



Competency Assessment of Overseas Pharmacists (CAOP)

Candidate's Guide

Australian Pharmacy Council Ltd

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Candidates Guide

1. Introduction

The Australian Pharmacy Council (APC) is a national accrediting and examining body conducting a written competency examination on behalf of the Pharmacy Board of Australia (PBA).

The APC works collaboratively with governments, other pharmacy professional organisations, regulatory groups, and the community to identify issues and trends in pharmacy that require a collegiate approach.

Our functions are:

- leadership in developing and implementing nationally consistent policies, processes and approaches to pharmacy practice, regulation and registration,
- accrediting pharmacy schools and programs; and authorising agencies to accredit continuing professional development;
- conducting examinations towards eligibility for registration, and
- assessing the qualifications and skills of pharmacy graduates towards Australian registration

The New Zealand Pharmacy Council is a member of the APC.

The Competency Assessment of Overseas Pharmacists (CAOP) examination forms part of the competency assessment of those overseas trained pharmacists eligible to undertake Stream B of the APC process. It has been developed to provide a common competency assessment for use by the APC to establish the suitability of an individual for registration as a pharmacist in Australia.

The CAOP examination may also be used by registering authorities in other countries as part of a competency assessment process. For example, at the present time CAOP forms part of the assessment process of overseas trained pharmacists seeking registration in New Zealand.

The CAOP Examination consists of 105 multiple choice questions (MCQ):

- 5 calculation questions;
- 100 practice-based questions
- 1 short answer question

To ensure the CAOP reflects contemporary practice the MCQs are written by pharmacists with community, hospital, industry and academic backgrounds. The questions included in the CAOP item-bank have undergone extensive review, pre-testing and validation processes.

It should be noted that questions involving pharmacy practice that may be unique to the Australian situation, e.g. aspects of snake antivenin usage, are not included in the CAOP examination.

In the CAOP examination drug names are in the form of the International Nonproprietary Name (INN).

2. Objectives of the CAOP Examination

The object of the CAOP examination is to assess candidates' ability to apply their knowledge and experience in pharmacy practice. Assessment is based upon the following functional areas of the *Competency Standards for Pharmacists in Australia 2003*.¹ These areas are detailed as follows:

- Functional area 2 (Manage work issues and interpersonal relationships in pharmacy practice) includes the following competency units:
 1. Apply communication skills
 2. Participate in negotiations
 3. Address problems
 4. Manage conflict
 5. Apply assertiveness skills
- Functional area 3 (Promote and contribute to optimal use of medicines) includes the following competency units:
 1. Participate in therapeutic decision making
 2. Provide ongoing pharmaceutical management
 3. Promote rational drug use
- Functional area 4 (Dispense medicines) includes the following competency units:
 1. Assess prescriptions
 2. Evaluate prescribed medicines
 3. Supply prescribed medicines
- Functional area 5 (Prepare pharmaceutical products) includes the following competency units:
 1. Consider requirements for preparing a product
 2. Compound pharmaceutical products
 3. Prepare cytotoxic drug products
- Functional area 6 (Provide primary health care) includes the following competency units:
 1. Assess primary health care needs
 2. Address primary health care needs of patients
 3. Promote good health in the community

¹ Competency Standards for Pharmacists in Australia 2003. Pharmaceutical Society of Australia.

3. Format of the CAOP Examination

The CAOP consists of 105 multiple choice questions plus one short answer question. These are to be attempted over a three hour period. As detailed in Section 2 of this guide, the questions are based on functional areas 2, 3, 4, 5 and 6 of the *Competency Standards for Pharmacists in Australia 2003*.

Each of the multiple choice questions has four or five options (e.g. A - D or A - E). Each question has only one correct answer. Potential answers do not contain 'None of the above' or 'All of the above' as options.

Questions may either 'stand alone' or be associated with a patient profile. The majority of questions relate to patient profiles.

For those questions associated with a patient profile, the questions should be answered within the context of the profile in which they appear. In no case will the answer to one question within the profile be dependent upon correctly answering another question. The candidate will be able to answer each question independently of other associated questions.

Sample material

Attached are:

- Sample stand alone questions
- Sample profiles with questions
- Sample calculation questions
- Sample short answer question
- A sample answer sheet

Permissible reference material

During the examination candidates may refer to current editions of:

- *Australian Pharmaceutical Handbook and Formulary (APF)*
- *Australian Medicines Handbook (AMH)*
- *British National Formulary (BNF)*

Candidates should bring these to the testing venue. Please note permissible reference material may NOT contain annotations, hand written notes, or loose additional notes. However, text may be highlighted or flagged prior to the examination. Candidates are urged to ensure they have the current editions.

Candidates should not assume copies of permissible reference material will be available at testing venues; neither will permissible reference material be able to be shared between candidates.

As some questions will require calculation, candidates may bring a non-programmable battery operated calculator without an alphabet keyboard into the testing venue. Other types of calculators will not be allowed.

