



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 turning 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)*