

Official Notices

June 1995 — Vol 4 No 4

IMPORTANT

Official Notices replace Board of Studies memorandums. The information below is the Board's official advice to schools of the decisions it has taken, and should be acted upon as such.

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Human Society and Its Environment

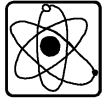
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**1996 School Certificate
Reference Tests**

**BOS
66/95**

The dates for the 1996 School Certificate Reference Tests have been determined as 31 July and 1 August.

Please ensure that these dates form part of your future planning.

Effective: Immediately
Contact no: (02) 925 8270



**General Instructions for
Use of Calculators —
School Certificate**

**BOS
67/95**



**Reference Tests and Higher
School Certificate
Examinations 1995**

The Board advises that the following instructions governing the use of calculators in the Higher School Certificate Examinations and School Certificate Reference Tests are to be strictly adhered to.

General Requirements

- Equipment should only bear the ORIGINAL inscribed information.
- All calculators that are permitted in particular subjects must meet the following criteria:
 - battery or solar-powered
 - hand-held
 - silent (except in approved cases for blind candidates).

In addition, calculators that allow modules to be plugged in are permitted only if they meet all the above requirements, and all plug-in modules are removed.

- Instruction books on the operation of calculators will NOT be permitted in examination rooms. Candidates are expected to familiarise themselves with the calculator's operation beforehand.

Scientific Calculators

Where the equipment list for any subject includes a *scientific* calculator, students are expected to provide a calculator with the following functions:

- Ordinary arithmetic keys, an EXP key and a sign change (+/-) key
- Square (x^2) and square root ($\sqrt{\quad}$) keys

- Logarithm and exponential keys (base 10 and base e)
- A power key (a^x , x^y or similar)
- Trigonometrical function keys with an INVERSE key for the inverse functions (ie sin, cos, tan, INV)
- Memory access keys
- A capacity to work in both degree and radian mode.

Where a course requires that students should be able to perform statistical calculations such as mean and standard deviation, students should ensure that their calculators have the capacity to perform these operations.

Optional Features

Some calculators will have features additional to those specified above such as:

- reciprocal key ($1/x$)
- fraction keys (for fraction arithmetic)
- percentage key (%)
- permutation or combination key (${}^n P_r$, ${}^n C_r$)
- cube or cube root keys
- π key
- parentheses keys, etc.

These are allowable, ***provided they are not covered in the following section detailing those features that are excluded.***

Features that are not permitted

Calculators with the following features will NOT be permitted:

- Programmable (any calculator that can have a sequence of operations stored and then executed automatically is considered programmable and hence NOT allowed). This requirement applies also to any ruler, pen, watch, or other item with a built-in calculator function.
- Capable of storing alphanumeric data input by a user. (This does not exclude calculators with memories that are used to store intermediate numerical results obtained during calculations and required later.)
- Capable of storing, manipulating or graphing functions entered in symbolic form (this includes calculators with a graphic-display capacity).
- Capable of performing 'hard-wired' numerical routines for operations such as differentiation, definite integration, and the solution of equations.

- Capable of performing 'hard-wired' symbolic manipulations such as addition of algebraic expressions, binomial expansion, symbolic differentiation.

In addition, calculators that allow modules to be plugged in are permitted only if they meet all the above requirements, and all plug-in modules are removed.

Approved Scientific Calculators

The scientific calculators listed on the following page meet the criteria specified above and are the only models approved for use in the School Certificate Reference Tests and Higher School Certificate Examinations in 1995.

Basic Calculators

Where the equipment list for a subject includes a *basic* calculator, students are expected to provide a calculator with the following functions:

- the numerals 0–9
- a decimal point (.)
- operation keys (+ – × ÷)
- an equals key (=).

Optional Features

Some calculators will have features additional to those specified above, such as:

- percentage key (%)
- sign change key (+ / -)
- square root key ($\sqrt{\quad}$)
- memory access keys
- metric or currency conversion.

