



Intern Written Examination Candidate's Guide

Australian Pharmacy Council Ltd

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Intern Written Examination Candidate's 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 intern written examination forms part of the competency assessment of pharmacist interns seeking registration at the completion of their internship, or a pharmacist returning to the workforce after a non-practising period. It has been developed to provide a common competency assessment for use by the PBA to establish the suitability of an individual for registration as a pharmacist in Australia.

The written examination consists of 125 multiple choice questions (MCQ):

- Calculation questions;
- Forensic/ethics questions; and
- Practice-based (clinical) questions.

The MCQs are written by pharmacists from community, hospital, industry and academic backgrounds to ensure the written examination reflects contemporary practice. The questions have undergone extensive review, pre-testing and validation processes.

2. Objectives of the Intern Written Examination

The object of the written examination is to assist in the assessment of a candidate's ability to apply their knowledge and experience in pharmacy practice. Assessment is based upon the following domains of the *National Competency Standards Framework for Pharmacists in Australia 2010*¹:

- Domain 1 (Professional and ethical practice) includes the following standards:
 1. Practise legally
 2. Practise to accepted standards
 3. Deliver 'patient-centred' care
 4. Manage quality and safety
 5. Maintain and extend professional competence

- Domain 4 (Review and supply prescribed medicines) includes the following standards:
 1. Undertake initial prescription assessment
 2. Consider the appropriateness of prescribed medicines
 3. Dispense prescribed medicines

- Domain 5 (Prepare pharmaceutical products) includes the following standards:
 1. Consider product requirements
 2. Prepare non-sterile drug products
 3. Aseptically prepare sterile drug products
 4. Prepare cytotoxic drug products

- Domain 6 (Deliver primary and preventative health care) includes the following standards:
 1. Assess primary health care needs
 2. Deliver primary health care
 3. Contribute to public and preventative health

- Domain 7 (Promote and contribute to optimal use of medicines) includes the following standards:
 1. Contribute to therapeutic decision-making
 2. Provide ongoing medication management
 3. Influence patterns of medicine use

¹ National Competency Standards Framework for Pharmacist in Australia 2010. Pharmaceutical Society of Australia.

3. Format of the Intern Written Examination

The written examination consists of 125 multiple choice questions to be attempted over a period of three hours:

- Calculation questions;
- Forensic/ethics questions; and
- Practice-based (clinical) questions.

The questions are based upon Domains 1, 4, 5, 6 and 7 of the *National Competency Standards Framework for Pharmacists in Australia 2010* as detailed in Section 2 of this guide.

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 are associated with 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.

The forensic/ethics (Domain 1) and calculations (Domain 5) questions will appear first in the examination, followed by the remaining clinical based questions (Domains 4, 6 & 7).

Sample material

Attached are:

- Sample calculation questions
- Sample forensic/ethics questions
- Sample practice-based questions
- Sample profiles with questions

4. Preparation for Written Examination

The Pharmacy Board of Australia has determined that 5 areas are suitable for examination in the written examination delivered by the Australian Pharmacy Council. The areas are:

- Domain 1; forensic/ethics questions
- Domain 4; questions relating to the dispensing of medicines
- Domain 5; calculations questions
- Domain 6; questions relating to primary or preventative health care
- Domain 7; questions relating to optimal use of medicines

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 written 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.

Candidates must have completed at least 30% of their required hours of supervised practice before attempting the written examination.

Preparation for the written examination should be based on the knowledge and experience acquired during professional education and training. However the following information may be of some assistance when preparing for the examination:

Domain 1

Forensic and Ethics Questions – Relevant reference material is the key to this section. Confirmation, for example, of the correct schedule of a medicine, ability to supply medicines under various circumstances and possible alternatives for ethical issues can be sourced using hard copies of the medicines schedules and poisons/controlled substances legislation.

Specifically the SUSMP (and/or State Guides to the Poisons & Drugs Schedules) and information downloaded from the PBS website *Supplying Medicines – What Pharmacists Need to Know* are valuable references.

Domain 4

This area deals with the dispensing of medicines. Information regarding the supply of medicines, information to consumers dealing with possible side effects, counselling points and potential interactions will all be material likely to be examined. Again the AMH and APF are valuable references where such information is available.

It is impossible to learn all the above listed information related to all medicines. However an insight as to where such information can be found, accessed easily and understood in the shortest possible time is invaluable in the examination context. The use of tags to highlight sections in the reference texts and to become familiar with the reference texts concerning these matters will be beneficial.

