treatment of epilepsy?

- A. Clonazepam
- B. Oxazepam
- C. Diazepam
- D. Lorazepam

28. Tinnitus, headaches, nausea and sweating are symptoms of which ONE of the following adverse effects?

- A. Aspirin hypersensitivity
- B. Paracetamol toxicity
- C. Salicylate toxicity
- D. Paracetamol hypersensitivity

29. What is the primary pharmacological effect of isoprenaline?

- A. Blocks alpha adrenoceptors
- B. Stimulates beta adrenoceptors
- C. Releases noradrenaline from noradrenergic nerves
- D. Blocks dopaminergic receptors

30. Which measure is used to monitor the effectiveness of enoxaparin therapy?

- A. Enoxaparin blood level
- B. International Normalised Ratio (INR)
- C. Platelet count
- D. Antifactor Xa

31. A patient is prescribed Lugol's Solution (5% iodine) 0.3 mL three times a day.

How much iodine does this provide each day?

- A. 15 mg
- B. 30 mg
- C. 45 mg
- D. 90 mg

- 32.** What does oxidation of a secondary alcohol yield?
- A. Ketone
 - B. Primary alcohol
 - C. Aldehyde
 - D. Ether
- 33.** How much of ingredient A is required to make 500 mL of an aqueous solution with a concentration such that 25 mL diluted to 100 mL with water will give a 1:2000 solution?
- A. 0.1 g
 - B. 1 g
 - C. 1.25 g
 - D. 2.5 g
- 34.** Which ONE of the following is a recommended treatment option for pain due to herpes zoster?
- A. Topical betamethasone dipropionate
 - B. Transcutaneous electrical nerve stimulation (TENS)
 - C. Topical capsaicin
 - D. Topical tretinoin
- 35.** What is the effect of parathyroid hormone?
- A. Increased mobilisation of calcium from bone
 - B. Decreased renal tubular reabsorption of calcium
 - C. Decreased resorption of phosphate from bone
 - D. Decreased excretion of phosphate

36. What is the **MOST** appropriate treatment for an infestation of scabies?
- A. Permethrin
 - B. Mebendazole
 - C. Malathion
 - D. Tinidazole
37. A drug susceptible to hydrolysis is dispensed in a mixture with an initial concentration of 0.16 molar. After 6 days, the concentration decreased to 0.04 molar. Assuming first order kinetics, what is the half-life of the drug?
- A. 1 day
 - B. 2 days
 - C. 3 days
 - D. 4 days
38. The composition of sweat is altered in which disease state?
- A. Hypothyroidism
 - B. Glomerulonephritis
 - C. Diabetes insipidus
 - D. Cystic fibrosis
39. Propranolol is **NOT** used in the management of which **ONE** of the following conditions?
- A. Oesophageal varices
 - B. Pheochromocytoma
 - C. Hypothyroidism
 - D. Migraine

40. Which structure(s) prevent backflow of blood into the ventricles of the heart?

- A. Valves in the veins
- B. Atrio-ventricular valves
- C. Pericardium
- D. Aortic and pulmonary valves

41. A woman brings the following prescription to the pharmacy after visiting the oncologist:

Ingredient	Quantity
Sucralfate 1 g	8 tablets
Sorbitol 70% solution	40 mL
Water	a sufficient quantity to make 120 mL

What is the percentage (%) of sucralfate in the final suspension?