An approved *scientific* calculator may be used for any examination where a *basic* calculator is listed as required or optional.

An approved *scientific* calculator is required for the following subjects in the Higher School Certificate Examinations:

Agriculture
Applied Studies
Chemistry
Cosmology (Distinction Course)
Engineering Science
General Science
Geology
Mathematics
Physics
Rural Technology
3/4 Unit Science.

A *basic* calculator or an approved *scientific* calculator may be used in the following subjects in the Higher School Certificate Examinations:

Biology
Business Studies
Economics
Geography
Industry Studies
Science for Life
Sheep Husbandry and Wool Technology.

A *basic* calculator or an approved *scientific* calculator may be used in the following School Certificate Reference Tests:

Mathematics
Science.

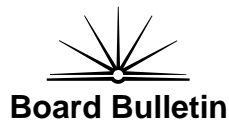
Schools are advised that all requests for approval for use of any calculator (not already Board-approved) for the Higher School Certificate are to be submitted by the end of Term 2, 1995. Schools should note that all requests for approval of calculators for the School Certificate had to be submitted by the end of Term 1, 1995.

Requests received after these dates will not be considered for the current year.

Any request must be accompanied by:

- the manufacturer's specifications or a copy of the same; or
- a clear photocopy of the keyboard of the calculator, showing the brand and model number.

Effective: **Immediately**
Contact no: **(02) 925 8233**



**Scientific Calculators approved for use
in the 1995 School Certificate Reference Tests
and Higher School Certificate Examinations**

ABACUS	AC105	CASIO	FX115V	HANIMEX	HSC87
ABACUS	S87	CASIO	FX120	HANIMEX	LC780
ABACUS	S88	CASIO	FX135	HANIMEX	LC879
ADLER	LS826	CASIO	FX140	HANIMEX	SR878
APF	8602	CASIO	FX250	HANIMEX	SR879
APF	8603	CASIO	FX300V	HANIMEX	STU1042
BROTHER	738SR	CASIO	FX310	HENNING DYNE	HD9000
CANON	F58	CASIO	FX350	HEWL-PACK	HP32E
CANON	F65	CASIO	FX350A	PHILIPS	SBC1704
CANON	F73	CASIO	FX350C	RADIO SHACK	EC499
CANON	F85	CASIO	FX350D	RADIO SHACK	EC4006
CANON	F400	CASIO	FX350H	RADIO SHACK	EC4009
CANON	F401	CASIO	FX350HA	RADIO SHACK	LCD
CANON	F402	CASIO	FX370	SANYO	CZ252
CANON	F600	CASIO	FX411	SANYO	CZ1201
CANON	F601	CASIO	FX450	SANYO	CZ1220
CANON	F602	CASIO	FX451	SANYO	CZ1241
CANON	F800	CASIO	FX451M	SHARP	EL506
CANON	FS51	CASIO	FX510	SHARP	EL506H
CANON	FS400	CASIO	FX550	SHARP	EL506P
CANON	FS402	CASIO	FX550S	SHARP	EL508A
CANON	FS600	CASIO	FX570	SHARP	EL509A
CASIO	FX 7	CASIO	FX570A	SHARP	EL509S
CASIO	FX19	CASIO	FX570AD	SHARP	EL514
CASIO	FX39	CASIO	FX570AV	SHARP	EL520
CASIO	FX68	CASIO	FX570C	SHARP	EL524
CASIO	FX78	CASIO	FX570CD	SHARP	EL530A
CASIO	FX80	CASIO	FX570CV	SHARP	EL531
CASIO	FX82	CASIO	FX570S	SHARP	EL531A
CASIO	FX82A	CASIO	FX580	SHARP	EL531GH
CASIO	FX82B	CASIO	FX911	SHARP	EL531H
CASIO	FX82C	CASIO	FX911M	SHARP	EL531P
CASIO	FX82D	CASIO	FX911S	SHARP	EL532
CASIO	FX82L	CASIO	FX915	SHARP	EL545
CASIO	FX82LB	CASIO	FX950	SHARP	EL553
CASIO	FX82 NASER	CASIO	FX961	TANDY	EC4009
CASIO	FX82 SUPER	CASIO	FX961M	TANDY	EC4010
CASIO	FX85	CASIO	FX990	TANDY	EC4013
CASIO	FX85M	CASIO	FX991	TANDY	EC4014
CASIO	FX85N	CASIO	FX991D	TANDY	EC4015
CASIO	FX85S	CASIO	FX991H	TANDY	EC4017
CASIO	FX85V	CASIO	FX991M	TANDY	EC4018
CASIO	FX90	CASIO	FX991N	TANDY	EC4031
CASIO	FX98B	CASIO	FX991S	TANDY	EC4032
CASIO	FX100	CASIO	FX991V	TANDY	EC4035
CASIO	FX100A	CASIO	FX992V	TEXAS	SC10
CASIO	FX100B	CASIO	FX992VB		Collegiate
CASIO	FX100C	CASIO	FX7100	TEXAS	TI30 SLR+
CASIO	FX100D	CASIO	FX8000	TEXAS	TI30 STAT
CASIO	FX100S	CITIZEN	SR70	TEXAS	TI34
CASIO	FX100V	COMPEX	LC1002S	TEXAS	TI35
CASIO	FX107	COMPUTEC	LC57S	TEXAS	TI36
CASIO	FX115	COMPUTEC	LC506P	TEXAS	TI36X
CASIO	FX115D	FOCAL	SSR87	TEXAS	TI37
CASIO	FX115M	FOCAL	SSR97	TOSHIBA	SLC8310
CASIO	FX115N	GAF	S81	TOSHIBA	SLC8410
CASIO	FX115S	HANIMEX	ESR210	TRULY	107



