



**South African
Pharmacy Council**

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**SAMPLE PRE-REGISTRATION EXAMINATION QUESTIONS
FOR PHARMACIST INTERNS
IN ALL SECTORS**

2019

DOMAIN 1: PUBLIC HEALTH

CS 1.1: PROMOTION OF HEALTH AND WELLNESS

1. There is an outbreak of mumps at the creche in your area and the principal phones you for advice about the disease. Which of the following statements is **TRUE**?
 - (a) The signs and symptoms of mumps appear 10 days post-exposure
 - (b) Typical symptoms and signs include fever, pain with eating or opening the mouth and swelling of the salivary glands
 - (c) Children may return to school from 10 days after the initial swelling started
 - (d) The swelling normally starts on the one side but will always spread to the other side as the disease progresses

2. You have been asked to give a talk on malaria prophylaxis. Which statement is **TRUE** and could be included in your talk?
 - (a) Mefloquine is safe to use by breastfeeding mothers
 - (b) Insect repellents are as effective as chemoprophylaxis
 - (c) All medicines for malaria prophylaxis should be taken for at least 4 weeks after leaving the area
 - (d) Wear long sleeves, trousers and socks if outside between dusk and dawn while in the malaria area

3. You are requested to present an information session on fluoride supplementation. Which of the following statements is **TRUE**?
 - (a) The recommended daily allowance for fluoride intake for adult females is 4 mg/day
 - (b) Fluoride supplementation is essential in all children under the age of 6 years
 - (c) Supplementation is recommended when drinking water contains <0,7 mg/L of fluoride
 - (d) A deficiency of fluoride is characterised by memory loss and disorientation

CS 1.2 MEDICINE INFORMATION

4. Which of the following is **TRUE** regarding accidental ingestion of organophosphate poison?
 - (a) Treatment is unnecessary if no symptoms present within 6 hours post-exposure
 - (b) Clinical features of poisoning include dry mouth, dilated pupils, dry skin, tachycardia and hypertension
 - (c) Treatment with activated charcoal should be started 2 hours post-ingestion
 - (d) Refer immediately to the closest hospital for atropine antidote therapy

5. You are working at a medicines information centre and receive a question regarding an acute paracetamol overdose. They want to know whether they should start the patient on acetylcysteine therapy. The plasma concentration of paracetamol four hours after ingestion was 160 µg/ml. Which of the following would be the **MOST** appropriate advice to give to the doctor?
 - (a) The doctor must ascertain the glutathione level of the patient before a decision can be made
 - (b) Activated charcoal should be administered to eliminate any unabsorbed paracetamol

- (c) The patient should not be started on acetylcysteine if they are taking hepatic enzyme- inducing medicines
 - (d) The plasma concentration level is above the normal treatment line and acetylcysteine is indicated
6. Change control is a systematic approach to managing all changes made to a product or system. Which of the following statements regarding the purpose of change control is **FALSE**?
- (a) To ensure that there are no unnecessary changes
 - (b) To ensure that all changes are documented
 - (c) To ensure that the product is released according to specifications
 - (d) To ensure that services are not unnecessarily disrupted

CS 1.3 PROFESSIONAL AND HEALTH ADVOCACY

7. You are phoned by a doctor who wants information about adalimumab therapy. Which of the following statements would be **MOST** appropriate information to disseminate to the doctor?
- (a) The peak serum concentration is reached about 5 hours after administration
 - (b) Adalimumab therapy is safe to use in a patient with porphyria
 - (c) Patients should be screened for tuberculosis infection before initiation of therapy
 - (d) Patients on adalimumab may not receive vaccinations

CS 1.4: HEALTH ECONOMICS

8. The number of people who die per 100 000 population in a given year is called the:
- (a) Quality adjusted life years
 - (b) Mortality rate
 - (c) Life expectancy
 - (d) Morbidity rate
9. A hospitalised patient was changed from intravenous ciprofloxacin (400mg q12h) to oral ciprofloxacin (500 mg q12h) therapy. Calculate the daily drug cost savings if the intravenous product cost is R12.00 per 200 mg and the oral product cost is R2.95 per 250 mg capsule.
- (a) R18.10
 - (b) R26.80
 - (c) R33.50
 - (d) R36.20

CS 1.5 EPIDEMIC AND DISASTER MANAGEMENT

10. Which of the following is a notifiable medical condition?
- (a) German measles
 - (b) Influenza
 - (c) Glandular fever
 - (d) Leprosy