- A. 1.0%
- B. 6.7%
- C. 8.0%
- D. 13.4%

42. What type of laxative is docusate sodium?

- A. Stimulant
- B. Bulk-forming
- C. Softener
- D. Osmotic

- 43.** If a patient is prescribed metered dose inhalers of salbutamol and beclometasone, and is to use both TWICE a day, when should the beclometasone be used?
- A. 5 minutes after salbutamol
 - B. Immediately after salbutamol
 - C. 5 minutes before salbutamol
 - D. Immediately before salbutamol
- 44.** Which ONE of the following gram-positive organisms and anaerobes is resistant to treatment by the broad spectrum antibiotic clindamycin?
- A. *Staphylococcus saprophyticus*
 - B. *Clostridium perfringens*
 - C. *Haemophilus influenzae*
 - D. *Actinomyces*
- 45.** Which of the following drugs has the longest half-life?
- A. Amiodarone
 - B. Morphine
 - C. Verapamil
 - D. Amlodipine
- 46.** An adult subject is injected with 100 mg of a drug and the resultant plasma concentration is 2.5 microgram/mL. Assuming the drug uniformly distributes in body water, what is this subject's volume of body water?
- A. 0.4 L
 - B. 4 L
 - C. 40 L
 - D. 400 L

47. Which ONE of the following is a potential common adverse effect with the use of fluoxetine?
- A. Hepatitis
 - B. Nose bleeds
 - C. Insomnia
 - D. Taste disturbances
48. Which ONE of the following is **NOT** an adverse effect of tricyclic antidepressants?
- A. Sedation
 - B. Diarrhoea
 - C. Blurred vision
 - D. Urinary retention
49. Which condition is characterised by destruction of myelin sheath surrounding nerve axons?
- A. Huntington's chorea
 - B. Multiple sclerosis
 - C. Parkinson's disease
 - D. Tardive dyskinesia
50. Which of the following statements about the use of beta-blockers for the treatment of congestive heart failure is **INCORRECT**?
- A. May cause bradycardia
 - B. Prevent ventricular remodelling
 - C. Can increase ejection fraction
 - D. Increase AV nodal conduction

51. A laxative is **MOST** likely to be used to manage a common adverse effect of which medication?

- A. Piroxicam
- B. Oxycodone
- C. Cefalexin
- D. Dexamethasone

52. A physician orders a 2 g vial of a medication to be added to 500 mL of intravenous fluid. The intravenous administration rate is 125 mL/hour.

Assuming a uniform rate of flow, how much cefalotin will the patient receive per minute?

- A. 8.33 mg
- B. 83.3 mg
- C. 500 mg
- D. 833 mg

53. You are required to produce 1 L of sodium chloride solution of such a strength that when 20 mL is diluted to 100 mL with water, the resulting concentration will be 0.9% w/v.

You are to make this solution using sodium chloride 2.25 g tablets.

How many of these tablets are required to make the solution?

- A. 4.5
- B. 9
- C. 20
- D. 45

54. What is the main effect of vasopressin?
- A. To increase blood pressure, increasing formation of nephric filtrate
 - B. To cause active transport of urea and uric acid from renal blood into tubules
 - C. To inhibit aldosterone action
 - D. To cause reabsorption of water
55. If 400 mg of potassium permanganate is dissolved in 2.5 L of water, what is the strength of the resulting solution?
- A. 0.016%
 - B. 0.032%
 - C. 0.064%
 - D. 0.16%
56. Which ONE of the following should be regularly monitored in a patient taking amiodarone?
- A. Prostate specific antigen
 - B. Urinary cortisol
 - C. Serum creatinine
 - D. Thyroid function tests
57. Which ONE of the following topical clotrimazole regimens is **MOST** appropriate to treat vaginal candidiasis?
- A. 500 mg as a single dose at bedtime
 - B. 100 mg daily at bedtime for 10 days
 - C. 500 mg daily at bedtime for 3 days
 - D. 100 mg daily at bedtime for 14 days

58. Which ONE of the following is **NOT** an appropriate treatment of acne vulgaris?

- A. Salicylic acid
- B. Sulfur
- C. Hydrocortisone
- D. Benzoyl peroxide

59. Which type of insulin has a duration of action of less than 12 hours?

- A. Aspartin
- B. Detemir
- C. Glargine
- D. Isophane

60. Estradiol is secreted from which part of the endocrine system?

- A. Hypothalamus
- B. Ovarian follicle
- C. Adrenal cortex
- D. Anterior pituitary

61. A 50-year-old male with pitting oedema of the ankles develops gynecomastia and erectile dysfunction after receiving treatment.

