

CERTIFICATE EXAMINATIONS  
FOR  
DAY VOCATIONAL COURSES, 1965.

MAGNETISM AND ELECTRICITY.

MONDAY, 14th JUNE.—10 a.m. to 12 noon.

INSTRUCTIONS.

Not more than five questions to be attempted.

All the questions carry equal marks.

Illustrate your answers with sketches and diagrams where possible.

1. (a) Draw the magnetic field surrounding the two magnets shown in Fig. 1.  
(b) Explain how a magnet can be demagnetised.  
(c) Use the molecular theory of magnetism to explain the changes taking place in a magnet when it is being demagnetised.

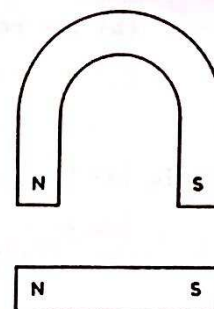


Fig. 1

2. Define the ampere.  
It requires 500 coulombs to deposit 0.75 gm. of a certain metal in a voltameter. What weight of this metal would be deposited in 10 min. using a current of 5 amp ?

3. (a) What is meant by an induced current ?  
(b) Three diagrams are shown below of the apparatus used in an experiment on induced currents. Answer the following briefly:-  
(i) In Fig. 3a, does the current flow in the direction of arrow A or arrow B ?  
(ii) Is the magnet in Fig. 3b moving towards or away from the coil ?  
(iii) Is the end X of the bar magnet in Fig. 3c a North or a South pole ?  
(c) Mention the items upon which the value (or amount) of the induced e.m.f. depends in an experiment of the sort shown in the diagrams.

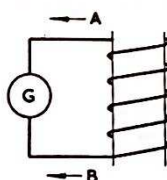
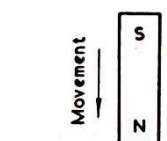


Fig.3a

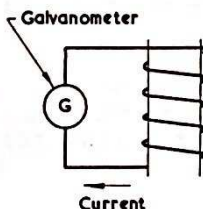


Fig.3b

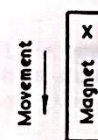
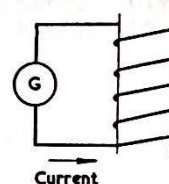


Fig.3c

4. Give brief answers to any five of the following:-

- (a) State Ohm's Law.  
(b) Name and define the unit of electrical pressure (potential).  
(c) Which of the following bulbs would consume the most electrical energy ?  
BULB No. 1 : 25W., 220V.  
BULB No. 2 : 12V., 4 amp.  
BULB No. 3 : 20V., 10 ohm.  
(d) What is the purpose of manganese dioxide in the Leclanche cell ?  
(e) Name a material used to screen articles from magnetic lines of force. Give a reason for your answer.  
(f) How is a hydrometer used to check the condition of a lead-acid cell ?  
(g) What is the essential difference in construction between a voltmeter and an ammeter ?