

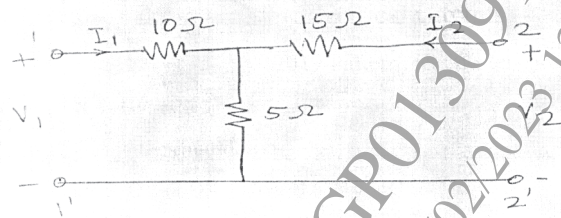
**[5925]-214**  
**S.E. (E & TC)**  
**ELECTRICAL CIRCUITS**  
**(2019 Pattern) (Semester - III) (204183)**

Time : 2½ Hours ]

[Max. Marks : 70

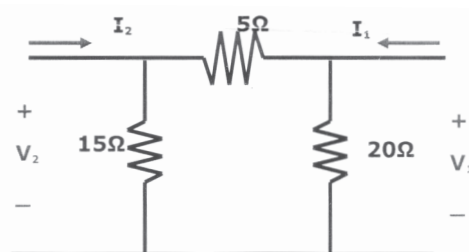
Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagram must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

**Q1) a)** Find the Z Parameters for the Network Shown.**[8]**

- b) Give basic definition of Y parameters explain why Y parameters are called short circuit admittance parameters. **[6]**
- c) Explain the condition of Reciprocity & Symmetry by giving Example. **[6]**

OR

**Q2) a)** Find Y parameters or the Network Shown.**[8]**

- b) Give the applications of Two Port Network Parameters. **[6]**
- c) Explain Network stability. **[6]**

P.T.O.

- Q3)** a) What is back emf in DC motor? State its significance? [8]  
b) Derive torque equation of DC motor? [8]

OR

- Q4)** a) Explain the various methods of speed control of Dc series motor? [8]  
b) Draw neat diagram and explain operation of 3 pt. Starter? [8]
- Q5)** a) Explain the construction of three phase induction motor? [8]  
b) Explain speed control using v/f method. [8]

OR

- Q6)** a) Derive the torque equation for the three-phase induction motor? [8]  
b) Explain Construction and working Principle of single-phase induction motor. [8]
- Q7)** a) Explain the construction and working principle of BLDC motor. Also draw the Speed Torque Characteristics. [10]  
b) Write Note on 'Electric Vehicles' [8]

OR

- Q8)** a) Explain the construction and working principle of Stepper motor. Also draw the Speed Torque Characteristics. [10]  
b) Explain any Electric vehicle in detail. [8]

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