Which ONE of the following agents is he **MOST** likely being treated with?

- A. Hydrochlorothiazide
- B. Furosemide
- C. Spironolactone
- D. Triamterene

62. Which ONE of the following may **NOT** be used as an anti-emetic?
- A. Chlorpromazine
 - B. Domperidone
 - C. Oxybutynin
 - D. Metoclopramide
63. Which ONE of the following laxatives is **MOST** likely to produce laxative dependency when used chronically?
- A. Psyllium
 - B. Bisacodyl
 - C. Docusate
 - D. Sorbitol
64. Which ONE of the following drugs is **LEAST** likely to need a dosage adjustment in a patient with reduced renal function?
- A. Haloperidol
 - B. Metformin
 - C. Digoxin
 - D. Tobramycin
65. Why is lignocaine unsuitable for oral administration?
- A. It is not absorbed from the gastrointestinal tract
 - B. It undergoes significant first pass metabolism in the liver
 - C. It is decomposed by gastric acid
 - D. It binds to mucoproteins in the intestine

66. When should clomifene be taken to induce ovulation?

- A. Days 0-5 of the menstrual cycle
- B. Days 5-9 of the menstrual cycle
- C. Days 10-14 of the menstrual cycle
- D. Days 20-24 of the menstrual cycle

67. A throat infection has spread to the eustachian tube.

Which structure would the infection **MOST** likely spread to next?

- A. Auditory nerve
- B. Inner ear
- C. Middle ear
- D. External auditory canal

68. When poor alveolar ventilation results in respiratory acidosis, which ONE of the following is the **CORRECT** renal response?

- A. Decrease the secretion of bicarbonate and thus increase the reabsorption of hydrogen ions
- B. Increase the secretion of bicarbonate and thus decrease the reabsorption of hydrogen ions
- C. Decrease the secretion of hydrogen ions and thus increase the reabsorption of bicarbonate
- D. Increase the secretion of hydrogen ions and thus increase the reabsorption of bicarbonate

69. Which ONE of the following is the **MOST** appropriate choice to treat infections of penicillinase-producing staphylococci?
- A. Dicloxacillin
 - B. Phenoxymethylpenicillin
 - C. Ticarcillin
 - D. Amoxicillin/clavulanic acid
70. What is the name of a system composed of a liquid dispersed in a liquid?
- A. Suspension
 - B. Gel
 - C. Emulsion
 - D. Aerosol
71. Small dose changes of which ONE of the following drugs may lead to disproportionate increases in plasma levels?
- A. Phenytoin
 - B. Warfarin
 - C. Digoxin
 - D. Carbamazepine
72. What does the term "steady state" mean in relation to the plasma levels of a drug?
- A. The rate of drug administration equals the rate of drug elimination
 - B. The dosing interval of the drug remains constant
 - C. The therapeutically effective levels have been reached
 - D. The protein binding of a drug has come to equilibrium

73. Why is epinephrine (adrenaline) formulated with some local anaesthetic solutions for injection?

- A. Decrease the local action of the anaesthetic
- B. Reduce local blood flow
- C. Increase the amount of local anaesthetic to administer
- D. Block nerve fibres by depolarising the membrane

74. Where does the conjugation of bilirubin mainly occur?

- A. Erythrocyte
- B. Intestine
- C. Liver
- D. Kidney

75. Which condition may result from chronic iodine deficiency during adult life?

- A. Myxoedema
- B. Toxic adenoma of the thyroid
- C. Thyrotoxicosis
- D. Subclinical hyperthyroidism

76. Which ONE of the following drugs is predominantly excreted unchanged?

- A. Fluoxetine
- B. Phenytoin
- C. Codeine
- D. Enalapril

77. In the management of gout, which ONE of the following statements is **INCORRECT**?

- A. Allopurinol should not be used to treat acute attacks
- B. Thiazide diuretics can precipitate gout
- C. Paracetamol is the preferred medication for an acute attack
- D. A common side-effect of colchicine is diarrhoea

78. Which ONE of the following antihypertensives is considered first-line therapy for a 32-year-old patient with diabetes?