4. Preparation for CAOP Examination

The questions in the CAOP examination are designed to assess a candidate's competency against the following functional areas of the *Competency Standards for Pharmacists in Australia 2003*

- 2 (manage work issues and interpersonal relationships in pharmacy practice),
- 3 (promote and contribute to optimal use of medicines),
- 4 (dispense medicines),
- 5 (prepare pharmaceutical products)
- 6 (provide primary health care).

The majority of the multiple choice questions will refer to practice standards and guidelines contained within the current editions of the APF and the clinical information in the AMH.

The CAOP Examination has been developed, with a view to assessing how well candidates can apply their knowledge and skills to practice situations, and to assist in evaluating whether they are competent to meet the responsibilities of pharmacy practice.

Preparation for CAOP should be based on the knowledge and experience acquired during professional practice. Note that questions involving pharmacy practice that may be unique to the Australian situation, e.g. aspects of snake antivenin usage, are not included.

Drug names appearing in questions are in the form of the International Nonproprietary Name (INN).

5. Examination Details

Permitted references

Current editions of the APF, the AMH and/or the BNF. (Note that non-current editions are permissible, but may give misleading information.)

Length of and time allowed for CAOP

CAOP will consist of 105 questions and one short-answer question to be answered over a period of 3 hours.

Examination paper

The examination paper is presented in two parts: Part I (105 MCQs) and Part II (Short answer question). Candidates must write their name and sign the front cover of each part of the examination paper.

Answer sheet

Part I of the examination paper is answered on a generalised answer sheet. Candidates must write their family name, initials, and any other relevant data on the generalised answer sheet (a sample copy is attached). Part II requires a written answer and must be answered on the space provided on the examination paper.

Answers on the generalised answer sheet should be clearly marked by blocking in the appropriate circle to each question with a 2B pencil. If the candidate changes their mind the first mark should be rubbed out completely

and a new mark made. Do not leave smudges or stray marks as they may be misinterpreted. Do not use a ball point or ink pen.

Pencils, pencil sharpeners and erasers are provided by the examining authority.

Other general instructions

All brief cases, bags including hand-bags and pencil cases are to be left at the front or side of the room. Wallets or purses may be kept beside the candidate or on the candidate's person.

Candidates must bring photo-identification or other positive proof of identity to the examination venue. Candidates who are unable to provide positive identification will be refused permission to take the examination.

Candidates will not be able to enter or leave the examination venue within the first 30 minutes of the examination or leave during the last 10 minutes of the scheduled finishing time. All candidates leaving the room during the examination must be accompanied by a supervisor unless the candidates indicate they have completed the examination before the scheduled finishing time and will not be returning. If a candidate has to leave the examination room temporarily, e.g. to use toilet facilities, no extra time will be allowed.

Should a defect in a paper be noted the nature of the defect will be taken into consideration when the paper is marked, and no candidate will be disadvantaged. Note: supervisors are not authorised to correct any error or defect in the paper. This is to ensure all candidates do the examination under the same conditions at all venues.

Full examination rules are found on the back of the examination form that is sent to candidates.

Collusion, malpractice or unsatisfactory behaviour

Examinations are conducted under strict supervision. The APC reserves the right to expel any candidate during an examination if it can be reasonably concluded the candidate is guilty of unsatisfactory behaviour, or the APC is not satisfied with the candidate's performance in any other way.

In the event of suspicion of collusion, candidates will be separated. In the event of clear evidence of malpractice (e.g. the use of concealed notes) the candidate will be asked to leave the room immediately. In such cases the candidate's examination paper and the generalised answer sheet will be marked null and void and returned to the APC together with a report of the incident. This will be done with as little disruption to other candidates as possible.

6. Results of CAOP

Candidates are required to achieve an overall pass in the CAOP with a pass in each of the functional areas covered by the examination. While the APC

does not provide information on the specific marks achieved by a candidate (results being provided on a 'pass/fail' basis only) the results sheet sent to a candidate will provide a range within which scores were achieved by all candidates for that session, together with an indication of whether a candidate's score was within 10% of the pass mark for the examination.

Also indicated on the results sheet are specific areas of weakness demonstrated by the candidate in the examination.

Examination results will be forwarded to candidates by mail, generally within four to six weeks of the candidate sitting the examination. Results will NOT be available verbally or by fax or email.

Results will also be posted on the APC website within four weeks after the examination date and will remain available for four weeks. Candidates will be required to enter their date of birth and their APC file number to access these results.

7. Appeal against the examination process

Information about the Appeals Process can be found on the APC website. Candidates can check the Appeals Process at any time by visiting the APC website www.pharmacycouncil.org.au

Candidates who are undertaking the CAOP examination as part of the registration process in a country other than Australia need to refer to the appeals process applied by the registration authority in that country.

8. Sample CAOP Examination Questions

1. Attention deficit hyperactivity disorder (ADHD) may be treated with behaviour management, educational programs, parental counselling and medications. Which of the following medications is **NOT** generally used in the treatment of ADHD in children?

- A methylphenidate
- B dexamphetamine
- C imipramine
- D clonazepam
- E clonidine

Correct answer: D

2. A patient phones the pharmacy complaining of nausea and pale stools. Which of the following medicines are the **MOST** likely cause of this patient's symptoms?