Domain 5

The calculations questions in the written examination are used to determine competency in pharmaceutical calculations. The questions appear in the first part of the examination. Any calculations required after that point in the written examination are not for the purpose of competency assessment in calculations.

When an intern gains general registration with the Pharmacy Board of Australia, the registration allows practice to be undertaken in any and all areas of pharmacy. It is on this basis that the calculations are drawn from all possible areas of pharmacy practice. The calculation questions are not intended to reflect one area of pharmacy practice over another and interns are expected to be competent with any calculation required for a pharmaceutical matter.

Tables present in the AMH and APF may need to be used and a working understanding of what tables are available, the position of the tables in the texts and how to use the tables will be of considerable assistance in this area. Tables such as BMI, surface area and dose required after initial dosing (gentamycin for example) should be well known to interns.

A review of work undertaken as an undergraduate will be of assistance. Regular practice using examples from any pharmaceutical text will also be worthwhile. It is not necessary to recommend a particular text in this circumstance as any reference containing pharmaceutical calculations will be of use. University libraries have such texts and the texts can be bought from university bookshops. Most texts originate in America so the matter of units has to be considered.

Domain 6

Examination of a pharmacist's involvement in primary health care is undertaken in Domain 6.

Useful reference texts in this area are those that relate to community pharmacy and symptoms in the pharmacy - such as the PSA's guide to community pharmacy, which lists approximately 30 conditions commonly presented to pharmacists by consumers seeking treatment. Conditions such as conjunctivitis, dermatitis, tinea, thrush and minor burns are examples of the sorts of conditions listed and ones that it would be expected that a competent pharmacist would deal with as a matter of course. A thorough understanding of the contents of this text will be helpful.

If an intern from a hospital setting would like to commit to further action then it may be possible to seek short observation sessions (directed primarily at OTC medicines) once a week in a local community pharmacy.

Domain 7

Under the competency framework this area deals with the optimum use of medicines. How best to use a medicine in a particular patient group (for example the elderly, children or people who are immune-suppressed), what medicine is best for a particular disease state, under what circumstances is it suitable to use an alternative.

A review of your undergraduate notes may be helpful in this area. Also of considerable assistance will be a steady review of the AMH, APF and Therapeutic Guidelines, in order to refine your existing knowledge and expertise.

5. Examination Delivery

Permissible reference material

The following texts may be taken to the examination (current editions are recommended):

- the *Australian Medicines Handbook (AMH)*
- the *Australian Pharmaceutical Formulary (APF)*
- the *Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)*; or is equivalent prior to 1 July 2010 the *Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP)*
- drugs and poisons legislation (relevant commonwealth and/or state/territory Acts and Regulations only)
- the Pharmacy Board of Australia's Codes and Guidelines, which may be downloaded via the link: <http://www.pharmacyboard.gov.au/Codes-Guidelines.aspx>
- the article *Supplying Medicines - What Pharmacists Need to Know*. This article may be downloaded via the link: http://www.pbs.gov.au/info/healthpro/explanatory-notes/section1/Section_1_3_Explanatory_Notes

Candidates should bring hardcopies of these texts to the testing venue. Printouts of texts are acceptable. Candidates may highlight or flag their texts, and flags may contain a short phrase of a few words (for example, a section heading, medicine name or disease state). Please note that candidates may only bring one copy of each of the materials listed above.

At the testing venue invigilators will check each candidate's materials to ensure they appear on the list of permissible materials above.

Copies of permissible reference material will **not** be available at testing venues; neither will candidates be able to share reference material.

As some questions will require calculation, candidates may bring a non-programmable battery operated scientific calculator without an alphabet keyboard into the testing venue. An online calculator will also be available during the examination.

Length of and time allowed for the written examination

The written examination will consist of 125 questions to be answered over a period of 3 hours.

Delivery

The written examination will be offered six times per year in every second month and will be delivered by computer at testing centres in at least each capital city in Australia.

Register/Enrolment

Candidates must register online for the written examination by visiting the Pearson VUE website www.pearsonvue.com/apc.

The examination fee is paid online and the candidate will be issued with a confirmation letter/enrolment receipt which must be presented at the testing centre for admission to the examination.

Candidates will be required to make two declarations at the time of registering/enrolling for an examination session. These declarations will be:

- I am able to use a computer mouse
- I declare that by the date of the examination for which I will register, I will have satisfactorily completed at least 30% of my required supervised practice hours. I understand that a false declaration will impact on my ability to be fully registered to practise as a pharmacist in Australia.