1995 Higher School Certificate Timetable

BOS
68/95

Principals are reminded that the 1995 Higher School Certificate written examinations are scheduled to commence on Monday, 23 October 1995. This is one day earlier than in previous years.

The development of the Higher School Certificate timetable is dependent on the range of entries in any given year. Final confirmation of all HSC examination dates and times will be provided to schools by 1 August 1995.

The following dates are confirmed:

Monday AM small candidature subject
23 October 1995 (specific subject to be advised
1 August 1995)

Monday PM
23 October 1995 small candidature subject

Tuesday AM
24 October 1995 small candidature subject

Tuesday PM
24 October 1995 NAFLaSSL Languages (at
central examination venues)

Wednesday AM
25 October 1995 Music (Board)

Wednesday PM
25 October 1995 General Studies

Thursday AM
26 October 1995 2/3 Unit English, 2 Unit
General English &
Contemporary English

Thursday PM
26 October 1995 Computing Studies

Friday AM
27 October 1995 2/3 Unit English and 2 Unit
General English

Friday PM
27 October 1995 Contemporary English

Monday AM
30 October 1995 2/3 Unit Mathematics,
Mathematics in Society,
Mathematics in Practice and
4 Unit (additional paper)
Mathematics

1995 HSC Examinations are tentatively scheduled for completion on Friday, 24 November.

Confirmation of the final examination date will be provided in due course when the full timetable has been developed.

Contact no: (02) 925 8270



Music Specimen Examination Papers

BOS
69/95

The Board advises the following change to the layout of the 2 Unit Course I and 2/3 Unit (Common) Higher School Certificate Music examination papers for 1995 and thereafter.

Course I

Excerpt 1, Excerpt 2, etc will be named Question 1, Question 2, etc.

2/3 Unit (Common)

Section I, Section II, etc (each corresponding to a single excerpt) will be named Question 1, Question 2, etc.

In both these papers, each question will be printed on a separate sheet of paper. These sheets will be side-stapled together, and candidates should detach them at the beginning of the examination.

Effective: Immediately
Contact no: (02) 925 8154
(02) 956 8255



Classical Ballet 3 Unit Examination

BOS
70/95

The Board advises the following amendment to the specimen examination paper for 3 Unit Classical Ballet, for the 1995 examination and thereafter.