- A naproxen 1g i daily cc
- B methotrexate 2.5mg iii weekly cc
- C omeprazole i daily
- D prednisolone 5mg i mane
- E folic acid 5mg i daily

Correct answer: B

3. A male patient, age 45, presents with a prescription for *simvastatin 10mg, take one each day*. It is his initial therapy with this drug. The optimal time to take this drug is

- A in the morning
- B at lunch time
- C any time during the day, but after meals
- D at night
- E any time during the day, but before meals

Correct answer: D

4. A young mother comes into your pharmacy and requests a bottle of trimeprazine syrup to help her 6 month baby settle at night. She reports that she purchased a bottle previously, which worked well, but that it doesn't seem as effective now. Which of the following is the **MOST** appropriate action?

- A change medication to promethazine
- B increase the dose of trimeprazine
- C advise that trimeprazine should not be used in children less than 2 years of age
- D highlight problems with long-term sedative use
- E advise that trimeprazine loses potency once opened

Correct answer: C

5. All of the following medications are used in the treatment of rheumatoid arthritis **EXCEPT**?

- A sulfasalazine
- B hydroxychloroquine
- C methotrexate
- D meloxicam
- E olsalazine

Correct answer: E

6. For a recently bereaved 78 year old woman, which of the following would be the **MOST** appropriate choice to treat insomnia?

- A nitrazepam
- B temazepam
- C midazolam
- D diazepam
- E paroxetine

Correct answer: B

7. A patient experiencing menopausal symptoms has been prescribed, at different times, the following regimens:

Regimen A: Conjugated equine oestrogens 0.625mg Days 1-28
Medroxyprogesterone 10mg Days 1-12

Regimen B: Conjugated equine oestrogens 0.625mg Days 1-28
Medroxyprogesterone 5mg Days 1-28

Regimen B is **NOT** the preferred hormone replacement therapy option before menopause because

- A of the increased risk of breast cancer compared with regimen A
- B breakthrough bleeding is unpredictable and heavy
- C of the increased risk of deep vein thrombosis
- D breakthrough bleeding is scant and continuous

Correct answer: B

8. In the treatment of epilepsy, carbamazepine has anticonvulsant activity in patients with a wide variety of seizure disorders **EXCEPT**:

- A generalised tonic clonic seizures (gran mal seizures)
- B simple partial seizures
- C complex partial seizures
- D absence seizures
- E complex partial seizures secondarily generalised

Correct answer: D

9. A female patient has coeliac disease. She wants your advice regarding preparations that are suitable for patients with coeliac disease. You should advise her to avoid preparations containing

- A grains
- B glucose
- C lactose
- D gluten
- E iron and calcium

Correct answer: D

10. Which of the following statements is **CORRECT** with regard to medication administration in renal impairment?

- A loading doses of medications (except digoxin) should normally be reduced in patients with renal failure
- B creatinine clearance provides a good approximation of kidney reabsorption function
- C angiotensin converting enzyme (ACE) inhibiting medications should be used cautiously in patients with renal vascular disease
- D a patient less than 50 years would normally have a creatinine clearance of 40 - 60mL/minute
- E nitrofurantoin is an effective urinary tract antiseptic in patients with renal impairment

Correct answer: C

11. Gemfibrozil should be discontinued if a patient complains of

- A weight gain
- B constipation
- C diarrhoea
- D muscle pain
- E urinary frequency

Correct answer: D

12. A common side effect of felodipine is

- A persistent dry cough
- B flushing
- C sexual dysfunction
- D sleep disturbances
- E postural hypertension

Correct answer: B

13. What is the normal range for international normalised ratio in the treatment of thrombosis?

- A < 1.0
- B 1.0 - 1.5
- C 2.0 - 3.0
- D 2.5 - 5.0
- E 4.0 - 7.0

Correct answer: C

14. A patient phones your pharmacy and asks when they should stop taking clopidogrel prior to their upcoming surgery. They recall being told to stop it, but don't know when. The **MOST** appropriate advice would be

- A 6 hours pre-operative
- B 24 hours pre-operative
- C 3 days pre-operative
- D 7 days pre-operative
- E 3 weeks pre-operative

Correct answer: D

15. A patient presents you with a script for methotrexate for rheumatoid arthritis. Which of the following counselling points does **NOT** apply?

- A avoid excessive sunlight exposure
- B take dose once weekly
- C take on an empty stomach
- D special handling and disposal is required
- E do not take more than one aspirin tablet each day

Correct answer: C

16. Which of the following is **NOT** a side effect of erythromycin?

- A diarrhoea
- B photosensitivity
- C abdominal pain
- D pain on intravenous administration
- E cardiac arrhythmia

Correct answer: B

17. Which of the following is **NOT** a likely side effect of using prednisolone to treat rheumatoid arthritis long term?

- A osteoporosis
- B hyperglycaemia
- C skin atrophy
- D fat redistribution
- E platelet disorders

Correct answer: E

18. A female patient, age 36 years, phones your pharmacy and complains of having a sore and swollen calf muscle, with no apparent reason for the problem. Which medication is **MOST** likely associated with her symptoms?

