GENERAL POST OFFICE,
RADIO AND ACCOMMODATION DEPARTMENT,
HEADQUARTERS BUILDING, ST. MARTIN'S-LE-GRAND,
LONDON, E.C. 1.

1956

RADIO AMATEURS' EXAMINATION

Saturday, 6th October, 1956 2.30 p.m. to 5.30 p.m.

Part 1

All four questions to be attempted from this Part.

1. Licence Conditions.

(a) State the qualifications which are appropriate for Amateur Sound Transmitter operating.

(b) What form of log should be kept and what relative entries should be made?

(c) What kinds of transmission are prohibited ?

(15 marks)

2. Draw a circuit diagram of a radio telephony transmitter incorporating a master oscillator, amplitude modulator and power amplifier. Describe the action briefly, giving your reasons for your choice of modulator method.

(15 marks)

3. Draw a circuit diagram for a system providing a stabilised high tension suitable for a transmitter. Describe the action briefly and say why a stabilised h.t. is desirable. What other features would you incorporate to ensure that only one frequency was transmitter ?

(15 marks)

4. Draw a diagram of either a Hot Wire Ammeter or a Moving Coil Ammeter. Describe the construction and say how it can be adapted to measure: (a) Supply h.t. to a transmitter, (b) Filament voltage, (c) Anode current, and (d) Aerial current. *(15 marks)*

[SEE OVER]

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Part 2

Four questions only to be attempted from this Part.

5. State Ohm's Law.

Two resistors of 20 ohms and 30 ohms are connected in parallel and the combination is joined in series with a 24 ohm resistor and a battery of 12 two volt cells. Calculate the current flowing in the circuit and the power dissipated in the 24 ohm resistor.

(10 marks)

6. What do you understand by "second channel" interference and "adjacent channel" interference in superheterodyne receivers and how may they be minimised in practice ?

(10 marks)

7. What is meant by "skip distance" in relation to the propagation of radio waves? Why does skip distance vary and what steps may be taken to offset the effects in both transmitter and receiver ? *(10 marks)*

8. State what practical precautions should be taken when erecting an aerial system.

Describe how a transmitter aerial (of you own choice) could be matched to the output stage of your transmitter.

(10 marks)

9. Describe the construction of an h.f. pentode valve. Draw a sketch of the electrode assembly and say what features render this valve more suitable than a triode.

(10 marks)

10. Calculate the reactance of an inductor of 10 microhenrys at a frequency of 28 Mc/s. What do you understand by the "Q" factor of a circuit ?

(10 marks)