The length of the examination is one hour, not one hour and a half. The Examination Specifications on page 17 of Subject Manual No 7 are correct.

Effective: Immediately
Contact no: (02) 956 8255



General Studies Examination Specifications

BOS
71/95

The Board advises that in 1995 and thereafter, the Higher School Certificate General Studies examination will be 2¹/₄ hours in duration, plus five minutes' reading time, as stated on page 58 of Subject Manual No 4. The reference to fifteen minutes' reading time on the specimen examination paper is incorrect.

Effective: Immediately
Contact no: (02) 925 8218



1995 HSC Drama

BOS
72/95

Individual Project

A date beyond which students' Individual Project options cannot be changed has been introduced for 1995 and subsequent years. This date is **21 July 1995**. Changes to students' Individual Project options must be notified in writing, countersigned by the principal, prior to this date. Option changes will not be accepted after this date. Changes can be faxed to the Board of Studies on (02) 955 3557 marked attention of Drama Coordinator, Exam Support Section.

Principals and teachers should note that *students cannot present an Individual Project: Performance in lieu of another unfinished project*.

Group Presentations and Individual Performances

Groups of students who have presented their Group Presentation and individual students who have presented their Individual Project in Performance are not allowed to become part of the audience for subsequent groups and/or individuals.

Students are not allowed to see other students' examinations for reasons of confidentiality.

Contracts

Teachers who have used contract forms for Individual Projects and Group Presentations should retain these contracts at the school. Contracts may be called upon to verify works and should therefore be retained until March of the year following the students' HSC examinations.

Effective: Immediately
Contact no: (02) 925 8259



Examination Committee Membership — Expressions of Interest

BOS
73/95

The Board is seeking expressions of interest from experienced teachers to be members of the examination committees that set the 1996 HSC examination papers. Please note that this is NOT an application for HSC marking.

Examination committees normally consist of six members. Three of these are normally tertiary educators. Of the other three, at least two are practising teachers; the third will be a practising teacher or will have a teaching background, eg a consultant.

Examination committees are responsible for setting the HSC examination(s) in their subjects, including any oral/aural or practical papers. Members of a committee are usually appointed to set all courses in that subject, eg both the 2 and 3 Unit courses, but to provide flexibility, appointments are sometimes made for specific courses only.

Teachers from both metropolitan and country areas may nominate for membership of examination committees.

Payment

Examination committee members receive an honorarium. The current rate per course is \$1106.08 for a chairperson and \$552.31 for a member. In addition, country members are reimbursed for travel expenses and subsistence for meetings attended, and metropolitan members receive an allowance. Travel by private motor vehicle is not reimbursed generally. Relief is provided for government and non-government school teachers.

Period of appointment

Unless otherwise determined by the Board, members are appointed annually. Appointments may be renewed subject to availability of people and continuing satisfactory performance and contribution. It is desirable for committees to have a steady turnover of membership, and for skilled examiners to alternate between examining and teaching for the HSC.

Time commitment

Meetings of examination committees usually last for a full day. Each course normally requires three days for setting with one additional day required per subject for reviewing. Most subjects include 2 Unit and 3 Unit courses and therefore can involve seven meeting days including review days. The first meeting of the examination committees will take place in Term 4, 1995. The remainder of the meetings will be arranged during the period December to May. The meeting dates will be determined by agreement of the committee concerned within the time frame set by the Board. Prospective members should ensure that they are able to commit this amount of time and that they are able to obtain release from their place of work *before* accepting nomination. It is also essential that members are available to attend meetings on *more than one* specific day of the week.

Conditions of Membership

Both for security reasons and for the efficient management of the HSC program, members are bound by the following rules and conditions. Please read them carefully before sending your expression of interest.

New members' meeting

Members who have not served on examination committees before can encounter difficulty in preparing items that are suitable for HSC examination purposes. An orientation meeting will be arranged to cover the components necessary for a successful test and to provide administrative information. All members who have not served on an HSC examination committee before will be required to attend this meeting.