Candidates are also asked to consent to receive surveys from the Australian Pharmacy Council, however this is optional. The question you will be asked is:

- The Australian Pharmacy Council may use your email address from time to time to send you surveys regarding accreditation and examination statistics. These surveys allow us to monitor the effectiveness of pharmacy education in Australia. By selecting 'Yes' you consent to the APC using your email address for this purpose. If you do not wish the APC to send you these surveys, please leave the 'Yes' button blank.

Special Arrangements

Requests for special arrangements to assist candidates to undertake the examination on the examination date must be considered and approved by the APC prior to registering for the examination on the Pearson VUE website.

Please contact the APC on 02 6247 8335 to discuss your situation, however please note that a written request with documentary evidence supporting your request is required by the APC before any requests can be formally considered.

Candidate Identification

Candidates must bring photographic identification or other positive proof of identity to the examination venue. Candidates who are not able to be positively identified will be refused permission to take the examination.

Other general instructions

All personal items including mobile phones, pagers, briefcases, bags (including handbags), wallets or purses are to be left at the front of the examination room.

Candidates must bring their confirmation/enrolment letter and photographic identification to the examination venue. Candidates who are not able to be positively identified will be refused permission to take the examination.

Late arrivals will not be allowed entry to the examination room and candidates will not be able to leave the examination venue within 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 to the examination room. If a candidate has to leave the examination room temporarily to use toilet facilities, no extra time will be allowed.

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

Non-disclosure agreement

Candidates will be required to agree to a non-disclosure statement at the commencement of the examination which states that they will not disclose any part of the examination content to a third party.

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 if 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. This will be done with as little disruption to other candidates as possible. In such cases the examination will be marked null and a report of the incident will be sent to the APC.

6. Results of the Intern Written Examination

Examination results are processed by the APC. Candidates must achieve an overall result of at least 65% to pass the examination. However each domain also has a minimum pass mark:

- Domain 1 – 60%
- Domain 4 – 50%
- Domain 5 – 60%
- Domain 6 – 50%
- Domain 7 – 50%

Candidates must achieve at least the minimum pass mark in each domain **as well as** the overall pass mark in order to pass the examination.

Results will be provided on a 'pass/fail' basis only. However, candidates who fail may request further information on their results and areas of weakness.

Results will be placed on the APC website

www.pharmacycouncil.org.au/APC_examination_result approximately one to two weeks after the examination and will remain on the website for a period of four weeks, after which time they will be removed.

Candidates must select the appropriate examination session and log in by entering their 13 character Provisional Registration Number beginning with the letters 'PHA' in the Candidate ID field and their Date of Birth in the Password field.

Candidates will be required to print a copy of these results to present to the PBA when applying for the oral examination. No further written advice will be provided.

Results will not be given by phone, fax or e-mail.

Candidates are reminded to ensure their current Provisional Registration Number has been entered in their Pearson VUE examination registration account, in order to access examination

results. Pearson VUE accounts must be updated with this information **before** the examination date. Pearson VUE accounts can be accessed via the Pearson VUE website www.pearsonvue.com/apc.

7. Counselling for Unsuccessful Written Examination Candidates

The APC offers counselling for those candidates that are unsuccessful in passing the written examination. Counselling will be provided by an experienced pharmacist who is familiar with the process and content of the written examination.

Unsuccessful candidates can request counselling in the two-week period after results are released by contacting the APC via admin@pharmacycouncil.org.au.

8. APC Appeals Policy

The APC has an [Appeals Policy](#) for assessments and examinations. The policy provides for appeals to be made against:

- the initial assessment (which establishes an applicant's eligibility to undertake the secondary assessment); or
- against the secondary assessment (which assesses knowledge or competency); or
- against an examination outcome for examinations conducted on behalf of other bodies.

9. Sample Practice-Based 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. What is the optimal time to take this drug?

- 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 after 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 after 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 is the **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

10. Sample Written Examination 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

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

PHARMACIST'S NOTES

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

- A ramipril
- B digoxin
- C metformin
- D verapamil
- E paracetamol

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

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?

