



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

1961

RADIO AMATEURS' EXAMINATION

Saturday, 7th October, 1961 2.30 p.m. to 5.30 p.m.

Part 1

Both questions in this part MUST be answered.

1. What are the limitations to the establishment and use of an Amateur (Sound) Radio Station as regards :

- (a) situation where it may not be used
- (b) types of emission
- (c) operators
- (d) types of message and to whom they may be sent ?

Does an Amateur (Sound) Licence authorize the Licensee to receive broadcast programmes ?

(15 marks)

2. What is meant by parasitic or spurious oscillations and how can they be detected and cured ?

(15 marks)

Part 2

Answer SIX of the eight questions in this Part.

3. Describe how electro-magnetic waves in the range 2 Mc/s to 20 Mc/s are refracted and reflected by the ionosphere.

(10 marks)

[SEE OVER]

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4. Three resistors having values of 10 ohms, 20 ohms and 40 ohms respectively are joined : (a) in series, and (b) in parallel.

What is the total resistance in each case and what would be the current taken from a 12 volt battery, having negligible internal resistance, when connected to each arrangement in turn ?

(10 marks)

5. Draw a diagram of a power pack supplying l.t. and stabilised h.t. from 200 volt 50 c/s a.c. mains. Explain the method of stabilisation.

(10 marks)

6. Describe and explain the action of a frequency multiplier stage suitable for use in an amateur transmitter.

(10 marks)

7. What is an artificial aerial ? How can it be used to assist in tuning and adjusting a transmitter ?

(10 marks)

8. Describe the construction of an electrolytic capacitor. Describe, with the aid of a circuit diagram, a typical use for an electrolytic capacitor.

(10 marks)

9. Draw a circuit diagram of a detector stage suitable for use in a t.r.f. receiver. Explain its action when receiving c.w. telegraphy signals.

(10 marks)

10. A certain coil is found to resonate at 2 Mc/s when tuned by a capacitance of 100 picofarad. What is its value ?

(10 marks)