Teachers of Year 12

The Board recognises the desirability of having teachers who are experienced in teaching Year 12 as members of examination committees. The Board's general policy is that practising teachers on examination committees should not be teachers of Year 12 classes, in the subject examined, in that year. In exceptional cases, where this general requirement cannot be met, the Board will consider nominations of teachers who are teaching Year 12 classes in that subject that year. Year 12 teachers may be involved in preparing 'question banks' for the examination papers, and in special cases may serve on examination committees, but they may not be involved in preparing the paper in the course they are teaching. Coaching of individual students or groups of students in the subject is NOT permitted.

Lecturing at student days, inservice courses, etc

Members of examination committees should not be involved in lecturing at meetings or courses that Year 12 students attend. Nor should members lecture at inservice courses on the content or syllabus interpretation of the course(s) they are setting in that year.

Relatives

No near relative of a candidate for the HSC shall be appointed as a member of an examination committee in a subject for which that relative is a candidate. It is the duty of a member of an examination committee to notify the Board without delay if he/she becomes aware that a near relative will be a candidate. Members of examination committees who are in doubt concerning the definition of 'near relative' in their own case should notify the Board of all the facts and seek the Board's determination.

Textbook authors

The Board does not generally appoint to examination committees the authors of textbooks or study guides in general use for that examination. It is the duty of all members and

prospective members of examination committees to inform the Board of their association with any such book. The Board will then act as it thinks fit in the interests of the examination and of the subject in each case.

Setting other examinations

Members of examination committees should not be involved in setting Year 12 examinations for other school systems, eg TAFE Trials, Catholic Trials, Regional or Cluster examinations. It is the duty of all members and prospective members of examination committees to inform the Board of any such involvement.

Leave of absence

It is essential that examination committee members notify the Board in advance if they expect to take leave at any time from December of the previous year to December in the year of the examination. The notification should allow sufficient time for a replacement to be arranged. The failure of members to do this could make it impossible for a paper to be completed by the set time.

Members of the examination committee must be available at crucial times when papers are being finalised, often including school holidays. In particular, it is essential that committees are available in the Easter school holidays, when the written manuscripts are due, and in the July school holidays, when papers are reaching clearance stage.

Confidentiality

All members of examination committees are required to give an undertaking that they will maintain complete confidentiality in relation to all papers and committee discussions. They are further required to adhere to the provisions relating to near relatives, textbook authorship, and leave of absence outlined above. The Board of Studies requires that examination committee members not comment publicly on matters relating to the examination papers or the examination process in their capacities as examination committee members.

An application form may be photocopied from the master provided in these Official Notices. Expressions of interest should be returned by **30 June 1995**.

**Contact no: (02) 925 8229
(02) 925 8232**

**1996 Higher School Certificate Examination
Membership of Examination Committee — Expression of Interest**

Name.....
 Current position and school.....
 Tertiary qualifications.....
 Number of years' teaching experience in NSW secondary schools.....

Work Address	Home Address
Phone	Phone
Fax	Fax

I have the expertise to set examination papers in the following subjects:

Subject	Year in which subject was last taught to Year 12	No. of years experience teaching subject to Year 12
.....
.....
.....
.....
.....

Other relevant experience.....

I expect to be teaching the following subject(s) to Year 12 in 1996:

Applicant's signature Date

PRINCIPAL'S ENDORSEMENT

Employment as an examination committee member is RECOMMENDED/NOT RECOMMENDED (please circle one).

Comments.....

Principal's signature Date

Please return to: Ms C Fitzsimon
 Office of the Board of Studies
 PO Box 460 Telephone: (02) 925 8229
 North Sydney NSW 2059 Facsimile: (02) 922 7791



Clarification of Requirements for the Higher School Certificate Examinations in 2/3 Unit Modern History and 2 Unit People and Events

BOS
74/95

Teachers of HSC 2/3 Unit Modern History and 2 Unit People and Events are reminded that the requirements for the 1995 HSC Examinations are outlined in Subject Manual No 4, pp 94–96. It is noted that the mark allocation within sections of the 1995 examination paper is different from that prior to the implementation of Pathways.

