

COMMONWEALTH OF AUSTRALIA.

POSTMASTER-GENERAL'S DEPARTMENT.

AMATEUR OPERATOR'S CERTIFICATE OF PROFICIENCY.

65%

T H E O R Y - January, 1931.

1. (a) Using a self-rectifying circuit, what is the best method of keying? Give reasons and supply diagrams.  
(b) When would you key in the negative side of the high voltage, and what special safety measures would be necessary?
2. (a) In the master oscillator power amplifier system of transmission, what conditions are necessary to compensate for grid losses in the amplifier valves?  
(b) What advantage does the master oscillator power amplifier possess over an oscillator coupled directly to the aerial?
3. Draw a diagram of your proposed transmitter, giving the values of the various components and briefly explaining their operation.
4. In measuring the total resistance of a radiating circuit, what methods may be used, and what is the most suitable type of circuit driver to use?
5. Discuss and compare the Hertz current-feed, and Zepp voltage-feed aerial systems.
6. Explain the piezo-electric effect of quartz crystals and the effect of crystal control in a transmitter.
7. (a) Compare the following systems of modulation. Give  
ams :-  
Absorption, Grid, Constant Current.  
(b) What is the effect of modulation on aerial power and why does it cause interference in certain cases?
8. Give a diagram of an A.C. receiver employing one stage of screened-grid R.F. Give values of components.
9. What precautions are necessary to prevent feed-back from a defect arising in a High Tension Transformer of an A.C. receiver?
10. Define the following terms :-

Magnetic Reluctance; Wave Train Frequency; Shock Excitation; Amplification Factor; Auto-heterodyne, and Self oscillation.

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REGULATIONS - January, 1931.

Time allowed - 1 hour.

92%

1. (a) Describe fully the meaning of Distress Traffic and what information a Distress Message must contain.  
(b) Explain Distress Procedure and state the frequencies on which distress traffic is exchanged.  
(c) What form should acknowledgment of receipt of a Distress Message take?
2. (a) What are the various types of waves used in Wireless Telegraphy and Telephony, and the terms adopted to indicate them?  
(b) The regulations provide for certain restrictions in connection with one type of emission; what are they?
3. Give the morse symbols for the following :-  
Hyphen; Commencing Signal; End of transmission; Wait; Double Dash; Go ahead.
4. Give the meaning of the following abbreviations :-  
R.Q., M.N., W.B., T.X.T., A.L., Q.T.U?, Q.S.V.,  
Q.S.M., Q.T.B., Q.R.P.
5. (a) How are the call signs made up in the case of ship, land, experimental and aircraft stations?  
(b) How is the nationality of a station indicated?
6. Apart from certain obligations, the P.M.G's handbook does not apply to the working of Naval and Military stations; what are the obligations?
7. (a) Before calling a station certain important provisions are made by the P.M.G's Handbook; what are they?  
(b) Give an example of a call from your station and the called station's reply.
8. What are the requirements of the Regulations regarding Secrecy of Correspondence?
9. How would you act in the following circumstances :-  
(a) Should you receive a call and are uncertain if it is intended for you;  
(b) Should you be certain you are being called but cannot read the call sign of the calling station?
10. Indicate the distinguishing signal for the following and the importance of each :-

Urgency signal; Safety signal; Aircraft urgency signal.