

COMMONWEALTH OF AUSTRALIA

Postmaster-General's Department - Radio Branch

FORM OF APPLICATION FOR EXAMINATION FOR AMATEUR
OPERATOR'S CERTIFICATE OF PROFICIENCY

Controller,
Radio Branch,
Postmaster-General's Department,
1st Floor,
390 Lonsdale Street,
MELBOURNE C.1. Vic.

For official use only.	
Fee _____	Rec. No. _____
Ackd. _____	Date _____

I wish to be examined for *(a) An Amateur Operator's Certificate of
*(b) An Amateur Operator's Limited Certificate of

Proficiency in accordance with the Wireless Telegraphy Regulations, and furnish the following details as required:-

Name in full _____
(Surname in BLOCK letters)

Address _____

Place and date of birth _____
(A certificate cannot be issued to a person who has not attained the age of 16 years and an applicant will not be examined if under 15 years of age.)

Whether British born, Naturalized, or Foreign Subject _____
(An official copy of the applicant's birth certificate or extract of birth must accompany the first application submitted.)

Centre at which examination desired _____

Nearest official Post Office _____
(Country candidates only)

Whether previously a candidate at an examination for an Operator's Certificate of Proficiency _____
Class of Certificate _____ Date last Examined _____

Signature _____

Date _____

NOTES

- *Delete whichever not required.
- This application must be forwarded to reach the Controller, Radio Branch, not later than the ^{22nd}15th day of the month preceding that in which the examination is to be held.
- The examination fee of £1 must accompany this application, and if remitted by cheque or other order, made payable to the Receiver of Public Moneys, Melbourne.
- Examinations are held on the ^{third}second Tuesday of January, April, July and October.

COMMONWEALTH OF AUSTRALIAPOSTMASTER-GENERAL'S DEPARTMENTRADIO BRANCHINSTRUCTIONS TO CANDIDATES

These instructions must be read and strictly adhered to.

No books or notes must be retained by candidates at the examination.

Candidates found communicating with one another during the examination are liable to disqualification.

Candidates desiring to leave the room before the expiry of the time allotted for each subject must first hand in their answers to the examining officer, who will take steps to see that during their absence they do not have access to information from books or persons.

The identification number allotted to the candidate must appear at the top left hand corner of each sheet. Initials or other unauthorised identifications will not be permitted.

Each sheet should be headed with the title of the paper, i.e. "Section A", "Section B", etc.

All sheets (except No.1) should be numbered consecutively and distinctly in the top right-hand corner.

A margin of at least AN INCH should be allowed on the left hand side of each sheet. Do not write in the margin.

Conserve paper. Do not use a separate sheet for each question.

The number of the question should be set out clearly at the left of each answer and space should be left between answers.

Do not COPY the questions.

Questions should be thoroughly read and understood before an answer is attempted and answers should be confined strictly to the questions asked.

Questions may be answered in any order, but sub-divisions of answers i.e. (a) and (b), must not be separated, and answers to question in any sub-section must not be included with those in another sub-section.

Answers should be written in ink; diagrams may be drawn in pencil.

Abbreviations of words (apart from recognised terms) should not be used.

Answers requiring mathematical calculations should show all working. Slide rules may be used and there is no objection to the use of logarithmic tables provided the booklet is first scrutinised by the supervising officer to ensure that no extraneous information which would assist the candidate, such as formulae or notes on Theory or Regulations, is included.

Scrap paper should be used for all rough or trial work. Ruled examination paper must not be used for this purpose.

On completion of each subject, the total number of sheets handed in should be indicated at the top of the first sheet.

COMMONWEALTH OF AUSTRALIA

POSTMASTER-GENERAL'S DEPARTMENT

AMATEUR OPERATORS' CERTIFICATES OF PROFICIENCY

SECTION M (Theory)

July, 1962.

(Time allowed - 2½ hours)

NOTE : SEVEN questions only to be attempted. Credit will not be given for more than SEVEN answers. All questions carry equal marks.

1. Discuss the limitations of using a heterodyne type frequency meter alone for making frequency measurements in the amateur bands 144 Mc/s and above. What additional piece of apparatus would you use to ensure that the measured frequency does, in fact, lie in the desired band? Discuss the fundamental theory of operation of this additional equipment.
2. Show schematically an aerial suitable for transmission within the 7 Mc/s amateur band including dimensions in feet and current and voltage distribution. Describe in detail an efficient means of coupling the aerial to the transmitter. Explain briefly the technical reasons for your choice of aerial and transmission line.
3. With the aid of diagrams, explain one method of frequency modulating an amateur radiotelephony transmitter.
4. With the aid of circuit diagrams, explain three methods of obtaining grid bias for radio transmitting valves. List the advantages and disadvantages of each method.
5. In connection with a receiver for use on the 14 Mc/s amateur band, discuss the probable causes and methods of reducing the following effects :-
 - (i) both the desired signal and an undesired image signal are received simultaneously,
 - (ii) signals on a channel adjacent to that to which the receiver is tuned are reproduced,
 - (iii) all received signals are modulated by A.C. ripple.
6. Using diagrams, explain the principle of operation of a crystal type microphone. Show how you would connect this microphone to an amplifier. Give component values.
7. (a) With the aid of a sketch showing the main component parts, explain the theory of operation of a cathode ray tube.
(b) Show how a cathode ray oscilloscope may be connected to a telephony transmitter to indicate the depth of modulation.
(c) Sketch the pattern obtained when using the connections shown in (b) if the carrier is modulated to a depth of 100%.
8. Draw a circuit diagram of a single stage audio amplifier in which use is made of a junction type transistor and explain its theory of operation.
9. (a) Find the total capacity when three condensers of 2, 3 and 8 microfarads respectively are connected (i) in parallel and (ii) in series.
(b) Find the reactance of a coil having an inductance of 8 henrys at a frequency of 50 c.p.s.

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SECTION K (Regulations)

July, 1962.

(Time allowed - 30 minutes)

NOTE : THREE questions only to attempted. Credit will not be given for more than THREE answers. All questions carry equal marks.

1. Give the meanings of the following "Q" code signals :-
QRA QRM QRT? QSY QRX

2. What are the responsibilities of the licensee of an amateur station when :-
(i) another amateur licensee visits him and desires to operate his station,
(ii) an unqualified person desires to speak over his station?

3. What action should be taken by an amateur station licensee when informed that transmissions from his station are causing interference to the reception of broadcast or television programmes?

4. (a) What precautions should be taken by an operator of an amateur station before commencing to transmit?
(b) State the requirements of the regulations concerning the announcement of call signs during a period of working with another station or stations.

POSTMASTER-GENERAL'S DEPARTMENT

RB. 126

Identification No. 336

Section K

Date and place of Examination 17/7/62 Melbourne

O/N C 2214-12/59.