CS 1.6 PRIMARY HEALTHCARE

11. Which of the following statements regarding body mass index (BMI) is **TRUE**?
- (a) BMI is calculated by dividing a person's weight in kg by their height in cm
 - (b) BMI value of 28 is representative of a person of healthy weight
 - (c) BMI value of 18 is representative of a female person of healthy weight
 - (d) BMI value of less than 18 is representative of a person that is underweight
12. Which of the following statements regarding immunisation in South Africa is **TRUE**?
- (a) DTP should be given at birth, 10 weeks, 14 weeks and 18 months
 - (b) Rotavirus should be given to infants after 24 weeks of age
 - (c) Measles should be given at 9 months and 18 months
 - (d) HPV vaccine should be administered after becoming sexually active
13. Which of the following is a primary symptom of pulmonary tuberculosis?
- (a) Persistent rash for more than 2 weeks
 - (b) Headache for more than 2 weeks
 - (c) Excessive perspiration during the day
 - (d) Unexplained weight loss (more than 1.5 kg in a month)
14. Which of the following statements about the intention of the HIV 90-90-90 strategy by is **TRUE**?
- (a) 90% of those who receive antiretroviral therapy will be HIV-free by 2018
 - (b) 90% of those who receive antiretroviral therapy will be HIV-free by 2020
 - (c) 90% of those who receive antiretroviral therapy will be virally suppressed by 2020
 - (d) 90% of those who receive antiretroviral therapy will be virally suppressed by 2018

DOMAIN 2: SAFE AND RATIONAL USE OF MEDICINES AND MEDICAL DEVICES

CS 2.2: PATIENT COUNSELLING

15. A newly diagnosed patient with ADHD is prescribed methylphenidate 36mg extended release daily. What is the **MOST** appropriate counselling point to make?
- (a) The patient should chew the tablet and drink a full glass of water afterwards.
 - (b) The tablet should be taken at night after supper
 - (c) Dissolve the tablet in half a glass of water and drink this after breakfast.
 - (d) The medication should be taken first thing in the morning
16. You receive the following prescription for a 6-year-old boy:
- Daktacort® cream
Directions: Apply bd for one week
Mitte: 50 g

Which of the following statements is **TRUE**?

- (a) The active ingredients are miconazole and hydrocortisone
- (b) It is prescribed for inflamed bacterial infections of the skin
- (c) Miconazole has some antibacterial activity against Gram-negative organisms
- (d) The cream should be applied twice a day for five days

17. A patient presents with a prescription for methotrexate for rheumatoid arthritis. Which of the following counselling points is **FALSE**?
- (a) Avoid excessive exposure to sunlight
 - (b) Take dose once weekly
 - (c) Take on an empty stomach
 - (d) Avoid heavy alcohol intake
18. An epileptic patient receives a prescription for phenytoin 300 mg daily as a single dose. During phase 3 of dispensing you **SHOULD** inform the patient about the following adverse effect:
- (a) Swelling and bleeding of gums
 - (b) Hypertension
 - (c) Decreased libido
 - (d) Elevated cholesterol levels

CS 2.3: PATIENT MEDICINE REVIEW AND MANAGEMENT

19. Which of the following medicines necessitates monitoring of blood levels?
- (a) Carbimazole
 - (b) Lithium
 - (c) Warfarin
 - (d) Amoxicillin
20. Medicine X is administered at a recommended flow rate of 3 ml/min when used at a concentration of 5 mg/ml. Medicine X is only available in 500 mg vials for dilution in a 5 % w/v glucose solution. The IV administration set is calibrated at 20 drops/ml. How long will it take for the total volume of fluid to be administered?
- (a) 12.0 min
 - (b) 33.3 min
 - (c) 64.0 min
 - (d) 66.6 min

CS 2.4: MEDICINES AND MEDICAL DEVICES SAFETY (5 marks)

21. You are responsible for training a pharmacist's assistant in the use and maintenance of the fridge. Which of the following statements is **MOST** appropriate?
- (a) Wait until there is 10 mm of ice on the evaporator before defrosting the fridge to ensure stability of the cold chain
 - (b) The thermometer used in the fridge must be a minimum / maximum thermometer
 - (c) The temperature of the fridge should be monitored and recorded at least once a day
 - (d) The fridge must be connected to an emergency power system to ensure uninterrupted power supply
22. Which of the following vaccines may be frozen and defrosted without any damage to the product?
- (a) Tetanus and diphtheria
 - (b) Pneumococcal
 - (c) Measles

(d) Diphtheria, tetanus and pertussis

23. Zinc sulfate 0.25% w/v eye drops are required to be made isotonic with sodium chloride. What weight of sodium chloride is required in the preparation of 100 ml of eye drop solution?