Teachers are also advised to consult the Modern History Specimen Examination Papers for the 1995 Higher School Certificate Examination.

Effective: Immediately
Contact no: (02) 925 8218



LOTE Oral/Speaking Skills Examinations

BOS
75/95

The following information on Oral/Speaking Skills examinations for the Higher School Certificate in 1995 and thereafter is provided as a clarification for teachers and candidates. There is *no* change to any examination specifications.

2 Unit Z, 2 Unit General, and 2 Unit

In 2 Unit Z, 2 Unit General and 2 Unit courses candidates are *not* permitted to make written notes during the preparation time before the Oral/Speaking Skills examination commences. The only exception is Chinese 2/3 Unit (Common) for non-background speakers. Candidates in this course may make notes, but are *not* permitted to refer to these notes during the recording of the examination.

3 Unit

For those examinations where the provision to make notes is allowed in the Examination Specifications, the notes are to be made in the space provided on the candidate's examination paper. These notes will not be marked, but must be returned to the examination centre with the cassette. Only a small space will be provided for these notes — not more than a quarter of a page. The reason for the different treatment of some 3 Unit courses from 2 Unit is that in these 3 Unit examinations candidates are required to present an extended, structured response to given situation(s).

Effective: Immediately
Contact no: (02) 925 8238



Korean 2 Unit Z HSC Examination Specifications

BOS
76/95

The Board advises the following clarification of the Examination Specifications for Korean 2 Unit Z, on page 11 of the *Specimen Examination Paper and Assessment Information* document, for the 1995 examination and thereafter.

For the Speaking Skills examination, candidates are required to prepare a topic from those listed in the syllabus. This topic will be the focus of a conversation with the examiner. Candidates will be required to respond to a series of questions from the examiner on the chosen topic. Candidates are *not* required to prepare and present a report on the chosen topic. The Specimen Examination Paper should be used as a model in this regard.

Effective: Immediately
Contact no: (02) 925 8238
(02) 925 8280



Agriculture 2/3 Unit Examination Specifications

BOS
77/95

The Board advises the following amendment to the Examination Specifications for the Higher School Certificate 2/3 Unit (Common) Agriculture examination paper in 1995 and thereafter, as contained on page 8 of Subject Manual No 6.

The examination paper will be printed in THREE separate booklets. The first will contain Section I, the second will contain Section II, and the third will contain Sections III and IV.

Effective: Immediately
Contact no: (02) 956 8255



**Amendment to the
Higher School Certificate
Specimen Examination Paper
in 2 Unit Modern History
(People and Events)**

BOS
78/95

The Board advises that Question 17 (b) in Section II, Part H of the 2 Unit People and Events Specimen Examination Paper incorrectly examines Pearl Harbor as an Event of the United States of America.

Teachers are advised that the Events that may be examined in the Twentieth Century National Study of the United States of America are Prohibition and D-Day. Pearl Harbor is an examinable Event for the Twentieth Century National Study of Japan.

Effective: **Immediately**
Contact no: **(02) 925 8218**



**Modern History 2 Unit
People and Events —
HSC Course**

BOS
79/95

The Board of Studies wishes to advise teachers that information regarding the above course, given in Subject Manual No 4 on page 89, is incorrect.

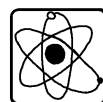
The 2 Unit People and Events HSC Course, Section 1 (the Core Study) should read:

World War I

- At War
- Results of the War

as described in the Stage 6 Modern History Syllabus on page 60.

