Pre-registration Examination Workshop 2019

FORMAT OF THE EXAMINATION

PRE-REGISTRATION EXAMINATION

EXAM

OPEN BOOK EXAM

- Using SAPC online platform
- Minimum of 120 Multiple Choice Questions (MCQ)
- Written over 4 hours

QUESTIONS

MULITPLE CHOICE QUESTIONS

- 70% General Practice questions – will include questions across all sectors (Community, Institutional & Manufacturing)
- Each MCQ consists of a stem describing a problem or practice scenario and will have four answer options, one of which will be the most correct/appropriate.

MARKS

50% PASS MARK

- A subminimum of 60% must be achieved in the Calculations part of the exam
- Each question will be worth one mark
- No negative marking will be applied

EXAM CONTENT

PRE-REGISTRATION EXAMINATION

Exam questions will test knowledge and problem solving skills and will include application.

Each exam question will be set in accordance with the competencies required for entry into practice as described in the 2018 Competency Standards for Pharmacists in South Africa.

The 6 domains in the competency standards are broad categories linked to specific sub-categories of competency.

Each domain is assigned a weighting and the competencies are weighted in line with the overall weight of that domain.

Exam content

DOMAINS	Weight (% of exam)	COMPETENCIES	No. of questions	Category of questions	Knowledge	Application	Problem solving
1. **Public health**	15%	1.1 Promotion of health and wellness	4	General (4)	20%	60%	20%
		1.2 Medicines information	4	General (4)			
		1.3 Professional and health advocacy	2	General (2)			
		1.4 Health economics	2	Calculations (1) General (1)			
		1.5 Epidemic and disaster management	1	General (1)			
		1.6 Primary healthcare	5	General (5)			
2. **Safe and rational use of medicines and medical devices**	26%	2.2 Patient counselling	6	General (6)	15%	55%	30%
		2.3 Patient medicine review and management	3	General (2) Calculation (1)			
		2.4 Medicines and medical devices safety	5	Calculations (3) General (2)			
		2.5 Therapeutic outcome monitoring	3	Calculations (1) General (2)			
		2.6 Pharmacist initiated therapy	10	Calculations (5) General (5)			
		2.7 Pharmacovigilance	2	General (2)			
		2.8 Clinical trials	2	General (2)			

Exam content

DOMAINS	Weight (% of exam)	COMPETENCIES	No. of questions	Category of questions	Knowledge	Application	Problem solving
3. **Supply of medicines and medical devices**	33%	3.1 Medicine production according to GxP	8	Calculations (4) General (4)	5%	65%	30%
		3.2 Supply chain management	10	Calculations (5) General (5)			
		3.3 Formulary development	1	General (1) or Calculation (1)			
		3.4 Medicine dispensing	10	Calculations (7) General (3)			
		3.5 Medicine compounding	10	Calculations (10)			
		3.6 Medicine disposal/destruction	1	General (1)			
4. **Organisation and management skills**	5%	4.1 Human resources management	1	General (1)	10%	80%	10%
		4.2 Financial management	1	Calculations (1) or General (1)			
		4.3 Pharmaceutical infrastructure management	1	General (1)			
		4.4 Quality assurance	2	General (2)			
		4.6 Policy development	1	General (1)			