- A trimethoprim 300mg i nocte
- B ethinylloestradiol 30/ levonorgestrel 150 i daily
- C omeprazole 20mg i daily
- D citalopram 20mg i daily
- E naproxen 250 mg i 8 hourly

Correct answer: B

19. The antihypertensive medication class that should **NOT** be used for patients with gout is

- A diuretics
- B β blockers
- C selective β 1 blockers
- D calcium channel blockers
- E angiotensin converting enzyme inhibitors

Correct answer: A

20. Which of the following is **INCORRECT** with regards to allopurinol?

- A allopurinol can commonly cause an itchy rash
- B allopurinol is used as a prophylactic agent for gout
- C the dose of allopurinol should be reduced in severe renal impairment
- D allopurinol should be given in a high loading dose to quickly resolve an attack of gout
- E allopurinol can interact with azathioprine increasing the risk of bone marrow depression

Correct answer: D

21. With regards to erythromycin, which of the following is **CORRECT**?
- A bioavailability is greater if taken on an empty stomach, but erythromycin may be taken with food if stomach irritation occurs.
 - B erythromycin should always be taken with food to reduce the incidence of nausea, vomiting and diarrhoea.
 - C erythromycin base should always be taken with food, whilst the ethyl succinate and stearate salts should always be taken on an empty stomach.
 - D erythromycin should be taken on an empty stomach, as bioavailability is reduced by 80% if taken with food.
 - E erythromycin should be taken strictly 6 hourly

Correct answer: A

22. A patient is prescribed a selective serotonin re-uptake inhibitor. Which of the following should you include in your counselling?
- A take each morning
 - B stop the medication once you are feeling better
 - C take at night
 - D take only when needed
 - E avoid aspirin when taking the medication

Correct answer: A

23. Which of the following is the **CORRECT** information to give to a person taking alendronate?
- A take with milk to enhance absorption
 - B take at bedtime to avoid possible drowsiness
 - C take one hour before or two hours after a meal
 - D avoid taking iron supplements within two hours
 - E take in the morning with breakfast to avoid stomach upset

Correct answer: D

24. With which of the following medications is it **MOST** important to maintain a high fluid intake?
- A allopurinol
 - B ibuprofen
 - C ramipril
 - D cephalexin
 - E frusemide

Correct answer: A

25. Which of the following statements is **CORRECT**, with regards to glyceryl trinitrate spray? When using the spray for the first time, the medication should be

- A shaken after opening and discarded 3 months; a maximum single dose of 2 puffs under the tongue should be used over 15 minutes
- B primed and sprayed under the tongue; a maximum of 5 puffs should be used over 15 minutes
- C primed after opening and discarded 3 months; a maximum single dose of 2 puffs under the tongue should be used 15 minutes
- D primed and sprayed under the tongue; a maximum single dose of 2 puffs should be used over 15 minutes

Correct answer: D

26. A patient is receiving palliative care for terminal stages of bowel cancer. He has been taking oral controlled release morphine tablets regularly. He presents with a new prescription for morphine liquid 5mg/mL. Which of the following is the **MOST** appropriate advice for this patient, with regards to the initial use of morphine liquid?

- A take the liquid regularly every four hours
- B take the liquid when required for breakthrough pain
- C stop the morphine sulfate tablets and just use the liquid
- D take the liquid with the regular dose of morphine sulfate tablets
- E take the liquid regularly and take the morphine sulfate tablets when required

Correct answer: B

27. A teenage girl with mild acne comes into the pharmacy and asks for something to help her skin. She has not used anything previously. The **MOST** appropriate recommendation would be

- A benzoyl peroxide 2.5%
- B to see her doctor for topical clindamycin
- C benzoyl peroxide 10%
- D to see her doctor for oral doxycycline
- E tea tree oil

Correct answer: A

28. A mother is concerned her child has hair nits. You should advise that she look for

- A small winged insects in the child's hair
- B white eggs stuck to hair shafts close to the scalp
- C white eggs stuck to the scalp and areas of redness on the scalp
- D small insects in the child's hairbrush and on bed linen
- E redness of the scalp and restlessness during sleep

Correct answer: B

29. A 55 year old male asks for something for a recent and painful muscle sprain he acquired while playing golf. On checking his profile you notice he is on the following medications

Atenolol 50mg	i	daily
Temazepam 10mg	i	nocte
Isosorbide Mononitrate	i	daily
Lithium 250mg	i	tds
Simvastatin 20mg	i	nocte
Docusate with senna	ii	nocte

Which of the following should you recommend?

- A aspirin/codeine
- B paracetamol/codeine/doxylamine
- C paracetamol
- D ibuprofen
- E glucosamine

Correct answer: C

30. A person has just received what appears to be a soft tissue injury of the ankle, crossing the road to enter your pharmacy. They immediately ask for your advice. Which of the following should you recommend?

- A rest, heat and elevation
- B massage, heat and elevation
- C exercise, ice and compression
- D rest, ice, compression and elevation
- E massage, ice, compression and elevation

Correct answer: D

31. While filling a script for a 24 year old male patient for salbutamol, you notice he has not had his repeat for beclomethasone filled. On questioning, he tells you it made his throat sore and gave him horrible white patches on his tongue. Which of the following actions are **LEAST** appropriate?

