



# Information Handbook for Stream A Candidates

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**Australian Pharmacy Council Ltd**

May 2010

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**The information given in this handbook is correct at the time of publication. Candidates should check that there have been no alterations or amendments since the date of publication by accessing the APC website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)**

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## 1 INTRODUCTION AND SUMMARY

Australia has a federated system of government and is divided into six independently governed states and two territories. From 1 July 2010 pharmacists will be nationally registered with the Pharmacy Board of Australia (PBA) to practise pharmacy in all states and territories in Australia.

The Australian Pharmacy Council Ltd assists overseas trained pharmacists through an assessment process towards registration in Australia and thus enable them to practise their profession in Australia. The Council has devised an assessment process to enable overseas trained pharmacists to demonstrate their knowledge and competence to practise according to professional standards in Australia.

This handbook applies to the APC Stream A process. However, some candidates from the United Kingdom, Ireland, Canada and the United States of America may be entitled to enter the Stream B process which is an alternative process for registration. Such candidates should make enquiries of the APC or refer to the APC website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au).

A separate handbook is provided to Stream B candidates.

The APC Stream A procedure consists of:

### **Eligibility Assessment**

An initial assessment of a candidate's qualifications and associated documents is undertaken to determine an applicant's eligibility to undertake the secondary Knowledge Assessment of Pharmaceutical Sciences – KAPS (formerly known as Stage I Examination).

### **English Language Requirement**

A score of either 'A' or 'B' in all four components of the Occupational English Test (OET) or an overall Band score of at least 7.5 (with a minimum score of 7.0 in each of the four components) at the Academic level of the International English Language Testing System (IELTS) is a prerequisite to enrolment in the APC KAPS. These results must be achieved at the one sitting.

The OET and IELTS may be taken overseas and in Australia and results from both tests will be accepted by the APC for two years from the date of the English test assessment.

Candidates must have a valid English result at the time they enrol and at the time they sit the KAPS. This includes candidates who have had an unsuccessful attempt at the KAPS and are resitting.

Note: Candidates will only be able to enrol to sit the KAPS once they have been assessed as eligible and met the English language requirement.

As part of the national registration scheme candidates will also be required to hold a current satisfactory English result (within two years of date of issue) at the time they seek registration with the PBA.

## **Knowledge Assessment of Pharmaceutical Sciences (KAPS)**

The KAPS consists of two papers of multiple choice questions (MCQ) covering pharmaceutical chemistry, pharmacology and physiology, pharmaceuticals and therapeutics. It is held in Australia and overseas. Successful candidates have four years to commence the supervised practice component from the date of passing the KAPS.

## **PBA Registration requirements**

After successful completion of the KAPS candidates will be referred to an Office of the PBA to undertake the registration process. They will be required to present their KAPS results letter as evidence of eligibility to undertake the registration process, which will include:

- a period of supervised practice in an Australian pharmacy under the direct supervision of a registered pharmacist
- an intern training program
- a written examination
- an oral examination
- a satisfactory current (within two years of issue date) English language test result obtained at the one sitting

## **Supervised practice**

Supervised practice is a period of practical experience of up to 1824 hours undertaken in an Australian community pharmacy or hospital pharmacy department under the supervision of an Australian registered pharmacist. The placement must be approved by the PBA before commencement. It is to be commenced after successfully completing the KAPS.

## **Intern training program**

Candidates are required to successfully complete a formal intern training program which includes;

- attendance at seminars and workshops
- completion of assessment tasks
- practice discussion groups

## **Written and oral examinations**

Candidates may attempt the written examination after completing 50% of their required supervised practice hours and must successfully complete the written examination before attempting the oral examination. The written examination will be offered six times per year.

The oral examination will be offered three times per year.

## 2 ELIGIBILITY CRITERIA

The APC assessment process is open to any overseas trained pharmacist who has completed an approved pharmacy program. An approved pharmacy qualification awarded after 1 January 2006 must include a minimum component of the equivalent of four years full time academic study. A person who graduated prior to 1 January 2006 must have completed an approved pharmacy program which required the equivalent of at least three years full time academic study. The applicant must also be registered or eligible for registration as a pharmacist in the country in which the qualification was obtained.

After successful completion of the KAPS candidates must reside in Australia and have permission to work at least 20 hours per week to complete the registration process.

### 2.1 Assessment of Qualifications

Pharmacists who are interested in undertaking the APC assessment process must first apply for an initial assessment of their qualifications to determine their eligibility to undertake the second assessment – the Knowledge Assessment of Pharmaceutical Sciences (KAPS). An application form for the initial assessment may be obtained from the APC website [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au). Candidates will be assessed by the APC as eligible to undertake either the Stream A or Stream B process – they do not determine which path they take themselves. However, they are required to indicate on the Application for Eligibility Assessment form whether they wish to be considered for Stream B.

*An APC eligibility assessment is not an application to sit the KAPS.*

### 2.2 Documents Required to be Submitted

The following documents **must** accompany the Application for Assessment form

- A **certified** copy of the applicant's identification document eg passport or identity card;
- A **certified copy** of secondary education showing subjects of study
- A **certified** copy of pharmacy qualification papers (such as degree, diploma, certificate etc);
- A **certified** official transcript of educational courses completed showing subjects, hours and examination results and where applicable, details of practical and clinical education; and,
- Evidence of professional work experience as a pharmacist from graduation to the present, and two **written letters of** reference from employers or, if self employed, two references from professional colleagues, **relating to your professional competence as a pharmacist.**

If applicable the following documents **must** be provided:

- A **certified** copy of evidence of original and current registration or licence to practise. (If the country of training does not have a legislative process for registration/licensure then a legal statement of explanation witnessed by an official Notary Officer or Justice of the Peace must be forwarded);
- A **certified** copy of internship;
- A **certified** copy of evidence of resident status in Australia (if the applicant resides in Australia);
- A **certified** copy of evidence of any change of name (eg marriage certificate, deed poll); and
- A **certified** copy of translation in English of any documents originally issued in a language other than English (the translated document must accompany a certified copy of the document in the original language).

## 2.3 Certification

It is essential that copies of documents be certified. A copy has to be clearly authorised as a true copy of the original by an appropriate person.

Persons who may certify documents in Australia include Justices of the Peace (JP), legal practitioners, admissions officers of all Australian universities and officers of state and territory Government overseas qualifications units. Persons who may certify documents overseas include Justices of the Peace, official Notary Officers or an authorised staff member of an Australian Embassy or Consulate. To have your copies certified you will need to present both the original and the copy of each document to the person certifying the copies.

Each copy of the document must be certified separately and must clearly show:

- the words "certified true copy of the original";
- the signature of the certifying officer; and
- the name and address or provider/registration number (where appropriate) of the certifying officer legibly printed below the signature. It must be possible, from the details provided, for the APC to contact the certifying officer if necessary.

The application for assessment form and accompanying documentation, together with the assessment fee, should be sent to:

*Postal Address  
(for normal mail)*

Australian Pharmacy Council Ltd  
PO Box 269  
CIVIC SQUARE ACT 2608  
AUSTRALIA

*Street Address  
(for courier parcels only)*

Australian Pharmacy Council Ltd  
Suite 3, Level 2, Ethos House  
28-36 Ainslie Place  
Canberra City ACT 2601  
AUSTRALIA

Fees should be in Australian dollars and made payable to the Australian Pharmacy Council Ltd. Payment may be made by Australian cheque or money order, overseas bank cheque or bank draft payable on an Australian bank, or credit card.

Eligibility assessments take at least six weeks to process from the time all the correct documentation is received; applicants should allow for this, and mail delivery times between their country and Australia when seeking an assessment.