Exam content

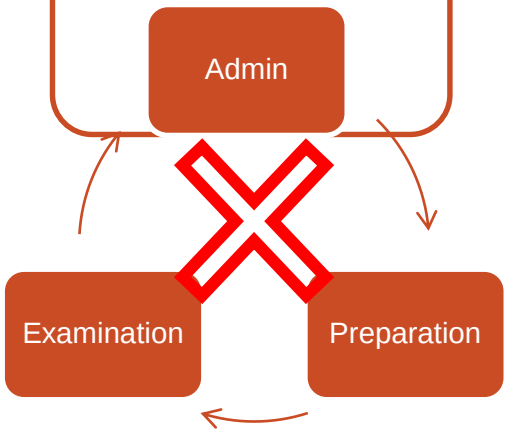
DOMAINS	Weight (% of exam)	COMPETENCIES	No. of questions	Category of questions	Knowledge	Application	Problem solving
5. Professional and personal practice	17%	5.1 Patient-centred care	3	General (3)	10%	45%	45%
		5.2 Professional practice	7	General (7)			
		5.3 Ethical and legal practice	8	General (8)			
		5.5 Leadership	1	General (1)			
		5.6 Decision-making	1	General (1)			
6. Education, critical analysis and research	4%	6.5 Critical analysis	3	General (3)	5%	40%	55%
		6.6 Research	2	General (2)			
TOTAL	100%		120				

Admin

- 2019 Intern Manual
- Date of exam
- Venue of exam
- Booking of exam
- CPD entries to be submitted before exam
- Where will I get my resources?

Prepare

- Sample examination questions
- Theoretical questions
- Which references
- Get to know reference books



Exam

- What to bring?
- Exam technique
- Time management

Admin → **Prepare** → **Exam**

- Types of questions
- Resources/reference material
- Equipment

Admin → **Prepare** → **Exam**

- Types of questions:
- General questions testing general practice of pharmacy in community, institutional and manufacturing sectors using the following domains:
  - Public health
  - Safe and rational use of medicines and medical devicesFormulations (compounding & manufacturing)
  - Supply of medicines and medical devices
  - Organisation and management skills
  - Professional and personal practice
  - Education, critical analysis and research

Admin → **Prepare** → **Exam**

- Types of calculations:

- Health Economics
- Patient medicine review and management
- Medicines and medical devices safety
- Therapeutic outcome monitoring
- Pharmacist initiated therapy
- Medicine production according to GxP
- Supply chain management
- Formulary development
- Medicine dispensing
- Medicine compounding
- Financial management

Admin → **Prepare** → **Exam**

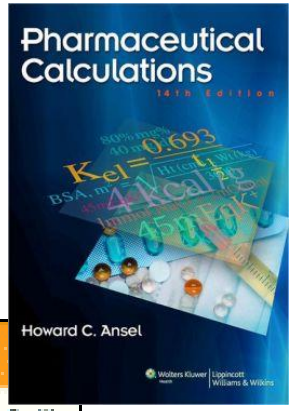
- Reference Material
  - Is it current? Latest Edition
    - SAMF
    - MIMS
    - Talmud / Daily Drug Use
    - GMP guidelines
    - Drug supply management references
    - Compendium of Laws and Regulations
    - Good Pharmacy Practice
    - Board notices
    - EDL and STG – PHC, Pediatric and Hospital

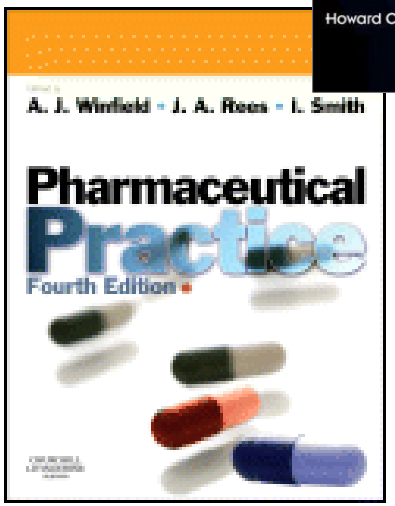
Admin → **Prepare** → **Exam**

- Reference Material
  - Can I use older versions?
    - BP
    - Martindale
    - Merck Manual
    - Textbooks

Admin → **Prepare** → **Exam**

- Resources Textbooks
  - Highly recommended
  - Pharmaceutical Calculations
    - H. C. Ansel, 14th Edition, Lippincott & Wilkins, 2012
  - Alternate resources
  - Pharmaceutical Practice
    - A. J. Winfield, J.A. Rees & I. Smith, 4th Edition