Note: A 0.25% w/v solution of zinc sulfate depresses the freezing point of water by 0.022 °C and a 1% w/v solution of sodium chloride depresses the freezing point by 0.576 °C. An isotonic solution freezes at -0.52 °C

- (a) 0.432 g
(b) 0.576 g
(c) 0.648 g
(d) 0.865 g
24. The blood of a reckless driver contains 0.2% v/v alcohol. Express the concentration of alcohol in parts per million.
- (a) 2 ppm
(b) 200 ppm
(c) 2000 ppm
(d) 20000 ppm
25. A pharmaceutical company manufactures a drug containing 5.5 M NaCl. What volume of the drug must be diluted with 500 ml to prepare a 0.15 M saline solution?
- (a) 9,165 L
(b) 18,33 L
(c) 27,50 L
(d) 36,66 L

CS 2.5: THERAPEUTIC OUTCOME MONITORING (3 marks)

26. A 65 kg 54-year-old male is admitted to hospital with a bacterial infection and requires a loading dose to treat the infection. What loading dose of medicine K is required to achieve an effective concentration of 7 mg/l? The volume of distribution of medicine K is 0.25 l/kg)
- (a) 100.00 mg
(b) 113.75 mg
(c) 150.00 mg
(d) 175.00 mg

CS 2.6: PHARMACIST INITIATED THERAPY (10 marks)

27. A mother brings her 8-month-old baby into the pharmacy. The mother noticed white patches in the mouth and on the tongue of the baby over the past 24 hours and thinks the baby may have oral candidiasis. What is the **MOST** appropriate action to take?
- (a) Tell the mother to sterilise the feeding bottles with hypochlorite to ensure hygiene and prevent further spread of the candidiasis
(b) Refer the baby to a doctor for a prescription for fluconazole at the appropriate dose
(c) Tell the mother to use nystatin suspension 100 000 IU/ml four times daily for seven days

- (d) It is a bacterial infection and can be treated by applying cetalkonium chloride gel to the affected areas 3-4 times daily
28. A patient asks for a tube of aciclovir 5 mg/g topical cream. She tells you that whenever she is exposed to the sun, she seems to be getting cold sores around her mouth area. What is the **MOST** appropriate counselling to give her?
- (a) Start using the cream before exposure to sun
 - (b) Start using the cream when a scab appears
 - (c) Start using the cream when a blister appears
 - (d) Start using the cream when the area starts tingling
29. One of your patients is going on holiday and is visiting a malaria area in Africa. She will be in the area for 1 week. If the patient cannot see their doctor, which of the following medicines would you supply to the patient?
- (a) Mefloquine 250 mg 1 tablet per week, starting 1 week prior to entry and continue 4 weeks after leaving area
 - (b) Doxycycline 100 mg daily, starting 2 days prior to entry and continue 1 week after leaving area
 - (c) Atovaquone 250 mg, proguanil 100 mg combination daily, starting 2 days prior to entry and continue 7 days after leaving area
 - (d) Chloroquine 300 mg 1 tablet per week, starting one week prior to entry and continue 4 weeks after leaving area
30. A patient arrives at the pharmacy and presents with an exudative wound that occurred 10 days ago. Which statement about wound management is **TRUE**?
- (a) Topical antibiotics are indicated to treat the wound
 - (b) Occlusive dressings are indicated for moderately exuding wounds
 - (c) Alginate dressings are indicated for moderately exuding wounds
 - (d) Hydrogel dressings have good fluid handling capacity with exudative wounds
31. A patient visits your pharmacy requesting medication to prevent motion sickness. Which of the following is **MOST** suitable to give to the patient?
- (a) Promethazine
 - (b) Cetirizine
 - (c) Domperidone
 - (d) Rupatadine
32. Which one of the following is the correct amount of hydrocortisone 1 % w/w cream and hydrocortisone powder required to produce 75g of a 3 % w/w hydrocortisone cream?
- (a) 1.50 g of the powder and 73.5 g of the 1 % w/w cream
 - (b) 2.50 g of the powder and 72.5 g of the 1 % w/w cream
 - (c) 3.75 g of the powder and 71.25 g of the 1 % w/w cream
 - (d) 7.35 g of the powder and 67.65 g of the 1 % w/w cream
33. The formula for magnesium citrate oral solution requires 27.4 g of anhydrous citric acid ($C_6H_8O_7$) in 350ml of the product. How many grams of citric acid monohydrate ($C_6H_8O_7 \cdot H_2O$) may be used instead of the anhydrous salt?
- (a) 14 g
 - (b) 25 g

- (c) 27 g
- (d) 30 g

CS 2.7 PHARMACOVIGILANCE

34. When reporting an adverse medicine reaction, which of the statements is **TRUE**?
- (a) An adverse medicine reaction for a complementary medicine should not be reported
 - (b) Only confirmed adverse medicine reaction must be reported.
 - (c) It is senseless to report an adverse medicine reaction if you don't have all the details.
 - (d) All reported adverse medicine reactions will be stored in a confidential database and neither the patient nor the reporter's name will be made available.
35. Which of the following statements about pharmacovigilance is **FALSE**?
- (a) Pharmacovigilance is the practice of monitoring the effects of medicines after they have been licensed for use
 - (b) The goals of pharmacovigilance include the assessment and communication of the risks and benefits of medicine on the market
 - (c) An adverse reaction is a response to a medicine which is noxious and unintended, and which occurs at doses normally used in humans
 - (d) A side effect is any unintended effect of a pharmaceutical product that is already described in the package insert of the medicine.

