**End Semester Examination, 2022**

**Semester - III**

**Physics**

**PAPER - SEC-1**

*Full Marks : 40*

*Time : 2 Hours*

*The Figures in the right hand margin indicate marks. Candidates are required to give their answers in their own words as far as practicable.*
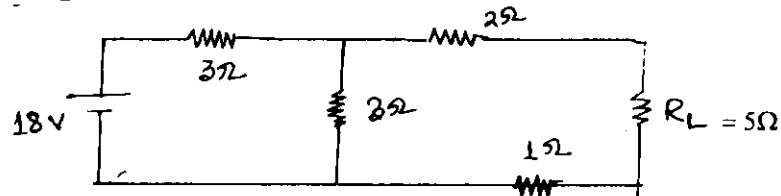
**Group - A**

1. ***Answer any five questions :***          *5x2=10*

a) What do you mean by 'ground fault' ?          2

b) Define the term 'Phase reversol' in three phase system.          2

c) How we can reduce various transformer losses ?

          2

d) What is cable trays ?          2

e) What do you mean by electrical schematics ?          2

f) What are the advantages of solid conductors ?          2

g) What do you mean by Ladder diagram ?          2

h) Write down a short note on 'Carbon flim resistor'.
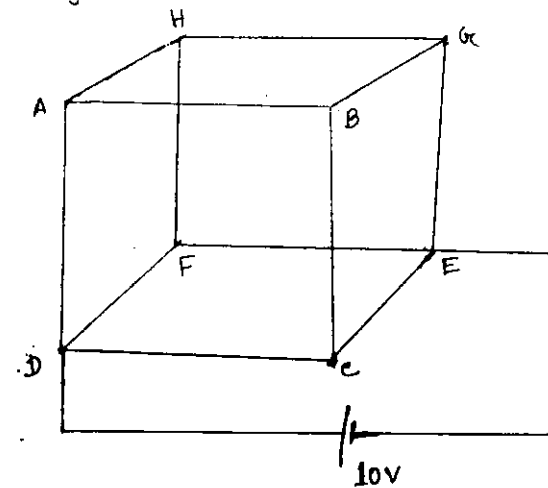
          2

*(Turn Over)*

## Group - B

*Answer any __four__ questions :*                    **4x5=20**

2. Derive the conversion formula from ∏-network to T-network.                    5

3. Show that for ideal transformer input power equals to output power.                    5

4. How does the electromagnet relay work ? What are the applications of relay ?                    3+2

5. How we can measure power of DC and AC circuit?                    5

6. How a circuit consist of a capacitor and resistor response under DC source ? How pure capacitor will response if AC source is used ?                    3+2

7. a) Find the Norton's equivalent circuit of given figure.                    3+2



b) Find equivalent resistance of the given circuit. Each side of the cube has equal resistance 'R'.

## Group - C

*Answer any __one__ questions :*                    **1x10=10**

8. a) How we can construct an extension board ?

b) What do you meant by 'conduits' ? Explain different kinds of 'conduits'.                    5+5

9. How electric motor works ? Define various types of DC motor. How DC motor self regulates its speed ?                    3+4+3