## 2.4 Fee

The fee for an eligibility assessment is payable in advance. Current fees may be found in the fee schedule at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

## 2.5 Appeal against Assessment 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](http://www.pharmacycouncil.org.au)

## 3 APPLICATION FOR KAPS

Once an applicant's eligibility to undertake the KAPS has been confirmed, the APC will provide the candidate with information concerning the English language tests together with an application form for the KAPS.

Applicants should contact the relevant organisation administering the Occupational English Test (OET) or International English Language Testing System (IELTS) for information about those tests and their requirements, including application forms and the fees that apply. The application form and the fee for the English test should be sent directly to the appropriate body. (See Section 4).

The application form and the fee for the KAPS should be sent to the APC. Current Fees may be found in the fee schedule at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au).

Note: An applicant must provide evidence that they have achieved a satisfactory grade in the English language test before they can enrol in the KAPS.

## **4 ENGLISH LANGUAGE REQUIREMENT**

The importance of a comprehensive knowledge of, and facility with English cannot be overemphasised because of its essential relationship to the practice of pharmacy in Australia. All APC assessments are conducted in English. A score of either 'A' or 'B' in all four components of the Occupational English Test (OET) or an overall Band score of at least 7.5 (with a minimum score of 7.0 in each of the four components) at the Academic level of the International English Language Testing System (IELTS) will satisfy this requirement. The OET and IELTS may be taken overseas and in Australia and results from both tests will be accepted by the APC for two years from the date of the English test assessment. Candidates must achieve these results at the one sitting of the test.

All candidates must satisfy the English language **before** enrolling in the KAPS, and English results must be valid at the time the candidate enrolls in, and at the time the candidate sits the KAPS. This includes candidates who have had an unsuccessful attempt at the KAPS and are re-sitting that assessment.

Difficulties with the English tests should alert candidates to the fact that they may have further difficulties with the APC assessments and their period of supervised practice.

Candidates will be required to provide a valid (within two years of date of issue) satisfactory English result obtained at the one sitting to the Pharmacy Board of Australia when seeking registration.

### **4.1 Occupational English Test (OET)**

The OET is designed to measure the candidate's understanding and use of English in the professional workplace. It tests reading, writing, speaking and listening skills. The result of the test helps determine whether the candidate's general level of English is sufficient to undertake the examination procedures.

The OET is held regularly, both in Australia and overseas.

All enquiries concerning the OET should be directed to the OET Centre.

The address for the OET Centre is:

*Postal Address*

The OET Centre

GPO Box 372

Melbourne VIC 3001

AUSTRALIA

Tel: 61 3 9825 3800

E-mail: [oet@oet.com.au](mailto:oet@oet.com.au)

Web-site: [www.occupationalenglishtest.org](http://www.occupationalenglishtest.org)

## 4.2 International English Language Testing System (IELTS)

IELTS provides an assessment of whether candidates are ready to study or train in the medium of English. It is readily available at test centres around the world. The test is conducted at two levels, either Academic or General training and, results are graded across nine bands, i.e. Band 1 – non-user to Band 9 – expert user

IELTS is available regularly at test centres around the world. All enquiries concerning the IELTS should be directed to:

IELTS Subject Officer  
University of Cambridge  
Local Examinations Syndicate  
1 Hills Road  
Cambridge  
CB1 2EU  
UNITED KINGDOM  
Tel: 01223 553311  
Fax: 01223 460278  
E-mail: [guymer.l@ucles.org.uk](mailto:guymer.l@ucles.org.uk)

British Council  
(IELTS Enquiries)  
Medlock Street  
Manchester  
M15 4AA  
UNITED KINGDOM

Tel: 0161 957 7755  
Fax: 0161 957 7762  
E-mail: [ed@britcoun.org](mailto:ed@britcoun.org)

The Manager, IELTS Australia  
IDP Education Australia  
GPO Box 2006  
Canberra ACT 2601  
AUSTRALIA  
Tel: (02) 6285 8222  
Fax: (02) 6285 3233  
E-mail: [ielts@idp.com](mailto:ielts@idp.com)  
Website: [www.ielts.org](http://www.ielts.org)

## 5 KNOWLEDGE ASSESSMENT OF PHARMACEUTICAL SCIENCES (KAPS)

The KAPS is in multiple choice question (MCQ) format. It is designed to test the candidate's knowledge of the basic pharmaceutical sciences related to the present day practice of pharmacy in Australia.

The KAPS consists of two MCQ papers covering theory and practice. Both papers consist of 100 questions and are of two hours duration. The KAPS is conducted over one day.

In the event a candidate passes one paper only, they will only have to re-sit the paper in which they were unsuccessful at any future attempt.

### 5.1 Subject Areas

This guide is intended to assist the APC candidates preparing for the KAPS: it is not necessarily all-inclusive of topics which may be covered by the KAPS.

The references recommended below are suggestions to assist revision. There should be NO expectation that the assessment will be specifically based on these, or any other, texts.

## Paper 1

### Pharmaceutical Chemistry

Organic Chemistry: nomenclature, drug class recognition, reaction types, functional group reactivity, drug stability, acid base reactions.

Stereochemistry: nomenclature, optical activity, geometric isomerism, conformation.

Physical Chemistry: kinetics, acid base reactions, phase equilibria.

Analytical Chemistry: spectroscopy, redox reactions, assay techniques, diagnostic agents.

Biochemistry: nomenclature, structures, biochemical classes, thermodynamics, biochemical pathways.

Medicinal chemistry: structure activity relationships, drug presentation and delivery, drug formulation and stability, drug metabolism, mechanism of drug action, modern drug development, and absorption, distribution and elimination of drugs.

### Suggested References:

- Brown, G I *Introduction to physical chemistry "current edition"*
- Foye, W O *Principles of medicinal chemistry "current edition"*
- Holm, J R *Fundamentals of general, organic and biological chemistry "current edition"*
- Lehninger, A L *Principles of biochemistry "current edition"*.
- Murray, R K & others *Harper's biochemistry "current edition"*.
- Nogrady, T *Medicinal chemistry - a biochemical approach "current edition"*

### Pharmacology and Physiology

Pharmacology: principles of drug action, drug interactions, receptor pharmacology, autonomic transmission, endocrine pharmacology, cardiovascular pharmacology, anti-inflammatory agents and analgesics, antibiotics, diuretics, local and general anaesthetics, vitamins, drugs affecting nutritional and metabolic function, drugs affecting the central nervous system.

Chemotherapy: antibacterial, antiviral, antifungal, antiprotozoal, anthelmintic and anticancer drugs.

Toxicology: common side effects, signs of toxicity and mechanism of toxicity.

Pathophysiology: alteration of physiological processes by drugs or disease states.

General Physiology: central nervous, digestive, cardiovascular, lymphatic, nervous, respiratory, urinary, endocrine and reproductive systems and their integration; blood and other body fluids.

### Suggested references:

- Hardman, JG and Limbird LE *Goodman and Gilman's The pharmacological basis of therapeutics "current edition"*.
- Katzung, BG *Basic and clinical pharmacology "current edition"*.
- McKenna, BR and Callander, R *Illustrated physiology "current edition"*.
- Marieb, E N *Human anatomy and physiology "current edition"*
- Rang N P and Dale M *Pharmacology "current edition"*.
- Vander, A J & others *Human physiology "current edition"*.

## Paper 2

### Pharmaceutics

Physical pharmacy: solvents, types of preparation, solutions, suspensions, emulsions.

Biopharmaceutics: dissolution, drug absorption, bioavailability and bioequivalence, drug interactions with a biopharmaceutical basis.

Pharmacokinetics: biological half-life, elimination rate constants, apparent volume of distribution, clearance, steady state considerations, drug protein binding, drug metabolism, drug interactions, pharmacogenetics, relevant calculations.

Pharmaceutical microbiology: preservation, antimicrobial agents, sterilisation technology.

Formulation: formulation of drugs for various routes of administration, parenteral dose forms, controlled release preparations, evaluation of particular dose forms.