CS 2.8: CLINICAL TRIALS

36. Which of the following statements about Phase II clinical trials is **TRUE**?
- (a) An effective dose is determined
 - (b) Effectiveness to treat disease is tested
 - (c) Healthy individuals are recruited
 - (d) Short-term safety of the drug is determined
37. The cGMP requires that pharmaceutical companies do Product Quality Reviews (PQR). What is the purpose of product quality reviews (PQR)?
- (a) To only tighten the specifications of the product
 - (b) To verify consistency of the process and assess trends
 - (c) To enable post-marketing surveillance
 - (d) To improve efficiency of product and increase market share

DOMAIN 3: SUPPLY OF MEDICINES AND MEDICAL DEVICES

CS 3.1: MEDICINE PRODUCTION ACCORDING TO GxP

38. You receive a prescription and are required to prepare 250 ml of a 2% w/v erythromycin suspension. You only have 500 mg erythromycin capsules in stock. How many capsules would you use to prepare this suspension?
- (a) 3
 - (b) 5
 - (c) 6
 - (d) 10

39. A bulk batch produces 150 000 tablets. Purified water must be added during the manufacturing process. The final tablet has a mass of 350 mg with a moisture content of 5%. How much purified water is added during the manufacturing process when a 2% loss occurs during drying?
- (a) 2,625 kg
 - (b) 3,675 kg
 - (c) 6,300 kg
 - (d) 7,675 kg
40. A 250 g bottle is filled with a 5 g overage. If 1000 units are filled with the same overage, calculate the volume of bulk required with a density of 0.987 g/ml?
- (a) 200,359 L
 - (b) 255,000 L
 - (c) 258,359 L
 - (d) 259,779 L
41. Tablet X contains 125 mg of magnesium oxide (MW is 40,3044 g/mol), determine the elemental mass of magnesium (MW is 24,3050 g/mol) in that tablet.
- (a) 50 mg
 - (b) 75 mg
 - (c) 100 mg
 - (d) 150 mg
42. Which of the following will **NOT** be found in the SOP for raw material sampling?
- (a) Instructions for the cleaning and storage of equipment
 - (b) The batch number of the finished product
 - (c) The amount of the sample to be taken
 - (d) The method of sampling
43. Which of the following statements regarding storage areas of pharmaceutical products is **FALSE**?
- (a) Receiving and dispatch bays should protect materials and products from the weather
 - (b) Sampling of pharmaceutical products can only take place in storage areas
 - (c) They should be of sufficient capacity to allow orderly storage of the various categories of materials and products
 - (d) Pharmaceutical products should be stored in such a manner as to prevent cross-contamination
44. It is important to perform particle size determination during drug product development. Particle size does **NOT** have an impact on the following:
- (a) Dissolution rate
 - (b) Dose uniformity
 - (c) Bioavailability
 - (d) Friability

CS 3.2: SUPPLY CHAIN MANAGEMENT (10 marks)

45. Which of the following statements regarding a variance report for a stock take is **TRUE**?
- (a) It is printed before stock take to reconcile the stock shortages
 - (b) It is printed after stock take to follow up on discrepancies
 - (c) It is of no value if regular cycle counts are performed
 - (d) It is of no value if stock records are electronically updated
46. Which of the following statements regarding procurement and storage of medicine is **TRUE**?
- (a) Most medicine must be stored off the floor
 - (b) Damaged medicines can be discarded together irrespective of the scheduling
 - (c) Stock is checked on receipt for quantity and expiry date only
 - (d) Flammable substances are stored separately and in an appropriate manner
47. Which of the following formulae indicates the **CORRECT** method to calculate the reorder point?
- (a) Average consumption per unit – lead time + safety stock
 - (b) Average consumption per unit x lead time + safety stock
 - (c) (Average consumption per unit + lead time) x safety stock
 - (d) (Average consumption per unit + lead time) / safety stock
48. To determine the absolute bioavailability of an immediate-release oral tablet, its bioavailability must be compared to the bioavailability of a medicine from:
- (a) An immediate-release oral tablet containing the same amount of active ingredient
 - (b) An oral solution of the medicine in the same dose
 - (c) A parenteral solution of the medicine given by IV bolus
 - (d) A reference (brand) extended-release tablet that is a pharmaceutical equivalent
49. A pharmacist needs 75 mg piperazine for the preparation of a 1 ml ampoule for injection and only piperazine citrate is available. How much piperazine citrate does the pharmacist need to weigh to produce a total of 15 x 1 ml ampoules? (MW of piperazine = 86.14, $C_4H_{10}N_2$, MW of piperazine citrate = 643.00, $[(C_4H_{10}N_2)_3 \cdot 2C_6H_8O_7]$).
- (a) 0.19 g
 - (b) 0.56 g
 - (c) 1.12 g
 - (d) 2.80 g
50. The MW of magnesium sulphate is 246.3. Magnesium Sulphate Injection is normally supplied as a 50 % w/v solution. How many mEq/ml of magnesium does this injection contain?
- (a) 1.02 mEq
 - (b) 2.03 mEq
 - (c) 4.06 mEq
 - (d) 6.09 mEq