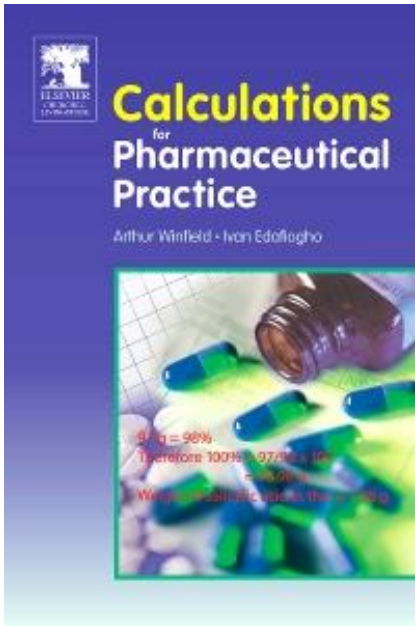


Note: Text books are of more value before the exam than during the exam. **BE MINDFUL OF TIME**

Admin → **Prepare** → **Exam**

- Resources Textbooks:
  - Alternate resources
  - Calculations for Pharmaceutical Practice
    - (A. J. Winfield & I.O. Edafiogho 4th Edition)

      SAMF – Theory behind calculations
  - Websites
  - Numerous available – beware that these are often not always applicable to South African setting

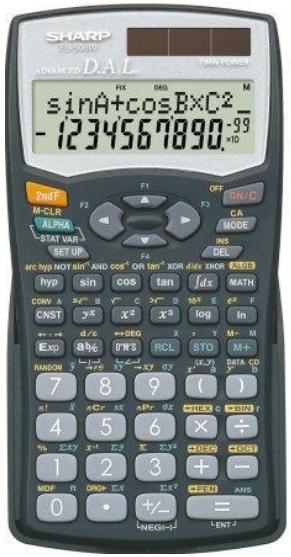


Admin → **Prepare** → **Exam**

- Resources Practice Paper:
  (Available on the SAPC Website)
  - Sample examination paper

Admin → **Prepare** → **Exam**

- Equipment
  - Calculator:



- Scientific calculator.
- Use same one to practice as you will use in the exam.
- Check batteries.
- Know the settings of your calculator.
- No access to any websites during exam

NO!!!!!!

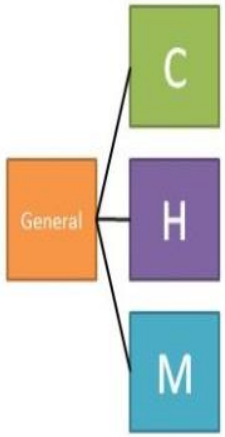
iPads

Laptops

Cellphones

Smart watches

Admin → **Prepare** → **Exam**



- How do I prepare for the exam using the available resources once I have identified my resources?
  - Reference material
  - Practice paper
- How else can I prepare?

Admin → Prepare → Exam

REFERENCE MATERIAL

- Learn how to use each reference material
  - Where is the index?
  - What information can I find in each reference material?
- Tips:
  - More is not necessarily better.
  - Using notes from University may not help (information may not be valid any longer).
  - Avoid taking in a reference book you have never used before.

Admin → Prepare → Exam

SAMPLE EXAMINATION PAPER

- Look at the type of questions asked.
- Would the reference material I have enable me to answer this question?
- Answer the question (be familiar with topics which arise – not enough time to look up each statement)
- MCQs –Complete the paper under exam conditions.
  - Sample examination paper – complete within 4 hours.
  - Compare answers with colleagues.
  - Do not assume you got the question correct.

Identify my strategy

Confirm my list of references

Learn when and how to use references

Revise each CS and see what is expected

Admin → Prepare → Exam

TEXTBOOKS

- Identifying resources/reference materials
- Identifying calculations:
  - Know how to identify calculations.
  - Find out which calculations YOU battle with and PRACTICE these more.

SAMPLE EXAMINATION PAPER

- Complete the paper under exam conditions.