### Suggested references:

- Aulton, M E (Ed) *Pharmaceutics, the science of dosage form design* "current edition".
- Florence, A T & Attwood D *Physicochemical principles of pharmacy* "current edition".
- Gibaldi, M *Biopharmaceutics and clinical pharmacokinetics* "current edition".
- Hugo, W B and Russell A D *Pharmaceutical microbiology* Blackwell, 1999.
- Martin A N & others *Physical pharmacy* "current edition".
- Rowland, M and Tozer, T N *Clinical pharmacokinetics* "current edition".
- Shargel, L and Yu, ABC *Applied pharmaceutics and pharmacokinetics* "current edition".
- Greenwood D & others, *Medical Microbiology* "current edition".
- Dhillon S and Kostrzewski A *Clinical Pharmacokinetics* Pharmaceutical press 2006

### Therapeutics

Calculations: dilutions, percentages, densities, sensitivity of balance, proportions, isotonicity, milliequivalents/milliosmoles, buffers, dose calculations from body weight or surface area, stability.

Posology: appropriate dosages and dosage regimens of common medications.

Prescriptions: adverse reactions, common contra-indications and indications, drug interactions, patient counselling and advice.

Surgical dressings, appliances and drug delivery systems.

Over-the-counter (OTC) medications: non-prescription prescribing, diagnosis of minor illness, rational OTC product selection, OTC drug information.

Clinical pharmacy and therapeutics: problem solving, drug management of disease states, clinical relevance of biochemical parameters.

### Suggested references:

- Herfindal E, Gourley D & Hart LL (eds) *Clinical pharmacy and therapeutics* "current edition".
- Pharmaceutical Society of Australia, *Counselling guide for non-prescription medicines*, 2005
- Pharmaceutical Society of Australia, *Professional practice standards*, 2006

- Society of Hospital Pharmacists of Australia, *Practice standards and definitions*, Version 3, 2006
- Marshall WJ and Bangert SK, *Clinical Chemistry “current edition”*
- C Haslett & others, *Davidsons Principles and Practice of Medicine “current edition”*
- Winfield AJ and Richards RME, *Pharmaceutical Practice “current edition”*
- JA Rees, I Smith and B Smith, *“Introduction to Pharmaceutical Calculations” Pharmaceutical Press*

## 5.2 Other General Texts

- *Australian Medicines Handbook (AMH) “current edition”*
- *Australian Prescriber*: <http://www.australianprescriber.com>
- Martindale: *The extra pharmacopoeia*: The Pharmaceutical Press, London.
- *Australian Pharmaceutical Formulary and handbook*: (APF) (available from the Pharmaceutical Society of Australia at [www.psa.org.au](http://www.psa.org.au)). (Also contains a list of useful websites)
- *Pathology and therapeutics for pharmacists*: (available from the Pharmaceutical Society of Australia).

Candidates are advised to consult their own School of Pharmacy for suitable references. Please note that the APC cannot provide candidates with the above texts or act on their behalf in purchasing textbooks.

A list of Schools of Pharmacy in Australia may be found by visiting the Accredited Pharmacy School link, found under the Accreditation link at the APC’s website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

Addresses of Schools of Pharmacy in Australia may be found by visiting the Links section at APC’s website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

## 5.3 Structure of MCQ Assessment Questions

All questions are single response, multiple choice questions. Each question is followed by several suggested answers. The candidate selects one which represents the best answer and marks the corresponding letter alongside the question number on the answer sheet. The following MCQ example questions are intended to give candidates an indication of the format of the Assessment. They do not represent the degree of difficulty or scope of any part of the assessment.

### Example 1

Ophthalmic solutions may contain methylcellulose as an ingredient because it

- A     prolongs contact time
- B     improves the stability of aqueous solutions
- C     makes these solutions isotonic with tear secretions
- D     reduces intraocular tension
- E     reduces inflammation

Because methylcellulose in ophthalmic solutions prolongs contact time but DOES NOT do any of the other options suggested, "A" is the correct response. The letter "A" should therefore be marked on the answer sheet.

### Example 2

Which of the following can cause discolouration of children's teeth?

- A     chloramphenicol
- B     penicillin
- C     tetracycline
- D     sulphadiazine
- E     erythromycin

Of the drugs listed only tetracycline can cause discolouration of children's teeth. The correct answer is "C".

Previous examination papers are not available. However, a number of sample questions are provided at Appendix A.

In addition to the standard MCQ questions the examination may include questions on a patient profile. This question type will consist of a patient profile or record (as might be used in a community pharmacy, an institution or an aged persons nursing home), and several questions which relate to that profile. The candidate can be assured that, in any profile set of questions, all questions relating to that profile will be independent of each other. Samples of patient profiles are at Appendix B.

A sample of the answer sheet used in the KAPS is at Appendix C.

The candidate should note that questions on a profile in either Paper 1 or Paper 2 may cover any subject area relevant to the practice of pharmacy. All other questions in the KAPS will be distributed between the two papers as outlined in Section 5.1 of this Handbook.

#### **5.4 General Information**

The assessments are conducted under strict supervision.

The candidate should take a non-programmable, battery-operated, pocket calculator (without an alphabet keyboard) into the assessment. Mobile phones and written material, including dictionaries, handbooks, etc, will not be allowed into the assessment room.

The candidate should attempt all questions. Marks will not be deducted for incorrect answers.

#### **5.5 Pass Mark**

The pass mark for each paper at each session of the assessment is adjusted to reflect the relative difficulty of those questions included in the particular examination paper. This data is derived from validating the questions on practising Australian pharmacists and students. In addition to achieving the overall pass mark, each candidate is also required to achieve a satisfactory standard in each of the four areas covered in Paper 1 and Paper 2.

In the event a candidate passes one paper only, they will only have to re-sit the paper in which they were unsuccessful at any future attempt.

#### **5.6 Preparation for KAPS**

Pharmacists with little, or no, recent experience are likely to have difficulty with the assessment unless some remedial steps are taken.

It is not possible to suggest a suitable course of action for the overseas candidate. However, for those already in Australia, one or all of the following should be considered:

- explore the possibility of undertaking study as a non-degree student through a local School of Pharmacy;
- enquire whether the libraries of the Pharmacy Schools in each state would be accessible;

- obtain information from the Pharmaceutical Society of Australia (PSA) on the availability of training courses for pharmacy interns and the availability of continuing professional education in the relevant state.
- obtain practical experience under the supervision of a registered pharmacist.

The address of the PSA National Secretariat is:

Pharmaceutical Society of Australia (National Secretariat)  
 PO Box 21  
 Curtin ACT 2605  
 AUSTRALIA  
 Telephone: 61 2 6283 4777  
 Fax: 61 2 6285 2869  
 Website: [www.psa.org.au](http://www.psa.org.au)

### **5.7 Results of KAPS**

Candidates will be advised in writing of their results which will be dispatched approximately eight weeks after the date of the KAPS. Results will also be posted on the APC website [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au) on the day that the results letters are posted by mail.

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

### **5.8 Number of attempts at the KAPS**

There is no limit on the number of attempts a candidate may undertake. A candidate who fails the KAPS may attempt it again at any subsequent scheduled session. However, candidates who fail the KAPS are encouraged to undertake remedial work in their preparation for their next attempt at the KAPS.

### **5.9 Validity Periods**

Candidates who achieve a pass in *one* paper of the KAPS will have a two year period in which to pass the second paper and therefore the KAPS.

If both papers are not passed in that two year period then the candidate will be required to re-sit both papers of the KAPS.

Candidates have a four year period to commence supervised practice after successfully completing both papers of the KAPS. This four year period commences from the date of successful completion of the KAPS (ie when both papers have been passed). If the validity period expires before the candidate has completed the process, they will be required to re-commence the Stream A process at the English test. There will be no requirement for another eligibility assessment of qualifications.