- A suggest he uses a spacer device in conjunction with his inhaler
- B suggest he rinses his mouth with water after inhalation
- C counsel him regarding the benefits of regular use of his 'preventer' medication
- D suggest he regularly treats his thrush with nystatin oral drops

Correct answer: D

32. Which of the following statements is **CORRECT** with regard to garlic?

Garlic...

- A is of value in the treatment of human viral infections
- B appears to possess some antibacterial and anticoagulant properties
- C should be regarded as only exerting a placebo effect when used as a therapeutic agent
- D has proved to be of major benefit in its effects on blood lipids and apolipoproteins
- E is a modern fad treatment without any historical foundation of use

Correct answer: B

33. Symptoms of asthma include all of the following **EXCEPT**

- A night cough
- B shortness of breath
- C dizziness
- D tightness of chest

Correct answer: C

34. In addition to smoking, which of the following would place a patient at a higher risk of cardiovascular disease?

- A hypertension, diabetes and chronic airways limitation
- B diabetes, osteoarthritis and hypothyroidism
- C hypertension, diabetes and hypercholesterolaemia
- D hypercholesterolaemia, hypothyroidism and mild renal failure
- E hypertension, chronic airways limitation and osteoarthritis

Correct answer: C

9. Sample CAOP Patient Profiles

Candidates should be aware that the dates contained in a patient profile are not intended to be associated with the actual date of sitting the examination. These dates of the supply of the medications, laboratory tests and pharmacist's notes are included solely for the purpose of indicating a time frame within each individual profile.

Patient Record - Institution/Nursing Home

Patient Name	Mrs Elizabeth Daly		
Room Number	88		
Age	77	Height	157cm
Sex	Female	Weight	70kg
Allergies	Nil known		

DIAGNOSIS

Presenting complaint 1. Nausea, dry mouth, blurred vision, headache and constipation

Medical history

1. Heart failure
2. Non-insulin dependent diabetes mellitus
3. Angina

LAB/DIAGNOSTIC TESTS

Date Test

MEDICATION RECORD

<u>Date</u>	<u>Drug & strength</u>	<u>Qty</u>	<u>Sig</u>
4/10	Paracetamol (acetaminophen)	100	ii qid prn
28/9	500mg	100	i qid
28/9	Spironolactone 25mg	100	i tds
27/9	Verapamil 80mg	30	i daily
26/9	Ramipril 5mg	100	ii mane
25/9	Furosemide (furosemide) 40mg	100	i tid
24/9	Metformin 500mg	100	i mane
24/9	Glibenclamide 5mg	25	i bd
24/9	Oxazepam 15mg	25	i nocte
23/9	Temazepam 10mg	96	i daily
17/9	Aspirin 300mg	30	i daily
12/9	Isosorbide mononitrate 60mg	200	i daily
	Digoxin 62.5mcg		

PHARMACIST'S NOTES

Nil

1. What is the drug **MOST** likely to cause Mrs Daly's constipation?

- A ramipril
- B digoxin
- C metformin
- D verapamil
- E paracetamol (acetaminophen)

Correct answer: D

2. Which of the following combinations of medication is **MOST** likely to be causing headache, nausea and blurred vision?

- A temazepam and metformin
- B digoxin and oxazepam
- C digoxin and spironolactone
- D spironolactone and ramipril
- E ramipril and frusemide (furosemide)

Correct answer: C

3. Which of the following medications is **MOST** likely to be responsible for Mrs Daly's dry cough?

- A verapamil
- B ramipril
- C glibenclamide
- D digoxin
- E spironolactone

Correct answer: B

4. On 5 October, you are asked to review Mrs Daly's medications. Which of the following interventions should you suggest?

- A add a slow release potassium tablet after meals
- B delete aspirin
- C change verapamil dose to SR 240mg daily
- D cease oxazepam immediately
- E reduce metformin to one daily

Correct answer: C

5. What classification of diuretic is frusemide (furosemide)?

- A carbonic anhydrase inhibitor
- B loop diuretic
- C potassium-sparing diuretic
- D thiazide diuretic
- E herbal diuretic

Correct answer: B

END OF PATIENT PROFILE

Patient Profile

Patient Name	Bob Read	
Address	3 Lilac Close, Lavender Bay ACT 2854	
Age	23	Height 180cm
Sex	Male	Weight 80 kg
Allergies	Aspirin	

DIAGNOSIS

Presenting complaint 1. Knee injury (football)

Medical history 1. Asthma (moderate)

MEDICATION RECORD

<u>Date</u>	<u>Drug & strength</u>	<u>Qty</u>	<u>Sig</u>
13/9	Naproxen 500mg	50	i bd
10/4	Beclomethasone 100mcg/dose	MDI	ii puffs bd
10/4	Terbutaline 500mcg/dose	DPI	i puff prn
10/1	Beclomethasone 100mcg/dose	MDI	ii puffs bd