- A. Metoprolol
- B. Diltiazem
- C. Indapamide
- D. Ramipril

79. What is the mode of action of phenytoin?

- A. Sodium channel blockade
- B. Binds to synaptic vesicle protein 2A
- C. Binds to voltage-dependent calcium channels
- D. Inhibits glutamate release

80. What may systemic administration of atropine cause?

- A. Constriction of the pupil
- B. Increased gastric motility
- C. Micturition
- D. Increased heart rate

81. Which ONE of the following antiepileptic drugs has activity against both generalised tonic-clonic seizures and generalised absence seizures?

- A. Phenytoin
- B. Gabapentin
- C. Valproate
- D. Carbamazepine

82. What purpose do stearyl alcohol and cetyl alcohol have when used as excipients?

- A. Preservatives
- B. Emulsifiers
- C. Binding agents
- D. Surfactants

83. Which ONE of the following drugs should a patient be counselled to take with food?

- A. Isotretinoin
- B. Sertraline
- C. Amoxicillin
- D. Atorvastatin

84. Potassium supplementation is contraindicated in patients using which ONE of the following?

- A. Chlorthalidone
- B. Hydrochlorothiazide
- C. Furosemide
- D. Amiloride

85. If a patient has a known sulfonamide allergy, cross-sensitivity is **LEAST** likely to occur with which **ONE** of the following drugs?

- A. Hydrochlorothiazide
- B. Sulfasalazine
- C. Celecoxib
- D. Ciprofloxacin

86. Which **ONE** of the statements is the **MOST** appropriate description of why angiotensin II inhibitors are thought to be preferable to ACE inhibitors in some circumstances?

- A. There is a decreased incidence of hyperkalaemia
- B. They are less likely to cause adverse effects such as dizziness
- C. There is a reduced incidence of cough
- D. They do not interact with non-steroidal anti-inflammatory medications

87. Carbamazepine therapy does **NOT** require monitoring of which of the following?

- A. Liver function
- B. Skin reactions
- C. Lung function
- D. Complete blood count

88. Which **ONE** of the following drugs is the **LEAST** appropriate for acute treatment of migraine?

- A. Oxycodone
- B. Ibuprofen
- C. Sumatriptan
- D. Aspirin

89. Which ONE of the following drugs is **NOT** absorbed systemically when given orally?

- A. Cefalexin
- B. Nystatin
- C. Trimethoprim
- D. Rifampicin

90. Which organ plays a major role in the immune system?

- A. Pancreas
- B. Thyroid
- C. Liver
- D. Thymus

91. Which ONE of the following statements about the structure and function of blood vessels is **CORRECT**?

- A. Arteries have thinner smooth muscle layers than veins
- B. Capillary walls have an elastic layer
- C. The pressure inside a vein is less than in an artery
- D. Capillaries provide the greatest resistance to blood flow

92. What is the purpose of sodium metabisulphite if used in epinephrine (adrenaline) injections?

- A. Suspending agent
- B. Fungicide
- C. Antioxidant
- D. Bactericide

93. The molecular weight of lithium carbonate, Li_2CO_3 is 73.89.
[Atomic weights: Li = 6.95, C = 12, O = 16]

How many millimol of lithium are there in a 300 mg tablet of lithium carbonate?

