AN ROINN OIDEACHAIS.

BRAINSE AN GHAIRMOIDEACHAIS.

CERTIFICATE EXAMINATIONS

for

DAY VOCATIONAL COURSES, 1961.

MAGNETISM AND ELECTRICITY.

Tuesday, 20th June—10 *a.m. to* 12 *noon.*

Instructions.

Not more than *five* questions to be attempted.

All the questions carry equal marks.

1. Explain how, using a compass needle, you would show that a piece of material was composed of

(*a*) magnetised steel

(*b*) unmagnetised iron

(*c*) a non magnetic substance

State which of the following materials are magnetic: aluminium, cobalt, copper, steel, nickel and zinc.

2. Describe with the aid of a diagram the construction of any type of primary cell.

You are supplied with a fully charged battery, but the polarity of the terminals is not marked. Explain how you would find out which was the positive terminal. You may assume that the following equipment is available: bulb, cable, switch, compass needle.

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3. Briefly explain the chief use for any five of the following pieces of equipment or materials in electrical work : a fuse, a shunt, a keeper, a rheostat, a transformer and a voltameter.

4. What is meant by the term " electrochemical equivalent." ?

How long will it take to deposit 0·4472 gr. of silver on an article using a current of 6 amps ? (e.c.e. of silver = 0·001118 gm./coulomb).

5. Describe with sketch of apparatus, an experiment by which you would show the occurrence of electromagnetic induction. Your experiment should demonstrate clearly the laws concerning the value of the induced e.m.f. and its direction.

6. Two resistors of 12 ohm and 24 ohm respectively are joined in parallel. They are supplied with current from a battery of e.m.f. : 1·8 volt and internal resistance 1 ohm. Find :

(*a*) The current supplied by the battery

(*b*) The power dissipated in the 24 ohm resistor.

7. It costs 2½d. to light a 500 watt lamp for 5 hours from a 250v. supply. Find (*a*) the cost of a kilowatt-hour, (*b*) the current flowing (*c*) the resistance of the lamp and (*d*) the total quantity of electricity supplied.