

Total No. of Questions : 8]

SEAT No. :

PB-3623

[Total No. of Pages : 3

[6261]-28

S.E. (E&TC Engineering)

ELECTRICAL CIRCUITS

(2019 Pattern) (Semester - III) (204183)

Time : 2½ Hours]

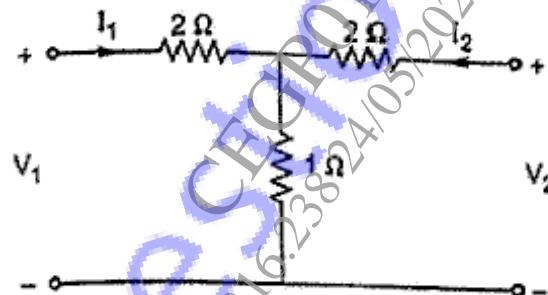
[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Figures to the right side indicate full marks.
- 3) Assume suitable data, if necessary.

Q1) a) Define Z parameters. Why Z parameters are called open circuit parameters. [6]

b) Obtain the Z parameters of the network shown below [6]



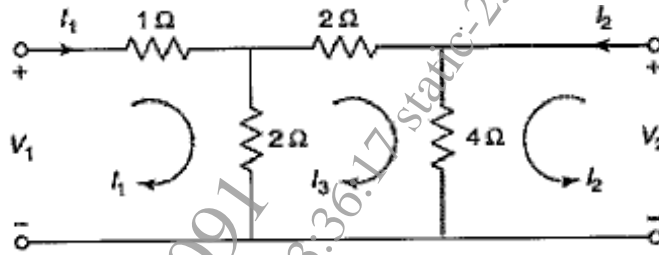
c) What do you mean by the reciprocal network? Derive the condition for reciprocity for Y parameters. [6]

OR

Q2) a) Define basic h- parameters and give the significance of each parameter. [6]

P.T.O.

- b) Find the h parameters for the network given below [6]



- c) What do you mean by symmetrical network? Derive the condition of symmetry for Z parameters. [6]

- Q3)** a) Draw and explain the various characteristics of DC shunt motor. [5]
 b) Derive the torque equation of DC motor. [6]
 c) Which are the different methods of speed control of DC shunt motor explain any one method. [6]

OR

- Q4)** a) Explain the function of no volt coil and overload release used in three point starter. [5]
 b) Explain the construction and working of permanent magnet DC motor. [6]
 c) Sketch the neat constructional diagram of DC machine. List the various parts stating the function of each part. [6]

- Q5)** a) Explain the working principle of three phase induction motor with neat diagrams. [6]
 b) Explain the v/f method of controlling the speed of three phase induction motor. [6]
 c) Describe the working principle of operation of single phase induction motor using capacitor. Draw the circuit and phasor diagram. [6]

OR

- Q6)** a) Derive the torque equation for three phase induction motor. [6]
 b) Sketch and explain the torque – slip characteristics for three phase induction motor and explain the effect of variation of rotor resistance on it. [6]
 c) With the help of diagram explain the DOL starter. [6]

- Q7)** a) Explain the working of brushless DC motor with neat diagram. [6]
b) Draw and explain the torque-speed characteristics of brushless DC motor. [6]
c) What is step angle in the stepper motor State the expression for it. [5]

OR

- Q8)** a) Explain the block diagram of electric vehicle. State its advantages and limitations. [6]
b) