

## 4.8 ELECTRICITY

### 4.8.1 Electricity Paper 1 (448/I)

#### SECTION A (52 marks)

- 1 (a) State **three** safety precautions to prevent accidents from overhead power lines. (3 marks)
- (b) Name **four** areas of specialization in electrical engineering at diploma level. (2 marks)
- 2 (a) List **four** layout tools used in metal fabrication. (2 marks)
- (b) Describe **three** characteristics of magnetic lines of force. (3 marks)
- 3 (a) Name **two** types of inductor cores. (1 mark)
- (b) State **two** reasons why silver is not used to manufacture electrical conductors. (2 marks)
- 4 (a) Determine the resistance of each of the following carbon resistors if their colour code are:
- (i) Blue Orange Brown Silver
- (ii) Grey Red Yellow
- (iii) Green White Black Gold (3 marks)
- (b) State **two** factors that determine the inductance of a coil. (2 mark)
- 5 (a) State **two** ways of identifying the polarity of an electrolytic capacitor. (2 marks)
- (b) An electric shaver supplied from a 12V source takes a current of 800mA. Calculate:
- (i) its power rating;
- (ii) its equivalent circuit resistance. (3 marks)
- 6 (a) With the aid of circuit diagrams distinguish between a centre-tapped isolation transformer and an autotransformer. (3 marks)
- (b) Explain how eddy currents are minimized in a transformer. (2 marks)

- 7 (a) List **four** equipment that belong to the supply authority at the consumer's intake point. (2 marks)
- (b) State **three** reasons why protective switchgear is installed in a domestic installation. (3 marks)
- 8 (a) State **three** functions of light emitting diodes. (3 marks)
- (b) Distinguish between a rectifier diode and a zener diode. (2 marks)
- 9 (a) Name **two** types of electrical indicating instruments and for each state one method of damping. (3 marks)
- (b) List **three** visual inspections carried out when trouble shooting a faulty circuit in a printed circuit board. (3 marks)

- 10 (a) Name the materials used to make the parts of each of the cells shown in the following table:

CELL	POSITIVE ELECTRODE	NEGATIVE ELECTRODE	ELECTROLYTE
Lead Acid			
Leclanche			

(3 marks)

- (b) Figure 1 shows a layout of an electrical installation in which lamps  $L_1$  and  $L_2$  are controlled by switches  $S_1$  and  $S_2$ . Draw the wiring diagram of the circuit.

(5 marks)

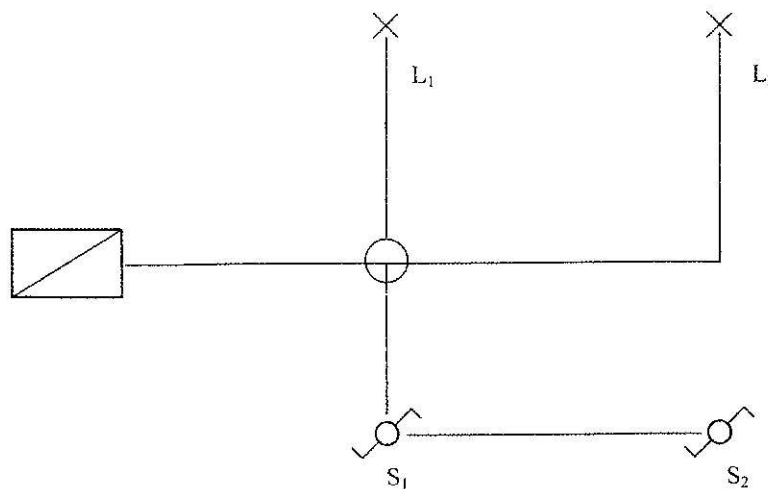


Figure 1