CS 3.3: FORMULARY DEVELOPMENT

51. ABC analysis of your formulary for the year 2017/2018 is used as baseline data. You establish that Tazocin[®] (piperacillin/tazobactam) was a frequently used class A item.

Which of the following options does **NOT** describe the relation of Tazocin[®] to other formulary items?

- (a) 10-20% consumption of Tazocin[®] accounted for 75-80% of the formulary budget or expenditure
- (b) 75-80% consumption of Tazocin[®] accounted for 10-20% of the formulary budget or expenditure
- (c) The more the utilisation/consumption of Tazocin[®] the lesser the budget available for both class B and class C formulary items
- (d) Tazocin[®] should have tight inventory control as it presents higher risk of excessive inventory costs

CS 3.4: MEDICINE DISPENSING

52. A patient at your pharmacy, whom you have known for a long time, has intermittent eczema that is under control. They were diagnosed with Crohn's disease a year ago and have been using mesalazine tablets since then. They tell you that their Crohn's disease has worsened and present the following prescription:

Budesonide 9 mg capsules daily for 3 months.

Which of the following reasons would require you to phone the doctor?

- (a) Budesonide is not indicated for Crohn's disease
 - (b) There is an interaction between budesonide and mesalazine
 - (c) The prescribed daily dose of the budesonide is too high
 - (d) A course of budesonide capsules should not exceed 8 weeks
53. A 73-year-old female patient regularly visits your pharmacy and has been stabilised on digoxin 0.25 mg daily for atrial fibrillation. Ten days earlier the patient received a prescription for spironolactone 50 mg daily for heart failure and doxycycline 100 mg daily for 14 days for bronchitis. The patient now presents with nausea and vomiting. The patient also complains of a headache, drowsiness as well as confusion.

Which of the following is the **MOST** likely cause of the patient's symptoms?

- (a) It is most probably caused by a stomach bug. The headache and confusion could be caused by dehydration
 - (b) The doxycycline is a gastric irritant and could be the cause of the nausea and vomiting. The headache and confusion could be the result of dehydration
 - (c) Digoxin could cause the spironolactone levels to rise which could lead to toxic levels of spironolactone which may cause the symptoms
 - (d) Both spironolactone and doxycycline could cause a rise in digoxin levels which may result in the symptoms experienced by the patient
54. Which of the following is the **MOST** appropriate information to provide a patient who has been prescribed doxycycline 100 mg capsules for the treatment of acne?
- (a) Take each dose while in an upright position with a full glass of water
 - (b) Avoid entering a malaria area while on this medication
 - (c) Take on an empty stomach as the absorption is influenced by food
 - (d) Take with milk to reduce gastro-intestinal side-effects

55. The patient takes 300 mg dipyridamole daily in three divided doses and propranolol 320 mg daily. Which of the following are the CORRECT amounts of both liquid formulations to be supplied for 10 days?
- 100 ml propranolol 50 mg/5 ml oral solution and 50 ml dipyridamole 50 mg/5 ml
 - 100 ml propranolol 50 mg/5 ml oral solution and 150 ml dipyridamole 50 mg/5 ml
 - 250 ml propranolol 50 mg/5 ml oral solution and 200 ml dipyridamole 50 mg/5 ml
 - 320 ml propranolol 50 mg/5 ml oral solution and 300 ml dipyridamole 50 mg/5 ml
56. How much dihydrocodeine bitartrate and guaiphenesin are contained in each dose of the following prescription?
- | | |
|---------------------------|-----------|
| Dihydrocodeine bitartrate | 0.12 g |
| Guaiphenesin | 2.4 g |
| Cherry syrup | ad 120 ml |
- Sig. One medicine measure prn for cough
- 2.5 mg dihydrocodeine, 120 mg guaiphenesin
 - 5 mg dihydrocodeine, 100 mg guaiphenesin
 - 6 mg dihydrocodeine, 50 mg guaiphenesin
 - 60 mg dihydrocodeine, 120 mg guaiphenesin
57. An oral dose of a medicine is 2.5 mg. A solution contains 0.5 % w/v of the medicine and the dropper delivers 12 drops/ml is used. How many drops would be required to supply the necessary dose?
- 3 drops
 - 4 drops
 - 5 drops
 - 6 drops
58. Symbicord® 80/4.5 contains budesonide and formoterol fumarate. If the usual dose is stated as “two inhalations twice daily” how much of each medicine would be administered each day?
- 160 µg budesonide and 9 µg formoterol fumarate
 - 320 µg budesonide and 0.018 mg formoterol fumarate
 - 0.16 mg budesonide and 0.18 mg formoterol fumarate
 - 0.80 mg budesonide and 0.005 mg formoterol fumarate