### **5.10 Closing dates for KAPS**

The closing date for the acceptance of applications to sit the KAPS is 15 December for the March sessions and 1 July for the September sessions.

Late applications will not be accepted. Candidates should allow sufficient time for mail delivery, particularly in December when there are a number of public holidays in Australia and offices may be closed for varying periods particularly between Christmas and the New Year.

### 5.11 Fees

The appropriate fees, which are payable in advance, may be found on the APC website. These fees are subject to review and may be changed from time to time. Candidates may check current fees at any time by visiting the fee schedule on the APC website [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

*NOTE: Separate fees apply to the APC appeals and review process.*

Each fee allows only one attempt at each assessment. If a candidate resits an assessment then a separate application to sit the assessment must be completed and another examination fee paid.

Fees should be in Australian dollars and made payable to: *Australian Pharmacy Council Ltd.*

Payment may be made by cheque, money order, overseas bank cheque or bankdraft payable on an Australian bank, or credit card. Fees collected by the APC are used to cover the costs of maintenance of the question data-bank and providing assessments and examinations.

### 5.12 Withdrawal Fees

Enrolments will not be transferred from one session to another.

A candidate will forfeit forty percent (40%) of the KAPS fee if notice of intention to withdraw is given to the APC at least four weeks before it is due to be held. A candidate withdrawing within four weeks of the KAPS will forfeit the whole fee unless they can produce a relevant medical certificate - in which case forty percent (40%) of the fee will be forfeited.

Candidates may check current fees at any time by visiting the fee schedule on the APC website [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

### 5.13 Re-mark Fee

A candidate may request a re-mark of the KAPS papers. A fee per paper will apply. Candidates may check current fees and methods of payment at any time by visiting the fee schedule on the APC website [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au). A written request seeking a re-mark and accompanied by the fee for the relevant amount should be forwarded to the APC. **Any request for a re-mark should be made within 28 days of the date of the issue of examination results.**

## 6 PRACTICE EXPERIENCE

Following successful completion of the KAPS, a candidate is required to complete a period of supervised practice in an approved hospital or community pharmacy in Australia. This period is equivalent to the period undertaken by Australian intern pharmacists (1824 hours). Candidates should note that unpaid training will not be counted towards the required number of hours.

The purpose of practice experience is to enable the candidate to become familiar with the practice of pharmacy in Australia and local acts and regulations. Supervised practice must be completed to the satisfaction of the Pharmacy Board of Australia.

It is the candidate's responsibility to arrange the practice experience and to check with the PBA to ensure that the pharmacy concerned is suitable for supervised practice. The placement must be approved by the PBA before commencement.

The candidate is required to complete at least 50% of the period of supervised practice before attempting the written examination.

**Visa information: Candidates must hold an appropriate visa which allows them to work under supervision in a training position. Candidates should contact their nearest migration office for further information on visas.**

## 7 WRITTEN EXAMINATION

*The written examination is conducted by the APC on behalf of the PBA.*

This examination assesses the candidate's competence to practise pharmacy in an Australian pharmacy environment including their understanding of the laws and ethics governing the practice of pharmacy in Australia and their ability and accuracy with pharmaceutical calculations.

This examination will be offered six times per year in each state and territory and will be delivered by computer. The examination may be attempted after 50% of the supervised practice hours have been completed. Candidates are required to pass the written examination before attempting the oral examination.

The examination will cover pharmacy practice in Australia and consists of one paper which will comprise 125 multiple choice questions (MCQ). It will include five calculations questions and ten forensic/ethics questions. The paper will be of three hours duration.

The following texts may be taken to the examination

- current edition of the *Australian Medicines Handbook (AMH)*
- current edition of the *Australian Pharmaceutical Formulary (APF)*
- the *Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP)*
- the article *Supplying Medicines- What Pharmacists Need to Know*. This seven page article may be downloaded via the link:  
<http://www.pbs.gov.au/html/healthpro/info/supplying?ref=section1-supplyingmedicines>

An online calculator will be available to each candidate at the examination.

Candidates are required to achieve an overall pass (65%) in the APCAT with a pass in each of the functional areas covered by the examination.

Copies of previous examination papers are not available. Examples of questions are provided at Appendix D while examples of patient profiles are provided at Appendix E.

A guide to the Written Examination may be found on the Examinations page on the APC website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

### 7.1 Suggested Texts

- *Competency Standards for Pharmacists in Australia 2003* (available from the Pharmaceutical Society of Australia)
- *Australian Medicines Handbook (AMH) "current edition"*
- *Australian Prescriber*: <http://www.australianprescriber.com>
- Martindale: *The extra pharmacopoeia*: The Pharmaceutical Press, London.

- *Australian Pharmaceutical Formulary and Handbook (AFP): “current edition”* (available from the Pharmaceutical Society of Australia; also contains a list of useful websites)
- *Pathology and therapeutics for pharmacists:* (available from the Pharmaceutical Society of Australia).

Candidates are advised to also consult a School of Pharmacy for further advice on other suitable references. Please note that the APC cannot provide candidates with the above texts or act on their behalf in purchasing textbooks.

Addresses of Schools of Pharmacy in Australia may be found by visiting the Links section at the APC’s website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

## **7.2 Information on Examination Procedures**

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

## **7.3 Closing Dates for Applications to Sit Examination**

Candidates may register online at the APC’s website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au) to sit the written examination. Closing dates for registering will be two weeks prior to the examination date. A confirmation email and enrolment letter/receipt will be forwarded to the candidate upon registering. This confirmation letter must be presented at the examination.

Examination dates can be obtained by visiting the APC website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au) or from the APC Secretariat on 61 2 6247 5088 or by sending an e-mail to [apec@pharmacycouncil.org.au](mailto:apec@pharmacycouncil.org.au)

## **7.4 Results of Written Examination**

Results will be provided in a Pass/Fail format and will be posted on the APC website within one-two weeks after the examination date. 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.

## **7.5 Number of Attempts**

A candidate who fails the written examination may attempt the examination again at any subsequent scheduled session.

## **7.6 Fees**

The appropriate fees, which are payable in advance may be found in the fee schedule on [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au). These fees are subject to review and may be changed from time to time.

*NOTE: Separate fees apply to the APC appeals process.*

## **7.7 Cancellation Fees**

Candidates may change an examination session or testing centre up to one week prior to the examination date without incurring any fees.

A candidate will forfeit forty percent (40%) of the examination fee if notice of intention to cancel an examination is given within one before it is due to be held. A candidate must provide written advice to the APC and provide documentary evidence for the reason for cancellation for the balance of the examination fee to be refunded.

Candidates may check current fees at any time by visiting the APC website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

## **8 ORAL EXAMINATION**

*The oral examination is conducted by the PBA.*

The examination will be offered 3 times per year. The examination may be attempted after a successful result in the written examination.

Further information regarding this examination including examination dates will be provided by the PBA at [www.pharmacyboard.gov.au](http://www.pharmacyboard.gov.au)

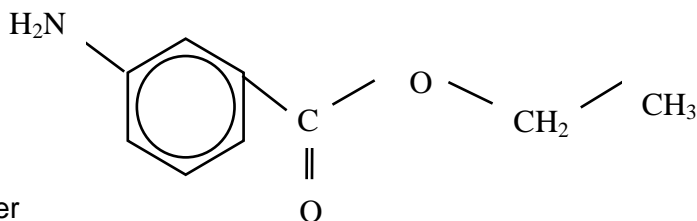
## **9 APPEALS**

The APC has developed an appeals procedure and information about the Appeals Policy and Procedure may be found on the APC website at [www.pharmacycouncil.org.au](http://www.pharmacycouncil.org.au)

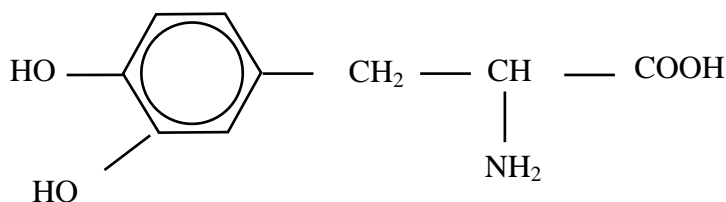
## APPENDIX A - SAMPLE KAPS QUESTIONS

### PHARMACEUTICAL CHEMISTRY

- 1 Which is **NOT** true for the substance with the following chemical structure?