Effective: **Immediately**
Contact no: **(02) 925 8151**



Corrections to the Stage 6 Science 3/4 Unit Syllabus

BOS
80/95

The Board wishes to advise teachers of Science 3/4 Unit of the following corrections to the syllabus:

1. Pages 9-12 *Knowledge and Understanding — Electives.*

The outcomes below which relate to each of the electives in the syllabus are the only ones which are relevant

Knowledge and Understanding Electives

Objectives	Outcomes
<p><i>Students will engage in learning experiences which will enable them to expand their knowledge and understanding of science in selected areas by study of electives.</i></p>	<p><i>Depending on the elective undertaken, students should be able to:</i></p> <ul style="list-style-type: none"> • demonstrate an understanding of interconnected processes in whole organisms as exemplified by flowering plants and mammals • display a knowledge of ways in which organisms reproduce by sexual and asexual means, and the nature and transmission of genetic information • demonstrate knowledge of microorganisms and disease, including distribution, dispersion, structure, function and economic importance of microorganisms, the role of organisms in disease and mechanisms of response to infection • describe fundamental features of coordination and control in animals and plants, including the control of internal environments and response to external stimuli

Knowledge and Understanding Electives (continued)

Objectives	Outcomes
	<ul style="list-style-type: none">• demonstrate an understanding of chemical energy, including chemical aspects of fuels and other energy sources, enthalpy and electrochemical energy• display knowledge of atomic structure and the periodic table, including historical development of ideas concerning atomic structure and classification of elements, relationship of atomic structure to position of elements in periodic table and similarities and differences in groups• use knowledge of basic reactions and laboratory techniques of carbon chemistry, with particular reference to organic substances which affect everyday life• describe major features of the geology of ONE nominated region of NSW, including the lithology, geological evolution and special features of geological interest• differentiate amongst various types of mountain ranges, in terms of their distribution and origins• apply a knowledge of magnetic fields and related forces and demonstrate a qualitative understanding of electric fields associated with changes in magnetic fields• analyse the nature and behaviour of oscillations and waves, including circular motion, simple harmonic motion and transverse, longitudinal and torsional waves• display an understanding of controversy about the nature of light and demonstrate knowledge of the wave properties and particle nature of light and the utilisation of light by means of optical instruments• discuss some aspects of cell metabolism, and recognise energy transduction and information transfer as two fundamental cellular activities which provide a framework to which other activities and properties of cells can be related• apply knowledge of physical and chemical principles and processes involved in photography and describe some of the applications of photography in scientific observation and measurement• describe applications of physics in medicine, including physical techniques for the measurement of medically significant quantities, ultrasonics, ionising radiation and modern advances• discuss the history of space exploration and display knowledge of rocketry, satellites, support systems for human survival in space and features of the solar system.

2. Elective Ch1. Energy

Page 58 *Energy*

The note in italics under the third dot point should be amended to read as follows:

- *specific heat of water*
- *different specific heats*

In calculation involving the specific heat of water, either $4180\text{J kg}^{-1}\text{ }^{\circ}\text{C}^{-1}$ or $4180\text{J kg}^{-1}\text{ K}^{-1}$ may be used.

3. Elective Ch3. Carbon Chemistry

Page 62 *Acids and esters*

The last dot point should be amended to read as follows:

- Industrial and domestic applications, including:
 - food flavouring
 - saponification of fats

4. Elective GI. Regional Geology

Page 63

On the map, the section labelled *Great Artesian Basin* should read *Great Australian Basin*.

5. Elective I1. Biochemistry

Page 72

The second paragraph in italics should be amended to read as follows:

It might be easier to teach this elective if it is borne in mind that two universal, fundamental cellular activities are: energy transduction and information transfer. These concepts should be introduced early to provide a conceptual framework in which the other activities and properties of cells can be placed.

6. Elective I3. Physics of Medicine

Page 76 *Ionising radiation*

The first two dot points should be amended to read as follows:

- Emission of charged particles from radioactive nuclei. Decay rate, half-life of radioisotopes. Absorption of alpha (α), beta (β) particles
- Nature and production of X-rays. γ particles.

Effective: **Immediately**
Contact no: **(02) 925 8148**
(02) 925 8136
(02) 925 8241

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