CS 3.5: MEDICINE COMPOUNDING (10 marks)

59. You must prepare 500 g of a 3.25 % w/v magnesium hydroxide solution. What mass of magnesium hydroxide is required to prepare the solution?
- The density of the solution is 1.10 g/ml.
- 1.47 g
 - 2.95 g
 - 14.77 g
 - 16.25 g
60. You have the following zinc oxide ointment in stock that is manufactured according to the formula below:

Zinc oxide	1.5 g
Hydrophilic petrolatum	2.5 g
Purified water	5.0 g
Hydrophilic ointment	21.0 g

How much zinc oxide should be added to the formula to produce a 10% w/w zinc oxide ointment?

- (a) 1.67 g
 (b) 3.17 g
 (c) 5.60 g
 (d) 8.70 g
61. A manufacturing pharmacist mixes four equal amounts of Belladonna extract, each containing 1.15 % w/v, 1.30 % w/v, 1.35 % w/v and 1.20 % w/v of the alkaloid respectively. What is the final percentage strength of the alkaloids in the mixture?
- (a) 0.80 % w/v
 (b) 1.15 % w/v
 (c) 1.25 % w/v
 (d) 2.00 % w/v
62. You need to prepare a sufficient volume of 1M hydrochloric acid (HCl) to be used to produce a buffer solution. Calculate the number of millilitres of 32 % w/w HCl that is required to make 75 ml of a 1M HCl solution.
- The molecular weight of HCl is 36.46 g/mol
 The density of the HCl solution is 1.16 g/ml
- (a) 7.4 ml
 (b) 8.6 ml
 (c) 17.5 ml
 (d) 28.2 ml
63. A pharmacist is required to prepare a 1% hydrocortisone cream. How many grams of 2.5% hydrocortisone cream should be mixed with 360g of 0.25% cream?
- (a) 36 g
 (b) 90 g
 (c) 144 g
 (d) 180 g
64. What volume of liquefied phenol should be used when compounding the following formulation?
- | | |
|-------------------|-----------|
| Liquefied phenol | 2.5 % v/v |
| Calamine lotion | 240 ml |
| Sig. for ext. use | |
- (a) 4 ml
 (b) 6 ml
 (c) 8 ml
 (d) 9 ml

65. How much API is required to manufacture a batch of granules for a compressed tablet with the following specifications?

Batch size	420 kg
Mean tablet weight	700 mg
API content	600 mg

- (a) 360 kg
(b) 378 kg
(c) 380 kg
(d) 400 kg
66. A pharmacist is to prepare an oral paediatric ferrous sulfate solution for a 4-month-old infant. The following formula is available to prepare 150ml of this solution:

Rx	Ferrous sulfate	0.6 g
	Ascorbic acid	0.2% w/v
	Orange syrup	10% v/v
	Chloroform water	25 ml
	Water	to 50 ml

The patient has to take 2.5 ml bd. How many millilitres of orange syrup will this patient consume per day?

- (a) 0.50 ml
(b) 2.50 ml
(c) 5.00 ml
(d) 10.00 ml
67. As part of formulation development, you have been asked to prepare 467 grams of an ointment that contains 7.5% w/w methyl salicylate. Calculate how many grams of an ointment base you would need to prepare the ointment.
- (a) 35.03 g
(b) 43.20 g
(c) 431.98 g
(d) 467.00 g

CS 3.6: MEDICINE DISPOSAL/DESTRUCTION

68. A regular patient returns morphine tablets to the pharmacy due to the treatment cessation. The patient did not use any of the tablets and the container is still sealed. You have another patient on the same tablets. What is the **MOST** appropriate manner in which to handle the situation?
- (a) Accept the tablets back for destruction according to legal requirements
(b) You cannot accept the tablets as they are a S6 item
(c) Take the tablets back and give it to the other patient on the same treatment.
(d) It is for the patient to decide whether or not they want to donate the tablets to the other patient

DOMAIN 4: ORGANISATION AND MANAGEMENT SKILLS

CS 4.1: HUMAN RESOURCES MANAGEMENT (1 mark)

69. The responsible pharmacist is conducting annual performance appraisals for the staff. Which of the following statements is **TRUE** regarding this process?
- (a) A group performance appraisal is an effective means to motivate underperforming staff
 - (b) The results of the performance appraisal should not be considered for employee salary increases
 - (c) The result of the performance appraisal should not be discussed with the relevant staff member.
 - (d) Performance is monitored and evaluated according to job descriptions and specific objectives