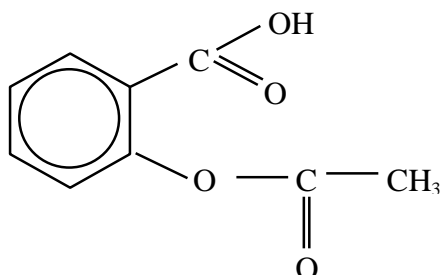
- A insoluble in water  
B used as a topical, local anaesthetic  
C a benzoic acid derivative  
D readily hydrolysed in boiling water  
\*E insoluble in mineral acids
- 2 The compound with the following structure is (–)-3-(3,4-dihydroxyphenyl)-L-alanine. Select the most appropriate statement below.



- A the compound is adrenaline  
B it is a dextrorotatory compound  
\*C it is a precursor of dopamine  
D it is used to treat hypertension  
E it is an essential amino acid
- 3 Ibuprofen has a pK<sub>a</sub> of 5.5. If the pH of the patient's urine is 7.5. What is the ratio of dissociated to undissociated drug?  
A 1:100  
B 1:2  
C 2:1  
D 20:1  
\*E 100:1
- 4 Sulphonamides are metabolised by humans principally by  
\*A acetylation  
B deamination  
C oxidation  
D conjugation  
E methylation
- 5 In which drug is the pharmacological activity associated with a specific optical isomer?  
\*A adrenaline  
B aspirin  
C phenobarbitone  
D acetylcholine  
E caffeine

- 6 The functional group which contributes to the instability of aspirin is
- A alcohol
  - B ketone
  - \*C ester
  - D heterocycle
  - E ether

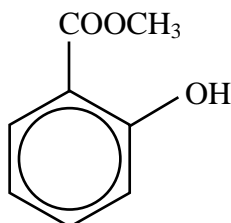
7



Which of the following therapeutic classifications does the chemical structure above belong to?

- A tranquilliser
- B anti-infective
- C antihistamine
- \*D analgesic
- E antidiuretic

8

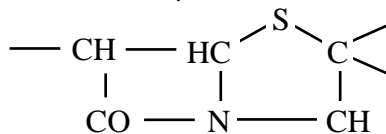


The chemical formula above represents

- A aspirin
  - \*B methyl salicylate
  - C salicylic acid
  - D salicylamide
  - E methyl-2-hydroxysalicylate
- 9 Which of the following drugs would **NOT** be expected to show appreciable absorbance in the ultraviolet region of the electromagnetic spectrum?
- \*A glucose
  - B tetracycline
  - C folic acid
  - D amitriptyline
  - E prochlorperazine
- 10 The ultraviolet region of the spectrum used in drug analysis
- A 50 - 200 nm
  - \*B 200 - 400 nm
  - C 200 - 750 nm
  - D 400 - 600 nm
  - E 600 - 800 nm

- 11 All optically active compounds  
 A decompose in strong light  
 B undergo photochemical reactions  
 \*C contain a centre or plane of asymmetry  
 D contain a double bond  
 E racemize in solution
- 12 Which of the following drugs is **LEAST** likely to cause electrolyte imbalance?  
 A chlorothiazide  
 \*B aluminium hydroxide  
 C potassium chloride  
 D frusemide  
 E sodium bicarbonate
- 13 Which one of the following elements is radioactive?  
 A  $^{13}\text{C}$   
 B  $^{81}\text{Br}$   
 \*C  $^{32}\text{P}$   
 D  $^2\text{H}$   
 E  $^{10}\text{B}$

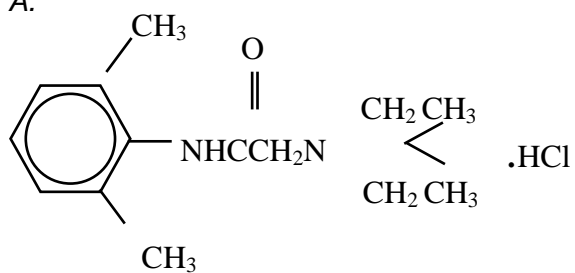
- 14 The structure pictured below is characteristic of



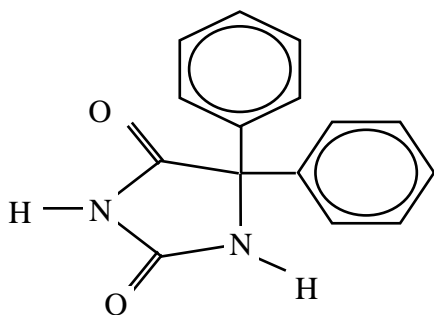
- A cephalosporins  
 B thiazides  
 C thiobarbiturates  
 \*D penicillins  
 E thioguanines.
- 15 Which of the following co-factors are required for drug metabolising enzymes?  
 \*A reduced nicotinamide-adenine dinucleotide phosphate (NADPH) and oxygen  
 B reduced nicotinamide-adenine dinucleotide (NADH) and oxygen  
 C NADPH and hydrogen peroxide  
 D NADH and hydrogen peroxide  
 E NADPH, NADH and hydrogen peroxide

16.

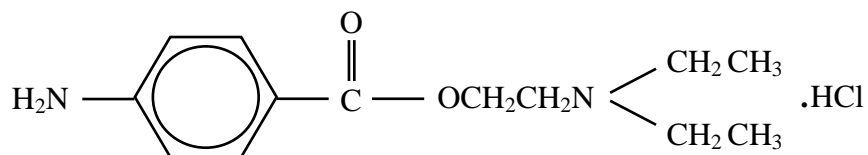
A.



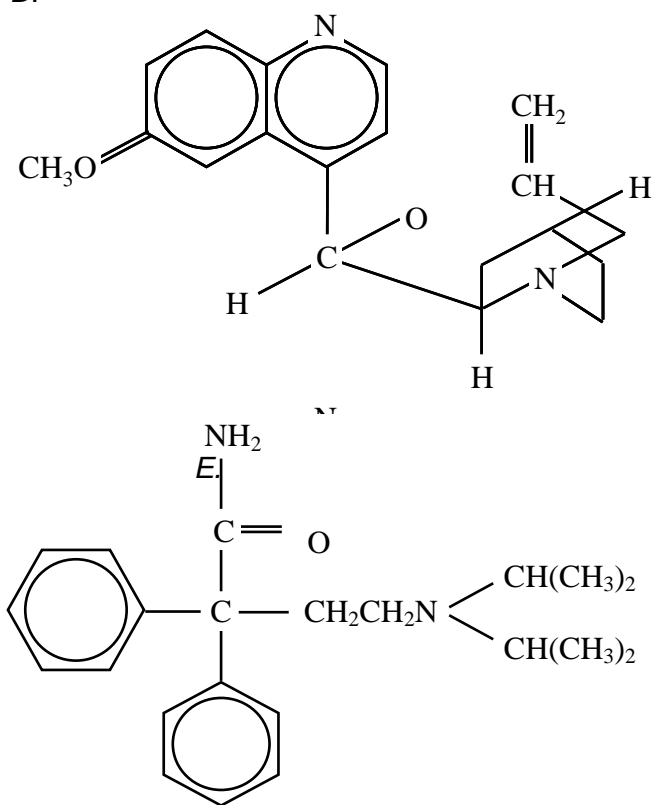
B.