  Sample examination paper – complete within 4 hours.

  Compare answers with colleagues.

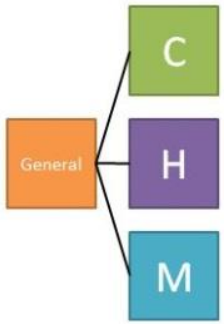
  Do not assume you got the question correct.

Admin → **Prepare** → **Exam**

- Tips:
  - Units
    - What are the SI units?
      - Example: % w/v = g/100ml
  - Conversion
    - Practice converting between units
      - Example: 10 ppm can be expressed as 0.001%
    - If you battle with this, prepare a conversion sheet to use in the exam.
  - Equations
    - Identify the equations you have used while practicing.
      - Example: $C_1V_1 = C_2V_2$
    - **Create an equation sheet which you can take into the exam. Be familiar with these equations.**

Admin → **Prepare** → **Exam**

- How else can I prepare?



Current events affecting the profession

Be present

What do I do at work?

Legislation
SAPC

- SOPs
- Work environment

READ

- e-Pharmaciae (www.pharmaciae.org.za)
- SAPJ
- Attend CPD sessions

Admin → **Prepare** → **Exam**

- Exam technique
- Using your reference material/formula sheet
- Maximizing your time
- Completing the online answer sheet

Admin → Prepare → **Exam**

- Exam technique
  - Write the calculation clearly and legibly.
  - Transferring data → double check what you have written down.
  - Write down every step.
  - Do not take short cuts.
  - Try not being totally dependent on your calculator.
  - Always double check your calculation.

Admin → **Prepare** → **Exam**

- Using your reference material
  - Haven't got time to look up how to complete the calculation for each question.
  - Have the following on hand:
    - List of equations.
    - Conversion sheets
    - List of SI units
  - If you can't complete the question, carry on and when you have time towards the end of the exam, use the reference books you brought to help you work it out.

Admin → Prepare → Exam

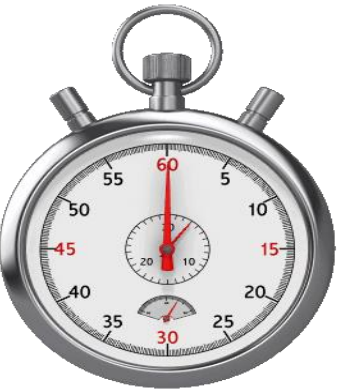
- What's your strategy?
  - Identify the statements you know.
  - Confirm only the statements you don't know.
  - If you can't complete the question, carry on and when you have time towards the end of the exam come back to it.
  - NEVER leave a question blank. No negative marking. Take an educated guess.

Admin → **Prepare** → **Exam**

- Be careful of the following:
  - "true", "is" and "are"
  - "false"
  - "most appropriate/correct" vs. "least"

Admin → **Prepare** → **Exam**

- Maximizing your time - 240 minutes
  - 120 MCQs
  - 4 options per MCQ
  - 480 statements
  - 2 minutes per question



While practicing time how long it takes you to complete a question/calculation.

No negative marking – do not leave anything blank.

You do not have enough time to look up every statement in this exam.
Reference material is just there to confirm the answer.

Examination Paper
(Sample questions)

Domain 1:

CS 1.4:

Q9: 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) R26.80

(b) R33.50

(c) R36.20

(d) R18.10

MEMO:

Cost for intravenous ciprofloxacin

$$Intravenous\ ciprofloxacin: 400mg\ x\ 2\ (times\ a\ day) = 800mg$$

$$800mg\ x\ R12/\ 200mg = R48.00$$

Cost for oral ciprofloxacin

$$Oral\ ciprofloxacin: 500mg\ x\ 2\ (times\ a\ day) = 1000\ mg$$

$$1000mg\ x\ R2.95/\ 250mg = R11.80$$

$$Cost\ saving = R48.00 - R11.80 = R36.20$$

Examination Paper
(Sample questions)