PHARMACIST'S NOTES

<u>Date</u>	<u>Comment</u>
10/4	compliance not good with beclomethasone

1. Immediate treatment to help reduce pain and swelling in Mr Read's knee injury should include
- A ice packs for 10 minutes every 1-2 hours for up to 48 hours
 - B ice packs for 10 minutes every 1-2 hours for the first 24 hours then start heat packs
 - C use of a compression bandage on the knee and aspirin 300mg every 4 hours orally
 - D methylsalicylate cream to be rubbed in well to the knee after ice treatment
 - E active exercise to keep the knee flexible

Correct answer: A

2. Of the following, which is the **MOST** significant adverse effect of naproxen for Mr Read?

- A abdominal pain
- B effect on mental alertness
- C wheeze or cough
- D skin eruption
- E tinnitus

Correct answer: C

END OF PATIENT PROFILE

Patient Profile

Patient Name	James Donell		
Address	19 Townsend Street, Hackam		
Age	19	Height	190cm
Sex	Male	Weight	90kg
Allergies	Shellfish		

DIAGNOSIS

Presenting complaint

1. Asthma

MEDICATION RECORD

<u>Date</u>	<u>Medication & strength</u>	<u>Qty</u>	<u>Sig</u>
1/12	Budesonide 400mcg/dose	DPI	ii bd
1/12	Nedocromil 2mg/dose	MDI	ii bd
1/12	Salbutamol 2mg/2.5mL	30	i qid prn for severe asthma

PHARMACIST'S NOTES

<u>Date</u>	<u>Comment</u>
1/12	Non-compliance suspected

1. Mr Donnell presents to his local pharmacist complaining of wheeze and shortness of breath. He requests supply of a cough suppressant mixture. The pharmacist should elicit details from the patient about all of the following **EXCEPT**

- A childhood history of respiratory tract infections
- B trigger factors for wheeze/shortness of breath
- C compliance details
- D regular medication
- E inhaler technique

Correct answer: A

2. Mr Donnell enquires about the supply of a metered dose aerosol salbutamol inhaler. The pharmacist has elicited a history suggestive of asthma. Which of the following would be appropriate?

- A supply salbutamol and request that he return to the pharmacy
- B supply salbutamol and recommend assessment by a doctor for re-evaluation
- C refuse supply and strongly recommend assessment by a respiratory physician
- D supply both salbutamol and salmeterol inhaler
- E check inhaler technique then supply salbutamol inhaler

Correct answer: B

3. Mr Donnell returns to the pharmacy with a prescription for prednisolone 50mg daily. He asks which adverse effects he may be likely to experience in the following week. Your advice should be

- A diarrhoea
- B dyspepsia
- C insomnia
- D constipation
- E rash

Correct answer: B

4. Long term side-effects of systemic corticosteroid therapy include all of the following **EXCEPT**

- A cushingoid features
- B osteoporosis
- C cataracts
- D thrombocytopenia
- E hyperglycaemia

Correct answer: D

END OF PATIENT PROFILE

Patient Profile

Patient Name	Roger Benson	
Address	7 Citrus Crescent, Mossy Rock	
Age	74	Height 165cm
Sex	Male	Weight 60Kg
Allergies	Nil Known	

DIAGNOSIS

Presenting complaint	1. Hypertension 2. Angina
Medical history	1. Arthritis 2. Peptic ulcer

LAB/DIAGNOSTIC TESTS

<u>Date</u>	<u>Test</u>	<u>Reference Range</u>
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MEDICATION RECORD

<u>Date</u>	<u>Drug & Strength</u>	<u>Qty</u>	<u>Sig</u>
8/11	Perindopril 4mg	30	i mane
8/11	Simvastatin 10mg	30	i nocte
8/11	Sotalol 160mg	100	1/2 bd
8/11	Isorbide mononitrate 60mg	30	ii daily
7/11	Diphenoxylate 2.5mg & Atropine 0.025mg	20	i qid
16/10	Omeprazole 20mg	28	i bd
16/10	Naproxen 500mg	50	i bd
16/10	Aspirin 300mg	100	0.5 daily

PHARMACIST'S NOTES

Nil

1. Which of Mr Benson's medications is contraindicated with a peptic ulcer?

- A perindopril
- B simvastatin
- C sotalol
- D naproxen
- E omeprazole

Correct answer: D

2. Mr Benson discusses with you a constant pain in his side, which has existed for several months and which he has forgotten to discuss with his doctor. Of the following medications currently being taking by Mr Benson, which is the **MOST** likely cause of such a pain?

- A simvastatin
- B perindopril
- C sotalol
- D omeprazole
- E isosorbide mononitrate

Correct answer: A

3. Mr Benson has not previously been prescribed isosorbide mononitrate. Which of the following counseling points should you **NOT** give?