C.



D.



In the scheme above, the structural formula for quinidine is

- A
- B
- C
- \*D
- E

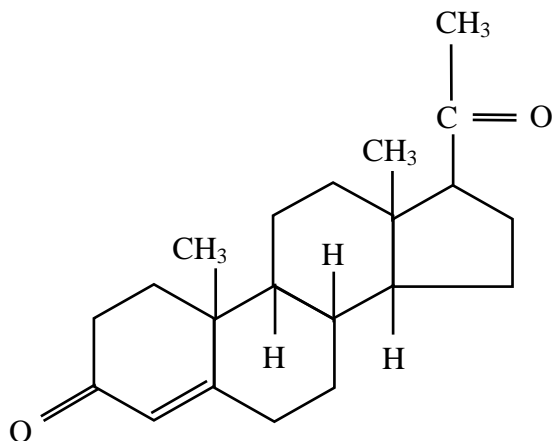
17 Lactic acid is

- A ethandioic acid
- B dihydroxysuccinic acid
- \*C 2-hydroxypropionic acid
- D ethanoic acid
- E cis-butenedioic acid

## PHARMACOLOGY and PHYSIOLOGY

- 18 The long term administration of a thiazide diuretic may also require the administration of
- \*A potassium
  - B sodium
  - C calcium
  - D bicarbonate
  - E acetate
- 19 Which one of the following symptoms is associated with drug-induced Parkinsonism?
- A dry mouth
  - B constipation
  - \*C muscular rigidity
  - D convulsions
  - E elevation of blood pressure
- 20 Pantoprazole
- A is used for treatment of allergic rhinitis
  - B inhibits the release of histamine from mast cells
  - \*C reduces gastric acid secretion
  - D prevents bronchoconstriction due to histamine
  - E may be used for the treatment of asthma
- 21 Cyproheptadine can best be classified pharmacologically as an
- A antihypertensive agent
  - B antipsychotic
  - C antidepressant
  - D anti-inflammatory agent
  - \*E antihistamine
- 22 Which of the following drugs has an anti-inflammatory action?
- A codeine
  - B pethidine
  - \*C meloxicam
  - D paracetamol
  - E propoxyphene
- 23 Which of the following statements regarding the stimulation of  $\alpha$ -adrenoceptors is true?
- A increases heart rate
  - \*B elevates systolic blood pressure
  - C is the major action of phentolamine
  - D causes flushing
  - E constricts bronchioles
- 24 The antimicrobial action of the cephalosporins can best be explained on the basis of
- A competitive antagonism of purine precursors
  - B stimulation of nucleic acid production
  - C inhibition of protein synthesis
  - \*D inhibition of cell wall synthesis
  - E inhibition of DNA synthesis

- 25 Which of the following is not a white blood cell?
- A basophil
  - B eosinophil
  - \*C reticulocyte
  - D lymphocyte
  - E neutrophil
- 26 The compound with the following structure is a hormone



By which of the following is this hormone secreted?

- \*A corpus luteum
  - B testis
  - C posterior pituitary
  - D anterior pituitary
  - E pancreas
- 27 The major determinant of myocardial oxygen consumption is
- A heart rate
  - B diastolic blood pressure
  - \*C cardiac output
  - D blood volume
  - E myocardial fibre tension
- 28 Which of the following is a pharmacological action of histamine?
- A capillary constriction
  - \*B stimulation of gastric secretion
  - C elevation of blood pressure
  - D skeletal muscle paralysis
  - E slowing of the heart rate
- 29 Which of the following antibiotics is **NOT** readily destroyed by penicillinase enzymes?
- A phenoxymethylpenicillin
  - B ticarcillin
  - \*C flucloxacillin
  - D ampicillin
  - E amoxicillin

- 30 Labetalol is
- A similar in action to ergotamine
  - B similar in action to tubocurarine
  - C used as an antihistamine
  - D used in the treatment of cardiac arrhythmias
  - \*E a combined  $\alpha/\beta$ -adrenergic receptor blocker
- 31 Streptokinase may be indicated for the treatment of
- A impaired fat absorption
  - \*B pulmonary emboli
  - C tuberculosis
  - D neoplastic disorders
  - E psoriasis
- 32 Exophthalmic goitre is associated with
- \*A diffuse hyperplasia of the thyroid gland
  - B lowered basal metabolic rate
  - C decreased body temperature
  - D increased body weight
  - E decreased responses to mental and emotional stimuli
- 33 Which of the following statements applies to the use of 8.4% sodium bicarbonate solution, given intravenously, as a treatment for cardiac arrest? [Atomic weights - Na = 23, H = 1, C = 12, O = 16]
- A the solution has a pH very close to the pH of blood
  - \*B the solution provides 1000 millimoles per litre of sodium ion
  - C the bicarbonate ion has a stimulating effect on the heart
  - D in an emergency, a similar effect can be obtained by breathing forcibly into the patients mouth
  - E the solution must be given slowly

### PHARMACEUTICS

- 34 An ingredient that is added to a tablet formula to improve flow properties into a die for compression is known as a/an
- A disintegrant
  - B dissolution-enhancing agent
  - \*C lubricant
  - D surfactant
  - E emollient
- 35 Which of the following when dispensed should carry the cautionary label: "REFRIGERATE - DO NOT FREEZE"?
- A doxycycline capsules
  - \*B ampicillin syrup
  - C slow release potassium supplements
  - D co-trimoxazole suspension
  - E chlorpromazine syrup
- 36 Which of the following is the first process that must occur before a drug can become available for absorption from a tablet dosage form?
- \*A dissolution of the drug in the GI fluids
  - B dissolution of the drug in the epithelium
  - C ionisation of the drug
  - D dissolution of the drug in the blood
  - E dissolution of the drug in the saliva

- 37 Which route of administration would provide the most rapid onset of pharmacological response to morphine?
- A oral
  - B subcutaneous
  - \*C intravenous
  - D rectal
  - E intramuscular
- 38 Following a constant infusion:
- A the time to reach a plateau concentration depends upon the rate of infusion
  - \*B all drugs having the same clearance reach the same plateau concentration when infused at the same rate
  - C drugs with the same clearance generally reach the plateau concentration at the same time
  - D the amount of drug in the body at the plateau cannot be the same when drugs with different clearance values are infused at the same rate
  - E the time to go from one plateau concentration to another depends upon both the half-life of the drug and the new infusion rate
- 39 An antibiotic which has a half-life of one year is formulated as a 200 mg tablet. How many milligrams of antibiotic would remain after three years?
- \*A 25
  - B 50
  - C 100
  - D 150
  - E 200
- 40 Which one of the following drugs exhibits dose-dependent pharmacokinetics at normal therapeutic doses?
- A sodium valproate
  - \*B phenytoin
  - C lithium
  - D quinidine
  - E carbamazepine
- 41 Sodium chloride equivalents are used to estimate the amount of sodium chloride needed to render a solution isotonic. The sodium chloride equivalent or "E" value may be defined as the
- \*A amount of sodium chloride that is theoretically equivalent to one gram of a specified chemical
  - B amount of a specified chemical theoretically equivalent to one gram of sodium chloride
  - C milliequivalents of sodium chloride needed to render a solution isotonic
  - D weight of a specified chemical that will render a solution isotonic
  - E percent sodium chloride needed to make a solution isotonic