- A. 2.46 millimol
- B. 4.06 millimol
- C. 8.12 millimol
- D. 12.18 millimol

94. What is the usual starting dose for venlafaxine?

- A. 37.5 mg daily
- B. 150 mg daily
- C. 75 mg daily
- D. 300 mg daily

95. How does metformin act?

- A. Blocks absorption of glucose in the intestine
- B. Increases pancreatic insulin secretion
- C. Decreases hepatic glucose production
- D. Increases metabolism of ketone precursors

96. Which of the following beta blockers is predominantly renally cleared?

- A. Atenolol
- B. Metoprolol
- C. Oxprenolol
- D. Carvedilol

97. When instilled in the eye, which drug causes the pupil to contract and the eye to focus for near vision?
- A. Atropine
 - B. Timolol
 - C. Pilocarpine
 - D. Cyclopentolate
98. Which drug is used to prevent haemorrhagic cystitis in patients receiving cyclophosphamide?
- A. Methotrexate
 - B. Mercaptopurine
 - C. Dacarbazine
 - D. Mesna
99. What dosing regimen is **MOST** appropriate when starting levothyroxine for a frail, elderly patient?
- A. 5 microgram twice daily
 - B. 25 microgram daily
 - C. 75 microgram daily
 - D. 150 microgram daily
100. Vancomycin doses should be reduced in patients with which ONE of the following?
- A. Pulmonary failure
 - B. Hepatic impairment
 - C. Heart failure
 - D. Renal impairment

101. Which ONE of the following medications is recommended for use in benign prostatic hyperplasia?

- A. Spironolactone
- B. Cyproterone acetate
- C. Finasteride
- D. Tibolone

102. Which group of symptoms is **MOST** often associated with a patient who has signs of left-sided heart failure?

- A. Jugular venous distension, shortness of breath
- B. Hepatojugular reflux, abdominal distension
- C. Paroxysmal nocturnal dyspnoea, hepatojugular reflux
- D. Shortness of breath, paroxysmal nocturnal dyspnoea

103. What are the 5 classes of immunoglobulins (Ig)?

- A. A, B, C, D, E
- B. A, B, D, E, G
- C. A, D, E, G, M
- D. A, C, E, G, M

104. A 22-year-old female who is 33 weeks pregnant is in premature labour.

Which ONE of the following drugs can be given to the mother to promote foetal lung maturity?

- A. Betamethasone
- B. Fludrocortisone
- C. Salbutamol
- D. Spironolactone

- 105.** How is biotransformation of phenobarbital in the liver catalysed?
- A. By the oxidative phosphorylation complex
 - B. By the microsomal mixed function oxidases
 - C. In the hexose monophosphate shunt
 - D. In the gluconeogenic pathway
- 106.** Which ONE of the following statements is **INCORRECT** regarding methadone?
- A. Can be given parenterally
 - B. Is an opioid antagonist
 - C. Has a long elimination half-life
 - D. Has significant analgesic activity
- 107.** Why are corticosteroids effective in the treatment of acute asthma?
- A. They cause acute bronchodilation
 - B. They reduce the inflammatory response
 - C. They suppress precipitating infections
 - D. They prevent mediator release from mast cells
- 108.** At what temperatures should total parenteral nutrition (TPN) fluids be stored between?
- A. 1°C and 4°C
 - B. 2°C and 8°C
 - C. 15°C and 20°C
 - D. 25°C and 35°C

- 109.** What properties do drugs that demonstrate non-linear pharmacokinetics show?
- A. A constant ratio of drug metabolites is formed as the administered dose increases
 - B. The elimination half-life increases as the administered dose is increased
 - C. The area under the curve increases in direct proportion to an increase in the administered dose
 - D. The steady state drug concentration increases in direct proportion to the dosing rate
- 110.** Which ONE of the following may cause an elevation of plasma lithium levels with a resultant risk of toxicity?
- A. Moderate exercise
 - B. Salt-intake reduction
 - C. Smoking cessation
 - D. Hypothyroidism
- 111.** Men with diabetes are at significantly higher risk of developing which ONE of the following conditions?
- A. Renal stenosis
 - B. Macular depigmentation
 - C. Testicular cancer
 - D. Erectile dysfunction
- 112.** Dopamine is provided for use in a patient as 200 mg of dopamine in 500 mL of normal saline.
- What is the final concentration of the solution in microgram/mL?
- A. 0.4 microgram/mL
 - B. 2.5 microgram/mL
 - C. 40 microgram/mL
 - D. 400 microgram/mL