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

Correct answer: B

END OF PATIENT PROFILE ELIZABETH DALY

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 BOB READ

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 is **MOST** 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 JAMES DONELL

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 ROGER BENSON

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 500mg | 100 | ii q6h |
| 25/11 | Risperidone 1mg | 60 | i mane |
| 17/11 | Perindopril 2mg | 30 | i daily |
| 17/11 | Selegiline 5mg | 100 | i daily |
| 4/11 | Hydrochlorothiazide 25mg | 100 | i mane |
| 30/10 | Naproxen 500g | 50 | i bd |
| 15/10 | Docusate with Senna | 90 | ii bd |
| 15/10 | Ranitidine 150mg | 60 | i bd |
| 7/9 | Ferrous Sulfate 350mg | 30 | i mane |
| 7/9 | Chlorpromazine 25mg | 100 | i bd |

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 KEN RICHARDS

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 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. 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

2. 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

3. 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

4. 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 ANGELA HARRISON

11. Sample Calculations & Forensic/Ethics Questions

CALCULATIONS

1. Calculate the body surface area using the ideal bodyweight for a 170cm female of average frame.

- A 1.5
- B 1.7
- C 1.8
- D 2.9
- E 3.4

Correct Answer: B

2. You are required to prepare an epidural infusion as follows:

| | |
|---------------|-----------|
| Bupivacaine | 0.125% |
| Fentanyl | 2 mcg/mL |
| Normal saline | to 500 mL |

If bupivacaine is supplied as 20 ml vials (0.5%), what is the volume of bupivacaine solution require to prepare this infusion?

- A 250 mL
- B 125 mL
- C 25 mL
- D 12.5 mL
- E 1.25 mL

Correct Answer: B

3. The bioavailability of digoxin in a 250 mcg tablet is 0.60 and the bioavailability of digoxin elixir 0.05 mg/mL is 0.75. What dose of the elixir is equivalent to the 250 mcg tablet?

- A 3.0 mL
- B 3.75 mL
- C 4.0 mL
- D 5.0 mL
- E 6.25 mL

Correct Answer: C

4. 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

5. 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

6. 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

7. 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

8. 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

9. 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

10. 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

FORENSIC/ETHICS

1. Oxycodone is included in which of the following schedules?

- A Schedule 2
- B Schedule 3
- C Schedule 4
- D Schedule 7
- E Schedule 8

Correct answer: E

2. A medical practitioner (unless authorized) must **NOT** prescribe or supply which of the following drugs?

- A temazepam
- B acitretin
- C morphine
- D diclofenac
- E amoxicillin

Correct answer: B

3. From its date of writing, a prescription for a Schedule 4 poison has a validity of...

- A 1 month
- B 3 months
- C 6 months
- D 12 months
- E an indefinite period

Correct answer: D

4. Which of the following should appear on the manufacturer's package of thyroxine?

- A Pharmacy Only Medicine
- B Pharmacist Only Medicine
- C Prescription Only Medicine
- D Controlled Medicine

Correct answer: C

5. What is the correct storage requirement in a pharmacy for morphine ampoules?

- A in the dispensary on the shelves
- B in a locked cupboard
- C in a safe in which the pharmacy takings are kept
- D on the person of the pharmacist
- E in controlled medicines safe

Correct answer: E

6. Regulation 24 is a regulation for the provision of medications under the Pharmaceutical Benefits Scheme. The equivalent regulation under the Repatriation Pharmaceutical Benefits Scheme is referred to as...

- A emergency provisions
- B prior approval provisions
- C equity of access
- D hardship conditions apply
- E physical impairment provisions

Correct answer: D

7. Safety Net/Concession Card entitlements, once issued, are valid...

- A for any medicine
- B for a period of two years
- C only when issued after 1 April each year
- D for those individuals present when the card was issued
- E for the period of time remaining in the calendar year in which it was issued

Correct answer: E

8. You start your first day as a locum pharmacist and receive a phone call from a lawyer claiming to represent one of your customers. The lawyer requests information regarding the medication that has been prescribed by a particular medical practitioner for their client. What information are you able to hand over to the lawyer?

- A no information at any stage
- B any information required after written consent has been given by the patient
- C any information that the lawyer requests
- D any information the lawyer requests, after you can confirm the individual is a lawyer
- E any information required, upon the receipt of a court order for the information

Correct answer: B

9. You have purchased a quantity of generic paracetamol and codeine tablets, which have now exceeded their expiry date. The proprietor states that you are to repackage them out of their foil and counter-prescribe them to avoid losing any money. Which of the following actions should you take?

A repackage them, as directed by the proprietor

B refuse, advising that this is contrary to good pharmaceutical practice and unethical

C leave them in their foil packs, but cut off the expiry date and batch number

D put them into a specials bin, with a sign advising that they are out of date

E offer them for sale as a “buy one get one free” to sell them quickly

Correct answer: B