- 42 For many drugs, bioavailability can be evaluated using urinary excretion data. This is based on the assumption that
- A bioavailability studies can be done only on drugs that are completely excreted unchanged by the kidneys
  - B drug levels can be measured more accurately in urine than in blood
  - \*C a drug must be first absorbed into the systemic circulation before it can appear in the urine
  - D all of the administered dose can be recovered from the urine
  - E only drug metabolites are excreted in the urine
- 43 The renal excretion of a weakly acidic drug of pKa 3.5 will be more rapid in alkaline urine than in acidic urine because
- A all drugs are excreted more rapidly in alkaline urine
  - B the drug will exist primarily in the unionised form, which cannot easily be reabsorbed
  - \*C the drug will exist primarily in the ionised form, which cannot be easily reabsorbed
  - D weak acids cannot be reabsorbed from the kidney tubules
  - E active transport mechanisms function better in alkaline urine
- 44 If a fixed dose of a drug that is eliminated by first-order kinetics is administered at regular intervals, the time required to achieve a steady-state plasma level depends only on the
- A dose of the drug
  - B volume of distribution of the drug
  - \*C elimination half-life of the drug
  - D dosing interval
  - E fraction of dose absorbed (bioavailability)
- 45 Active immunity can be conferred by the administration of
- A antitoxins
  - B antisera
  - C prostaglandins
  - \*D vaccines
  - E antibiotics
- 46 The presence of *Pseudomonas aeruginosa* would be of particular danger in an ophthalmic solution of
- A atropine sulphate
  - \*B fluorescein sodium
  - C pilocarpine hydrochloride
  - D timolol
  - E physostigmine salicylate
- 47 The correct method of parenteral administration of potassium chloride is by
- A fast intravenous injection
  - B intramuscular injection
  - \*C intravenous fusion
  - D intraperitoneal injection
  - E intra-arterial injection
- 48 The antibacterial activity of phenols is increased by

- \*A increasing the temperature
- B increasing the pH
- C the presence of 10% vegetable oil phase
- D the presence of 1% polysorbate 20 (tween 20)
- E the addition of a quaternary ammonium compound

## THERAPEUTICS

49 Patients prescribed irreversible monoamine oxidase inhibitors should be warned not to consume foods containing tyramine because the combination may cause

- A postural hypotension
- \*B acute adrenergic crisis including severe hypertension
- C muscle weakness and tremor
- D anaphylactic reactions
- E hallucinations

50 Early symptoms of aspirin poisoning are

- A lethargy
- B skin rash
- C throbbing headache
- D fluid retention
- \*E ringing in the ears and blurred vision

51 When central nervous system depressants are prescribed which of the following should **NOT** be ingested at the same time?

- A milk
- B coffee
- C aspirin
- \*D alcohol
- E orange juice

52 Which of the following drugs would be most likely to produce intestinal perforation if used in the treatment of a patient with ulcerative colitis and diarrhoea?

- \*A loperamide
- B methylcellulose
- C propantholine
- D kaolin with pectin
- E atropine

53

Amethocaine 0.5% Dextrose q.s  
 Make an isotonic solution Prepare 25 mL.

(NaCl equivalent of amethocaine hydrochloride = 0.19)  
 (NaCl equivalent of dextrose = 0.18)

How many grams of anhydrous dextrose are needed to prepare an isotonic solution of amethocaine in the above prescription?

- A 0.20
- B 0.24
- \*C 1.12
- D 3.6
- E 36.0

54 A 5 mg dose of nitrazepam administered to an adult will act as

- A an analgesic
- \*B an hypnotic
- C a diuretic
- D an antihistamine
- E an antiulcerant

- 55 A pharmacist has 50mL of 0.5% chlorhexidine solution. What will be the final ratio strength if the pharmacist dilutes this solution to 1250mL with purified water?
- A 1:8
  - B 1:100
  - C 1:200
  - D 1:1000
  - \*E 1:5000
- 56 The concentration of benzalkonium chloride used as a preservative in eye drops is
- A 1.0%
  - \*B 0.5%
  - C 0.25%
  - D 0.1%
  - E 0.01%
- 57 The usual adult daily dose of phenytoin is in the range of
- A 300 - 600  $\mu$ g
  - B 1 - 5 mg
  - C 15 - 60 mg
  - \*D 300 - 600 mg
  - E 1 - 2 mg
- 58 How many millimoles of potassium are there in 500mg of potassium chloride? (Mol. Wt. 74.6)
- \*A 6.7 mmoles
  - B 13.4 mmoles
  - C 67.0 mmoles
  - D 74.6 mmoles
  - E 134.0 mmoles
- 59 You are requested to prepare an admixture of isoprenaline hydrochloride 2mg, in 500 mL of 5% Dextrose Injection. Available are 5 mL ampoules of Isoprenaline Hydrochloride Injection 1 in 5000. How much of the additive is to be added?
- A 2.5 mL
  - B 5.0 mL
  - C 7.5 mL
  - \*D 10.0 mL
  - E 20.0 mL

Potassium 10 mMoles Orange syrup to make 5 mL  
Take 5 mL four times a day and sufficient for three days

- How many grams of potassium gluconate  $C_6H_{11}O_7K$ , molecular weight = 234, will be required for this prescription?
- A 140.4 g
  - B 51 g
  - \*C 28.08 g
  - D 14.04 g
  - E 2.808 g
- 61 What is a major contraindication to the use of over-the-counter medications containing sympathomimetic drugs?
- A gastric ulcer
  - B hypotension
  - C asthma
  - D rheumatoid arthritis
  - \*E hypertension
- 62 Glucose-6-phosphate dehydrogenase (G6PDH) deficiency is an inherited error of metabolism estimated to occur in over 100 million persons. The enzyme is needed to reduce oxidized glutathione, and in deficient persons, red blood cells are susceptible to haemolysis in the presence of oxidising agents, including certain drugs. The antimalarial drug to avoid in G6PDH deficiency is
- \*A primaquine
  - B quinine
  - C chloroquine
  - D chloroguanide
  - E amodiaquine
- 63 What advice would you give to a patient prescribed rifampicin tablets?
- A take this medication with food or milk
  - B avoid multi-vitamin preparations while undergoing treatment with this medication
  - C avoid taking paracetamol while undergoing treatment with this medication
  - D possible discolouration of the skin is of no importance
  - \*E this medication may cause discolouration of the urine

## APPENDIX B - SAMPLE 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 PROFILE

**Patient Name** Jean Johnson

<b>Address</b> 13 Barclay Street Bathurst NSW	<b>Height</b> 165 cm
<b>Age</b> 39	<b>Weight</b> 63 kg
<b>Sex</b> Female	<b>Allergies</b> Nitrofurantoin

### DIAGNOSIS

**Primary 1:** Hyperthyroidism

**Secondary 1:** Borderline diabetic **2:**

### MEDICATION RECORD

Date	RxNo	Doctor	Drug & Strength	Quantity	Sig	Repeats
1 12/1	108176	Oriatti	Metoprolol 50 mg	100	i bid	3
2 20/1	108212	Oriatti	Propylthiouracil 50mg	100	ii tid	2
3 20/1	108766	Oriatti	Oxazepam 15 mg	25	i bid	2
4 24/1	108767	Oriatti	Carbimazole 5 mg	100	i 8am, 4pm,11pm	2
5 24/1	110458	Oriatti	Liothyronine sodium 20µg	100	i 10am,5pm	3
6 28/1	110576	Oriatti	Xylocaine viscous	200mL	15 ml q4-6h mouth rinse	
7 10/4	111342	Oriatti	Chlorpheniramine 4 mg	50	i bid	
8 15/5	111343	Oriatti	Vitamin A 10,000IU	250	i qAM	

### PHARMACIST'S NOTES and other patient information

#### Date

24/1 Rash developed, D/C propylthiouracil

28/1 Ulcerative lesions developed in mouth and throat, D/C carbimazole and liothyronine sodium

10/4 Seasonal rhinitis (probably pollen)

These questions relate to the patient profile for Ms Johnson

1. Since difficulty has arisen in treating Ms Johnson's hyperthyroidism, an alternative course of therapy might be initiated temporarily with

- A magnesium sulphate
- B calcium carbonate
- C ammonium chloride
- \*D potassium iodide
- E sodium fluoride