- A he should swallow his medication whole
- B he should take his isosorbide mononitrate morning and night
- C he may suffer some dizziness and nausea
- D he should take his medication at the same time each day
- E an additional tablet can be taken if acute pain occurs

Correct answer: B

END OF PATIENT PROFILE

Patient Profile

Patient Name	Ken Richards	
Address	101 Tarragon Hill, Herbsville	
Age	69	Height 175cm
Sex	Male	Weight 75kg
Allergies	Nil known	

DIAGNOSIS

Presenting complaint 1. Behavioural disturbance

Medical history

1. Hypertension
2. Chronic atrial fibrillation
3. Alzheimer's disease
4. Constipation and darkened stools – incontinence
5. Dizziness, light-headedness and occasional falls
6. Joint pains

LAB/DIAGNOSTIC TESTS

<u>Date</u>	<u>Test</u>	<u>Reference Range</u>
25/11	Haemoglobin 90g/L	(130-180 g/L)

MEDICATION RECORD

<u>Date</u>	<u>Drug & strength</u>	<u>Qty</u>	<u>Sig</u>
25/11	Paracetamol (acetaminophen)	100	ii q6h
25/11	500mg	60	i mane
17/11	Risperidone 1mg	30	i daily
17/11	Perindopril 2mg	100	i daily
4/11	Selegiline 5mg	100	i mane
30/10	Hydrochlorothiazide 25mg	50	i bd
15/10	Naproxen 500g	90	ii bd
15/10	Docusate with Senna	60	i bd
7/9	Ranitidine 150mg	30	i mane
7/9	Ferrous Sulfate 350mg	100	i bd
	Chlorpromazine 25mg		

PHARMACIST'S NOTES

<u>Date</u>	<u>Comment</u>
26/11	Request for medication management review.

1. Which of the following medications is the likely cause of the patient's darkened stools, dizziness and hypertension?

- A ranitidine
- B risperidone
- C perindopril
- D naproxen
- E ferrous sulfate

Correct answer: D

2. The risk of falls may be increased by drug-induced postural hypotension. Which of the patient's medications has hypotensive effects?

- A naproxen
- B ranitidine
- C perindopril
- D selegiline
- E ferrous sulfate

Correct answer: D

3. Hydrochlorothiazide was added recently to reduce fluid retention. Which of the following medications is **MOST** likely to have contributed to the fluid retention?

- A naproxen
- B perindopril
- C risperidone
- D chlorpromazine
- E ranitidine

Correct answer: A

4. Which of the following medications has a side effect which may have led to the introduction of selegiline?

- A perindopril
- B hydrochlorothiazide
- C naproxen
- D ranitidine
- E chlorpromazine

Correct answer: E

END OF PATIENT PROFILE

Patient Record - Institution/Nursing Home

Patient Name	Angela Harrison	
Room Number	38, Peresby Hospital	
Age	67	Height 151cm
Sex	Female	Weight 50kg
Allergies	Nil known	

DIAGNOSIS

Presenting complaint

1. Phlebitis of the leg

Medical history

1. Breast cancer
 2. Pulmonary embolus
-

LAB/DIAGNOSTIC TESTS

<u>Date</u>	<u>Test</u>	<u>Reference Range</u>
23/9	Prothrombin Time (INR)	(0.9-1.3)
22/9	Prothrombin Time (INR)	(0.9-1.3)
21/9	Sputum - normal flora/heavy growth	

MEDICATION RECORD

<u>Date</u>	<u>Drug & strength</u>	<u>Qty</u>	<u>Sig</u>
20/9	Cefaclor 375mg SR	10	q 12h
20/9	Tamoxifen 20mg	30	i daily
8/9	Prednisolone 5mg (reducing dose)	60	ii bd (currently)
8/9	Verapamil 80mg	100	i bd
28/8	Simvastatin 5mg	30	i nocte
14/8	Aspirin 100mg	112	i mane
5/7	Dextropropoxyphene 32.5mg/paracetamol (acetaminophen) 325mg	20	ii q4H prn

ADDITIONAL ORDERS

<u>Date</u>	<u>Drug & Strength</u>	<u>Qty</u>	<u>Sig</u>
20/9	Warfarin 5mg	50	as charted

PHARMACIST'S NOTES

<u>Date</u>	<u>Comment</u>
20/9	Warfarin diet (Restrict foods high in Vitamin K).

1. Which of the following blood tests would be indicated at baseline for appropriate management of Mrs Harrison's medication therapy?

- A serum potassium
- B creatine kinase
- C c-reactive protein
- D haemoglobin

Correct answer: B

2. Of the following serious side effects, which is the **MOST** likely to occur with simvastatin?

- A blood dyscrasias
- B rhabdomyolysis
- C hypocholesterolaemia
- D angiodema
- E Stevens-Johnson syndrome

Correct answer: B

3. In general, which foods are considered to be high in Vitamin K and are **BEST** avoided in large amounts when on warfarin?

- A citrus fruits
- B dairy products
- C breads and cereals
- D green leafy vegetables
- E meat, poultry, fish

Correct answer: D

4. Which of the following medications has the **MOST** significant effect on clotting when used in combination with warfarin?

- A tamoxifen
- B prednisolone
- C cefaclor
- D simvastatin
- E aspirin

Correct answer: E

5. Adverse reactions related to the anti-oestrogenic action of tamoxifen include

- A breast tenderness
- B vaginal hypertrophy
- C hot flushes
- D light headedness
- E skin rash

Correct answer: C

END OF PATIENT PROFILE

10. Sample Calculation Questions:

CALCULATIONS

1. You have dispensed 300 mL of 2% w/v potassium permanganate solution. The physician wants the patient to soak his feet in a 1:1000 solution. How would you instruct the patient to make one litre of this solution? (Assume that you will supply a 50 mL measure with the preparation).