CS 4.2: FINANCIAL MANAGEMENT

70. When you reconcile your supplier statement at month end, which of the following documents would you include?
- (a) Delivery notes
 - (b) Debtors accounts
 - (c) Invoices
 - (d) Waybills

CS 4.3: PHARMACEUTICAL INFRASTRUCTURE MANAGEMENT

71. In order to establish quality and safety of pharmaceutical services provided, pharmacy operations and premises are inspected for compliance to standards. Pharmacies are thereafter graded accordingly. Which of the following statements regarding the purpose of grading is **FALSE**?
- (a) To ensure that all licensed pharmacies comply with GPP standards at all times.
 - (b) To ensure that all recorded pharmacies comply with GPP standards at all times
 - (c) To establish the location of pharmacies in South Africa
 - (d) To inform the public of the standard of pharmacies in South Africa

CS 4.4: QUALITY ASSURANCE

72. With respect to ensuring the distribution of medicines in a hospital, Standard Operating Procedures (SOPs) on distribution must be written and complied with. Which of the following statements is **TRUE**?
- (a) A copy of the medicine list must be made available to nursing staff responsible for obtaining supplies of stock
 - (b) Distribution of medicine within a hospital may take place under the direction and control of the pharmacist's assistant
 - (c) Stock distribution records must be dated and signed and kept by the hospital for a period of at least one year
 - (d) Regular stock checks and stock rotation at medicine storage areas in the hospital is the responsibility of the nursing staff

73. The formulation and manufacture of an injectable solution necessitates that:

- (a) The product must not be manufactured on the same premises as the oral dosage forms
- (b) The product must be in a sterile solution dosage form
- (c) The clean areas used in the manufacturing procedure need not comply with the standards of cleanliness
- (d) The active ingredient must be optically active

CS 4.6: POLICY DEVELOPMENT

74. Which of the following SOP's is mandatory within a community pharmacy?

- (a) Reporting of adverse drug reactions
- (b) Calibration of the scale
- (c) Staff recruitment procedures
- (d) Phases of dispensing

DOMAIN 5: PROFESSIONAL AND PERSONAL PRACTICE

CS 5.1 PATIENT-CENTRED CARE

75. A member of staff working in the pharmacy is pregnant. She heard from friends that some medicines have teratogenic effects and seeks advice from you as to which trimester of pregnancy the foetus would be most susceptible to the possible teratogenic effects of a medicine. Your advice would suggest that the following trimester(s) is the **MOST** likely to be critical.

- (a) Equally throughout the trimesters
- (b) First trimester
- (c) Second trimester
- (d) Third trimester

CS 5.2: PROFESSIONAL PRACTICE (7 marks)

76. You dispensed a prescription for cefuroxime 500 mg bd for 5 days to a patient. The next day you realise that the prescription was actually for ciprofloxacin 500 mg bd for 5 days. What is the **MOST** appropriate action for you to take?

- (a) Both medicines are broad spectrum antibiotics, so no further action is required
- (b) Phone to check on the patient, and if they are improving no further action is required
- (c) Phone the patient, dispense the ciprofloxacin and instruct the patient to complete both courses of antibiotics
- (d) Phone the doctor, explain the situation and decide together on the best course of action

77. Which of the following circumstances and conditions allow a responsible pharmacist to be absent from their pharmacy?

- (a) Suitable mechanisms are in place to ensure no person performs any act falling outside their scope of practice
- (b) Full time employment at another pharmacy where they are not the responsible pharmacist
- (c) Full time employment at another business so long as it is not a pharmacy

- (d) The responsible pharmacist is not responsible to Council for any acts performed in his/her absence
78. A pharmacist and pharmacist's assistant are apprehended by hospital security after stealing medicines. The SAPS is called in, a criminal case is opened, and they are found guilty. The hospital is instituting disciplinary action against the staff. The responsible pharmacist reported the matter to the SAPC and their conduct is also found to be improper. Which of the following statements regarding the action or penalties Council may take, is **TRUE**?
- (a) Council is only concerned with scope of practice to ensure patient safety
 - (b) Registered persons are automatically removed from the relevant Council registers once found guilty in a court of law
 - (c) They may be fined and/or suspended from practising for a specific period.
 - (d) The assistant is not guilty because they were working under direct supervision of a pharmacist