2. Which of Ms Johnson's drugs would be likely to cause agranulocytosis?

- A xylocaine
- B metoprolol
- C carbimazole
- D liothyronine sodium
- \* E propylthiouracil

3. When Ms Johnson requests magnesium sulphate, the pharmacist could appropriately provide

- A dolomite tablets
- B saltpetre
- \*C Epsom salts
- D cream of tartar
- E milk of magnesia

**PATIENT RECORD - INSTITUTION/NURSING HOME**

**Patient Name** Peter Walton

<b>Address</b> 13 Ash Drive FORBES NSW	<b>Height</b> 180 cm
<b>Age</b> 69	<b>Weight</b> 78 kg
<b>Sex</b> Male	<b>Allergies</b> No known allergies

**DIAGNOSIS**

**Primary 1:** 1: Digitalis toxicity      **2:** Uncontrolled hypertension

**Secondary 1:** 1: Gouty arthritis **2:** Congestive heart failure

**MEDICATION ORDERS (INCLUDING PARENTERAL SOLUTIONS)**

Date	Drug & Strength	Route	Sig
1 17/1	Ampicillin 250 mg	PO	i qid
2 17/1	Methyldopa 250 mg	PO	qid
3 17/1	Hydrochlorothiazide 50 mg	PO	bid
4 17/1	Probenecid 500 mg	PO	tid
5 27/1	Digoxin 250	PO	daily

**LAB/DIAGNOSTIC TESTS (R = reference range):**

Date	Test	Date	Test
1 17/1	Haematocrit 41% (R: 40-52%)	7 17/1	Magnesium 1.2mmol/ L (R:0.7-1.3mmol/L)
2 17/1	Uric acid 0.48mmol/L (R:0.18-0.48mmol/L)	8 17/1	Fasting blood glucose 6.3 mmol/L (R:3.3-5.6mmol/L)
3 17/1	Sodium 138 mMol/L (R:135-145mmol/L)	9 17/1	White Blood Cell 5.5 x 10 <sup>9</sup> /L (R: 4-10 x 10 <sup>9</sup> /L)
4 17/1	Potassium 2.6 mmol/L (R:3.5-5mmol/L)	10 17/1	BloodUreaNitrogen 6mmol/L(R:2.5-7.7mmol/L)
5 17/1	Chloride 96 mmol/L (R:95-105mmol/L)	11 17/1	Creatinine 0.17mmol/L (R:0.03-0.11mmol/L)
6 17/1	Bicarbonate 25 mmol/L (R:22-31mmol/L)	12 17/1	Serum digoxin 2.2 ng/mL

**PHARMACIST NOTES** and other patient information

**Date Comment**

- 1
- 2

These questions relate to the profile for Mr Walton

1. Mr Walton's elevated blood glucose may be exaggerated by

- A digoxin
- \*B hydrochlorothiazide
- C methyldopa
- D ampicillin
- E probenecid

2. Mr Walton's digitalis toxicity is most likely attributable to

- A diabetes mellitus
- B gouty arthritis
- C hepatitis
- D hypertension
- \*E renal failure

3. The probenecid increases the ampicillin's duration of action by altering

- A renal tubular reabsorption
- \*B renal tubular secretion
- C glomerular filtration
- D intestinal absorption
- E hepatic metabolism



## APPENDIX D - Sample Written 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

Answer: D

2. A patient phones the pharmacy complaining of nausea and pale stools. On checking her profile, you find the following regimen

Prednisolone 5mg	i	mane
Naproxen 1g	i	daily cc
Omeprazole	i	daily
Methotrexate 2.5mg	iii	weekly cc
Folic acid 5mg	i	daily

The **MOST** likely cause of this patient's symptoms would be?

- A naproxen
- B methotrexate
- C omeprazole
- D prednisolone
- E folic acid

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

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

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

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

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

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

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

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

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

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

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

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

Answer: D

15. A patient presents you with a script for methotrexate for rheumatoid arthritis. Which of the following counselling points should **NOT** be offered to the patient?

- 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

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

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

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. She is on the following medication regimen:

trimethoprim 300 mg at night  
ethinylloestradiol 30/ levonorgestrel 150 one tablet daily  
omeprazole 20 mg daily  
citalopram 20 mg daily  
naproxen 250 mg every eight hours when required

Which medication is **MOST** likely associated with her symptoms?

- A trimethoprim

- B ethinyloestradiol 30/ levonorgestrel
- C omeprazole
- D citalopram
- E naproxen

Answer: B

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

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

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

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

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

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

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

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 and discarded 3 months after opening; 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 and discarded 3 months after opening; 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

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

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

Answer: A

28. A mother is concerned her child has 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

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

Answer: C

30. A person has just received what appears to be a soft tissue injury, 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

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 is 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

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

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

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

Answer: C



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

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

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

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

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)  
Past medical history 1. Asthma (moderate)

## MEDICATION RECORD

Date	Drug & strength	Qty	Sig
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

Date	Comment
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

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

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

Date	Medication & strength	Qty	Sig
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

Date	Comment
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

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

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

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

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  
Past medical history 1. Arthritis  
2. Peptic ulcer

## LAB/DIAGNOSTIC TESTS

Date Test Reference Range

## MEDICATION RECORD

Date	Drug & Strength	Qty	Sig
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

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

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

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

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

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

Past 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

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

## MEDICATION RECORD

Date	Drug & strength	Qty	Sig
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

Date	Comment
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

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

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

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

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

Past medical history

1. Breast cancer  
2. Pulmonary embolus

### LAB/DIAGNOSTIC TESTS

Date	Test	Reference Range
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

Date	Drug & strength	Qty	Sig
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

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

### PHARMACIST'S NOTES

Date	Comment
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

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

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

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

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

Answer: C

**END OF PATIENT PROFILE**

## APPENDIX F - Sample Calculations/Forensic Questions

*The correct answer is indicated below the question*

### **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.)

**Answer:**      *take 50 mL and add enough water to make 1 litre of solution*

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

**Answer**      *3 mL*

3. A 10 mL ampoule of potassium chloride injection contains 1.49 grams of potassium chloride. What is the concentration of potassium ion in this solution, expressed in mmol/mL?      - (molecular weight of potassium chloride = 74.5)

**Answer:**      *2mmol/mL*

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?

**Answer:**      *500 mL*

5. Which of the following represents the highest concentration?

- 10 mg/mL
- 100 parts per million
- 1 in 20,000
- 0.01mg/mL
- 1mg/litre

**Answer:**      *10 mg/mL*

6. A solution with a concentration of 0.05 per cent may also be described as containing

**Answer:**      *1 part in 2000 parts or 0.05g in 100ml = 50mg in 100ml = 0.5mg/ml*

7. 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

**Answer:**      *45 mg*

8.

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

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

**Answer:** 32 mL

9.  
**SULPHACETAMIDE EYE-DROPS**

Sulphacetamide sodium	10 g
Sodium metabisulphite	0.1 g
Disodium edetate	0.05 g
Phenylmercuric nitrate	0.002 g
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

**Answer:** 1.0 mL

10. Dopamine 200 mg in 500 mL of normal saline at 5 µg/kg/min is ordered for a 70Kg patient. What is the final concentration of solution in µg/mL?

**Answer:** 400 µg/mL

**FORENSIC**

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 statements is **INCORRECT**?

Oxycodone tablets

- A cannot be dispensed if the prescription on which they are ordered is more than six months old
- B must be stored in the drug safe of the pharmacy
- C must be accounted for in a drug register in the pharmacy
- D can be supplied in an emergency on a pharmacist's authority for up to three days supply
- E a record of transactions must be retained for three years

**Correct answer: D**

5. 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**

6. 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**

7. 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**

8. 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**

9. 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**

10. 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**

# APPENDIX G – Registration Process for Pharmacists in Australia