- A add 50 mL to 2 litres of water
- B add 2 x 50 mL to a litre of water
- C take 50 mL and add enough water to make 1 litre of solution
- D take 50 mL and add enough water to make 100 mL of solution
- E take 2 x 50 mL and add enough water to make 1 litre of solution

Correct answer: C

2. How much of a 10% injection of a medication is required to make 100 mL of a mixture containing 7.5 mg in 2.5 mL?

- A 3 mL
- B 5 mL
- C 0.03 mL
- D 0.5 mL
- E 30 mL

Correct Answer: A

3. A 10 mL ampoule of potassium chloride injection contains 1.49 grams of potassium chloride. What is the concentration of potassium ions in this solution?

(molecular weight of potassium chloride = 74.5)

- A 0.2 mmol/mL
- B 1 mmol/mL
- C 2 mmol/mL
- D 10 mmol/mL
- E 20 mmol/mL

Correct answer: C

4. How many mL of alcohol 90% v/v must be added to 200 mL of alcohol 20% v/v, to produce alcohol 70% v/v?

- A 630 mL
- B 700 mL
- C 80 mL
- D 350 mL
- E 500 mL

Correct answer: E

5. Iodine Solution Aqueous – iodine 5%, potassium iodide 10% in water - (Lugol's Solution). With a dose of the solution at 0.3 mL three times a day, the amount of iodine contained in this daily dose of the solution is

- A 450 mg
- B 150 mg
- C 45 mg
- D 30 mg
- E 15 mg

Correct answer: C

6. Zinc sulphate 10g
 Sulphurated potash 10g
 Glycerin 10g
 Purified water to 100mL

The weight/mL of glycerin is 1.26g. The volume of glycerin required to make 400mL of the above lotion is

- A 12 mL
- B 32 mL
- C 50 mL
- D 40 mL
- E 8 mL

Correct answer: B

7. SULPHACETAMIDE EYE-DROPS

- Sulphacetamide sodium 10g
Sodium metabisulphite 0.1g
Disodium edetate 0.05g
Phenylmercuric nitrate 0.002g
Water for injections to 100 mL

The phenylmercuric nitrate is available as a sterile aqueous solution containing 3 mg in 10 mL. The volume of this solution required to prepare 15 mL of the above formula is

- A 0.3 mL
- B 1.0 mL
- C 1.5 mL
- D 5.0 mL
- E 10.0 mL

Correct answer: B

11. Sample Short Answer Question:

Mr Bolton is a 56 year-old man who lives alone. He is a regular customer in your pharmacy and has a long history of major depression. He currently takes **amitriptyline 200 mg daily**.

His neighbour brings you a prescription for Mr Bolton. The prescription is from Mr Bolton's psychiatrist, Dr Forster, for **fluoxetine 20 mg daily for 2 weeks then 40 mg daily**.

The neighbour explains that Dr Forster told Mr Bolton to stop taking the amitriptyline before starting the new tablets. However, Dr Forster is currently unavailable.

Write a letter to Mr Bolton giving appropriate advice regarding the change over from his old medicine to his new medicine. Also detail any counselling points and other precautionary advice you consider necessary.

Sample answer:

Dear Mr Bolton

I have dispensed your prescription from Dr Forster brought in by your neighbour.

Dr Forster has prescribed a new medicine for you. The medicine is fluoxetine and is prescribed for the depression you have been suffering from for a long period of time.

This medicine is different to the amitriptyline you have been taking in the past. I understand Dr Forster told you to stop taking the amitriptyline before starting the fluoxetine (the new tablets). To change-over from the amitriptyline to the fluoxetine I would suggest that you follow the instructions below as the two tablets are not normally taken together.

1. Monday (today) take THREE amitriptyline 50 mg tablets
2. Tuesday (tomorrow) take TWO amitriptyline 50 mg tablets
3. Wednesday take ONE amitriptyline 50 mg tablet.
4. Do not take any amitriptyline tablets on Thursday or Friday.
5. Take ONE fluoxetine 20 mg tablet in the morning on Saturday.
6. Continue taking ONE tablet in the morning for TWO weeks then increase the dose to TWO tablets in the morning until you return to see Dr Forster. Take the TWO tablets as a single dose.

The idea of the schedule is to reduce the dose of amitriptyline over 3 days, have two tablet-free days, then start taking the fluoxetine. This will reduce the

risk of an interaction between the amitriptyline and the fluoxetine. Such an interaction is called a 'serotonin syndrome' and may cause symptoms such as confusion, agitation, tremor, sweating or fever, or diarrhoea.

While fluoxetine is generally well tolerated common adverse effects include nausea, dry mouth, dizziness, headache, weight gain or loss, and rash. If you should experience these, or any other reactions you think may be related to the new tablets you should contact your pharmacist or doctor.

The fluoxetine tablets should be taken in the morning. The tablets may be taken before or after breakfast. However it is important that you taken them regularly.

You should also check with your pharmacist or doctor before taking any other medicines. This includes any medicines or herbal preparations you may buy from a supermarket.

Pharmacist