Domain 1:

CS 1.6:

Q12: 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

Examination Paper
(Sample questions)

Domain 2:

CS 2.3:

Q20: 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

MEMO:

Flow rate is 3ml/min

5 mg are contained in 1 ml

500 mg are contained in X ml

X = 500/5 = 100 ml

3 ml are given in 1 min

100 ml are given in X min

X = 100/3 = 33.3 min

Examination Paper
(Sample questions)

Domain 2:

CS 2.4:

Q23: 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) 0.865 g

(c) 0.648 g

(d) 0.576 g

MEMO:

This is an isotonicity related question based on freezing point depression.

$$W = (0.52 - a)/b$$
$$W = (0.52 - 0.022)/0.576$$
$$W = 0.865\ g$$

Examination Paper
(Sample questions)

Domain 2:

CS 2.4:

Q25: A pharmaceutical company manufactures a drug containing 5.5 M NaCl. To what volume should 500 ml of the drug solution be diluted to prepare a 0.15 M solution?

(a) 9.165 L

(b) 18.33 L

(c) 27.50 L

(d) 36.66 L

MEMO:

This is a typical dilution question

$$C_1V_1 = C_2V_2$$

$$5.5M\ x\ 500\ ml = 0.15\ x\ V_2$$

$$V_2 = 18\,333.33\ ml$$

$$V_2 = 18.33\ l$$

Examination Paper
(Sample questions)

Domain 2:

CS 2.5:

Q26: 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

MEMO:

This is a dosage related question

The volume of distribution for this patient is:

$$V_d = 65\ kg\ x\ 0.25\ l/kg$$

$$V_d = 16.25\ L$$

$$Loading\ dose = 16.25\ L\ x\ 7\ mg/L$$

$$Loading\ dose = 113.75\ mg$$

Examination Paper
(Sample questions)

Domain 2:

CS 2.6:

Q29: One of your patients is going on holiday and is visiting a malaria area. 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 return

(b) Doxycycline 100 mg daily, starting 2 days prior to entry and continue 4 weeks after return

(c) Atovaquone 250 mg, proguanil 100 mg combination daily, starting 2 days prior to entry and continue 7 days after return

(d) It is not necessary to take medicine provided that you use a mosquito repellent, sleep under a mosquito net and wear long sleeves at dusk and dawn

Examination Paper
(Sample questions)

Domain 2:

CS 2.6:

Q29: 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 return

(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

SCHEDULE 4

Doxycycline, except

a. when intended and labelled for the chemoprophylaxis of malaria in those aged 8 years and older, for periods not exceeding 4 months of continuous use; (S2)

SCHEDULE 4

[Atovaquine] Atovaquone, except

a. when co-formulated with proguanil and intended and labelled for the chemoprophylaxis of malaria in those weighing 11 kilograms or more. (S2)

Answers in previous papers might have changed due to changes in policies / legislation

Examination Paper
(Sample questions)

Domain 2:

CS 2.6:

Q32: 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

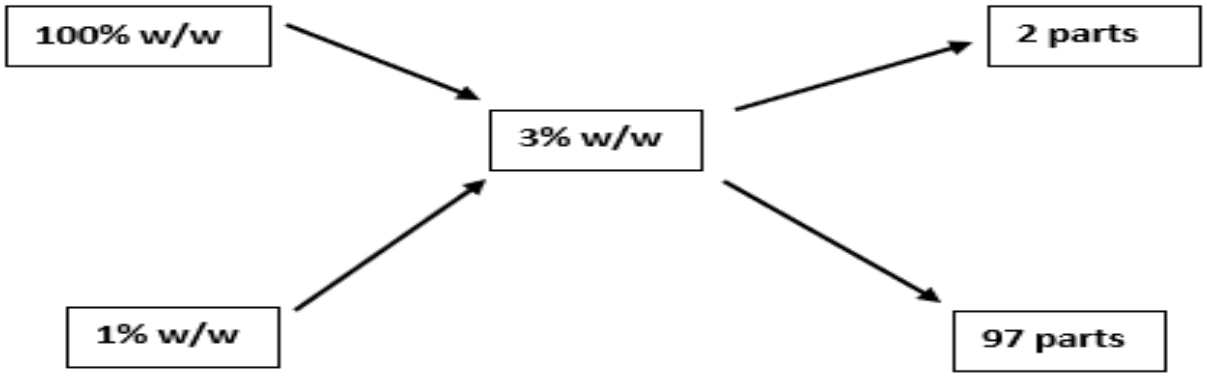
(d) 7.35 g of the powder and 67.65 g of the 1% $^{w}/_{w}$ cream