CS 5.3: ETHICAL AND LEGAL PRACTICE

79. A female patient asks to buy 10 quinine tablets as she uses one tablet a month as an oral contraceptive. Which of the following is the **MOST** appropriate action to take?
- (a) You should ask her to get a prescription as quinine is a schedule 4 medicine
 - (b) You may not sell the quinine tablets to her as it is not indicated for this purpose
 - (c) You dispense 6 tablets as you may only give 6 months' supply
 - (d) Refer the patient to a colleague as you have a moral issue with abortifacients
80. While you are doing your internship, you want to earn extra money over weekends. Which of the following statements is **TRUE**?
- (a) You may locum as an intern at another pharmacy within the same sector as your training pharmacy
 - (b) You may locum as a pharmacist's assistant post-basic at another pharmacy
 - (c) You may locum as an intern at another pharmacy as your registration is not sector specific
 - (d) You may not practice as an intern or pharmacist's assistant at any other pharmacy
81. You are going to participate in the Argus Cycle Tour. A pharmaceutical company offers you cycling gear that is branded "Fexofenadine, the fastest relief for hayfever". Which of the following actions would be **MOST** appropriate?
- (a) You can accept the offer as you are under no obligation to sell the product
 - (b) You cannot accept this cycling gear as it advertises the indication of the product
 - (c) You may only accept the offer if your manager approves it
 - (d) You may only accept the offer if the value of the cycling gear is less than R1000
82. Which of the following would be the scope of practice for pharmacist's assistant basic level?
- (a) They may order metronidazole tablets from the wholesaler
 - (b) They may sell clotrimazole vaginal cream to a patient
 - (c) They may assist with the compounding of a non-sterile medicine
 - (d) They may assist a patient with advice on drug interactions

83. You receive a prescription for 30 Ritalin® LA 10 mg (methylphenidate) capsules from a paediatrician known to you. The patient has been using Ritalin® LA 10 mg capsules for three months. The practitioner only indicated the quantity in figures and failed to express the quantity in words. Which of the following actions is the **MOST** appropriate to take?
- (a) Send the caregiver back to the paediatrician to correct the prescription
 - (b) Confirm the quantity with the paediatrician and write the quantity in words on the prescription which you then dispense
 - (c) Confirm the quantity with the paediatrician telephonically, dispense the prescription and request a new valid prescription
 - (d) Call the paediatrician and insist that they write another prescription before you can dispense the medicine
84. The pharmacy labelling machine is out of order and has been sent for repairs. You are expected to continue dispensing medicines to patients. Which of the following is **NOT** a legal requirement on a manually written label?
- (a) Date of dispensing
 - (b) Directions for use of the medicine
 - (c) Name of the prescriber
 - (d) Proprietary name of the medicine
85. Which Act governs the registration of medicines in South Africa?
- (a) National Health Act (Act 61 of 2003)
 - (b) Pharmacy Act (Act 53 of 1974)
 - (c) Consumer Protection Act (Act 68 of 2008)
 - (d) Medicine and Related Substances Act (Act 101 of 1965)
86. Applications to SAHPRA for the amendment of a registration dossier of a medicine are divided into different categories. Which of the following statements regarding a Type C amendment is **TRUE**?
- (a) Amendments that should be considered as new applications
 - (b) Amendments that require prior approval
 - (c) Amendments for which no report is required
 - (d) Amendments that may be implemented without intervention of or prior notification

CS 5.5: LEADERSHIP

87. Which of the following statements regarding the requirements for a pharmacist to be approved as a tutor for training interns, is **TRUE**?
- (a) Practise at least part-time at the pharmacy where the intern will be employed
 - (b) Be registered as a pharmacist with Council for a minimum of 5 years
 - (c) Submit a CPD portfolio covering at least 6 different competency standards
 - (d) Ensure sufficient exposure of the intern to the practice of pharmacy

CS 5.6: DECISION-MAKING

88. A 43-year-old patient has just tested positive for HIV with a CD₄ count of 200 and has immediately been initiated on ARV treatment. During patient counselling, the patient asks that you do not disclose their status to their life partner. Which of the following actions is the **MOST** appropriate to take?

- (a) Encourage the patient to share the information with their life partner
- (b) Inform their life partner of their increased risk
- (c) Report the status of the patient to the notifiable disease register
- (d) Agree with the patient that the life partner does not really need to know

DOMAIN 6: EDUCATION, CRITICAL ANALYSIS AND RESEARCH

CS 6.5: CRITICAL ANALYSIS

89. Which of the following offers the highest level of evidence when trying to make a decision on whether a medicine should be included in a formulary?
- (a) Randomised control trial
 - (b) Pharmaceutical company glossy literature
 - (c) Cohort studies
 - (d) Systematic reviews

CS 6.6: RESEARCH

90. You are a pharmacist intern at a hospital. As part of your project, you would like to conduct a retrospective chart review of the long-term side effects of anti-retroviral therapy. What approvals are needed to conduct this survey?
- (a) Ethical and SAHPRA approval
 - (b) Informed consent from the patients and prescriber approval
 - (c) Hospital and SAPC approval
 - (d) Ethical and hospital approval

END OF PAPER