113. Which ONE of the following is **LEAST** appropriate regarding aciclovir for herpes zoster (shingles)?

- A. It will be less effective if started more than 72 hours after the onset of the rash
- B. It will reduce the duration of herpes zoster related pain
- C. It should be taken FIVE times a day for 7 days
- D. Fluid intake should be kept to a minimum during the course of treatment

114. Benzodiazepines are **NOT** indicated for which ONE of the following?

- A. Muscle spasm
- B. Anxiety
- C. Depression
- D. Acute alcohol withdrawal

115. What advice is **LEAST** appropriate for a patient prescribed long term rifampicin?

- A. Your urine may turn a red-orange colour
- B. You will require regular liver function tests
- C. Your iris colour may darken
- D. You will require regular blood count monitoring

116. Which condition is characterised by excess secretion of thyroid hormone?

- A. Addison's disease
- B. Hashimoto thyroiditis
- C. Grave's disease
- D. Wilson's disease

117. The required dose of dopamine hydrochloride (6.4 mg/100 mL) by intravenous infusion is 5 microgram/kg/min.

What volume per minute should the infusion be set at for a 64 kg adult?

- A. 0.2 mL
- B. 0.5 mL
- C. 2.5 mL
- D. 5.0 mL

118. Which ONE of the following drugs is **MOST** appropriate for the treatment of vertigo?

- A. Ondansetron
- B. Metoclopramide
- C. Prochlorperazine
- D. Selegiline

119. What is the sodium ion concentration of a solution of sodium chloride 0.9%?

Molecular weight of sodium is 23 and chlorine is 35.

- A. 100 millimol/L
- B. 130 millimol/L
- C. 150 millimol/L
- D. 270 millimol/L

120. What is the **BEST** measurement to determine the bioequivalence of 2 tablets containing an identical amount of the same drug?

- A. Disintegration time
- B. Dissolution time
- C. Serum concentration
- D. Rate of excretion

END OF THE EXAM

Answer sheet

Sequence Number	Correct Answer
1	A
2	C
3	B
4	C
5	A
6	A
7	C
8	A
9	B
10	C
11	D
12	C
13	B
14	C
15	D
16	A
17	C
18	B
19	B
20	D
21	D
22	A
23	D
24	A
25	C
26	D
27	B
28	C
29	B
30	D
31	C
32	A
33	B
34	C
35	A
36	A
37	C
38	D
39	C
40	D

Sequence Number	Correct Answer
41	B
42	C
43	A
44	C
45	A
46	C
47	C
48	B
49	B
50	D
51	B
52	A
53	C
54	D
55	A
56	D
57	A
58	C
59	A
60	B
61	C
62	C
63	B
64	A
65	B
66	B
67	C
68	D
69	A
70	C
71	A
72	A
73	B
74	C
75	A
76	D
77	C
78	D
79	A
80	D

Sequence Number	Correct Answer
81	C
82	B
83	A
84	D
85	D
86	C
87	C
88	A
89	B
90	D
91	C
92	C
93	C
94	C
95	C
96	A
97	C
98	D
99	B
100	D
101	C
102	D
103	C
104	A
105	B
106	B
107	B
108	A
109	B
110	B
111	D
112	D
113	D
114	C
115	C
116	C
117	D
118	C
119	C
120	C



T1 Level 2, 6 Brindabella Circuit South, Brindabella
Business Park, Canberra Airport ACT 2609

PO Box 1227 Fyshwick ACT 2609

p +61 2 6188 4288 | www.pharmacycouncil.org.au