Examination Paper

(Sample questions)

MEMO:

This is a concentration calculation that involves allegation



$$\textit{The total number of parts } (2 + 97) = 99 \textit{ parts}$$

$$\textit{The total number of parts } = 75\ g$$

$$\textit{Therefore:}$$

$$\textit{The quantity of the hydrocortisone powder needed is:}$$

$$\frac{2 \textit{ parts}}{99 \textit{ parts}} = \frac{X\ g}{75\ g}$$

$$X = 1.52\ g$$

$$\textit{The quantity of the } 1\%\ ^{w}/_{w} \textit{ needed is:}$$

$$\frac{97 \textit{ parts}}{99 \textit{ parts}} = \frac{X\ g}{75\ g}$$

$$X = 73.50\ g$$

Examination Paper
(Sample questions)

Domain 3:

CS 3.1:

Q43: 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

Examination Paper
(Sample questions)

Domain 3:

CS 3.2:

Q50: 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, $[(C_4H_{10}N_2)_3 2C_6H_8O_7)]$.

(a) 0.19 g

(b) 0.56 g

(c) 1.12 g

(d) 2.80 g

MEMO:

This is a concentration calculation that involves calculations regarding molecular weight

The quantity of piperazine needed for 15 x 1 ml ampoules is:

$$\frac{X\ mg}{75\ mg} = \frac{15\ ampoules}{1\ ampoule}$$

$$X = 1125\ mg$$

It is important to note that one molecule of piperazine citrate contains 3 molecules of piperazin

$$\frac{1125\ mg}{3\ x\ 86.14\ piperazine} = \frac{X\ mg\ piperazine\ citrate}{643.00\ mg\ piperazine\ citrate}$$

$$X = 2799.22\ mg \approx 2.80\ g$$

Examination Paper
(Sample questions)

Domain 3:

CS 3.5:

Q63: You need to prepare a sufficient volume of 1 M 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 1 M 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

Examination Paper
(Sample questions)

MEMO:

This is a calculation on formulations involving concentration and density

$1\ M: 1\ mole\ (HCl) in\ 1\ L\ solution$

$1\ mole\ of\ HCl = 36.46\ g, therefore\ for\ 75\ ml:$

$$\frac{X\ g}{36.46\ g} = \frac{0.075\ L}{1\ L}$$

$$X = 2.7345\ g\ HCl$$

$The\ quantity\ of\ the\ 32\%\ w/w\ solution\ needed\ is:$

$$\frac{2.7345\ g\ HCl}{32\ g\ HCl} = \frac{X\ g\ solution}{100\ g\ solution}$$

$$X = 8.545\ g$$

$The\ equivalent\ volume\ is:$

$$V = \frac{Weight}{Density}$$

$$V = \frac{8.545\ g}{1.16\ g/ml}$$

$$V = 7.4\ ml$$

Examination Paper
(Sample questions)

Domain 4:

CS 4.3:

Q72: 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

Examination Paper
(Sample questions)

Domain 5:

CS 5.3:

Q81: 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

Examination Paper
(Sample questions)

Domain 6:

CS 6.6:

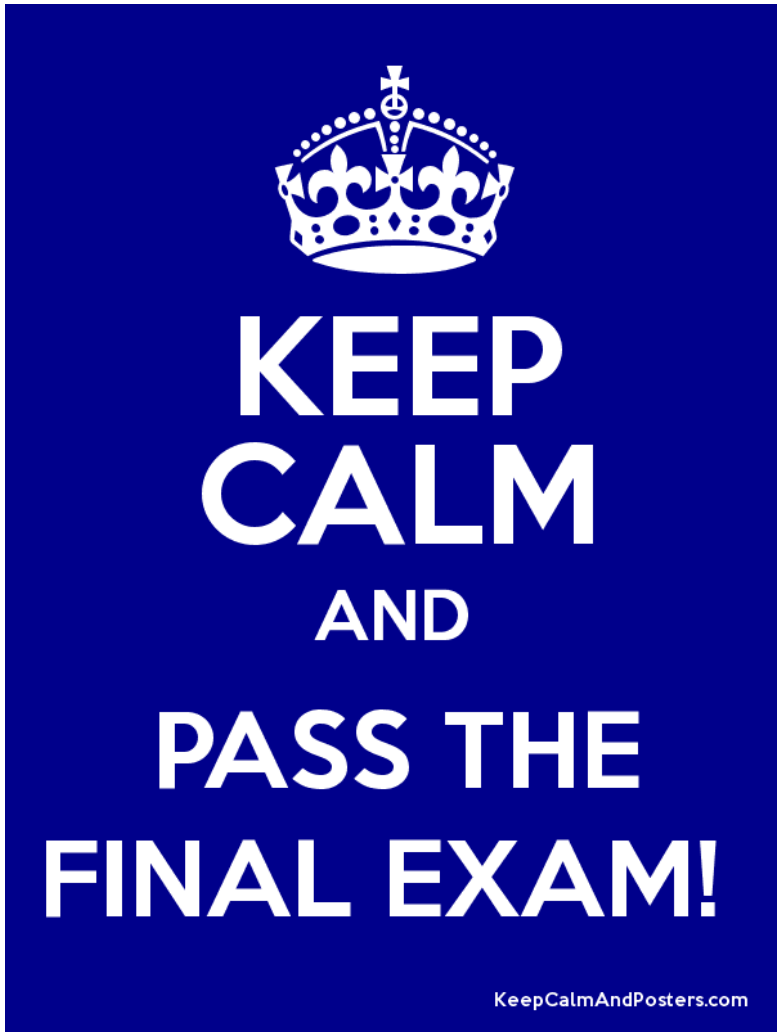
Q91: You are a pharmacist intern at a hospital. As part of your project, you would like to conduct a retrospective chart review of the long-term side effects of anti-retroviral therapy . What approvals are needed to conduct this survey?

(a) Ethical and SAHPRA approval

(b) Informed consent from the patients and prescriber approval

(c) Hospital and SAPC approval

(d) Ethical and hospital approval



For some of you…this will be the LAST exam you will ever write!

South African Pharmacy Council

3rd NATIONAL PHARMACY CONFERENCE

PLUGGED-IN, ENGAGED, BE A CATALYST FOR CHANGE

3 - 5 OCTOBER 2019 | SUN CITY, SOUTH AFRICA

South African Pharmacy Council

Sponsored by:

Dis-Chem PHARMACIES Gold Sponsor

aspen PHARMACARE Platinum Sponsor

Cipla Gold Sponsor

MOVING TO PHARMACY 2030
3rd National Pharmacy Conference
3-5 Oct 2019, Sun City
Plugged-in, Engaged,
Be a catalyst for change
www.sapcconference.za.org

Questions

Thank you

South African Pharmacy Council

South African Pharmacy Council

MOVING TO PHARMACY 2030

3rd National Pharmacy Conference

3-5 Oct 2019, Sun City

Plugged-in, Engaged,
Be a catalyst for change

www.sapcconference.za.org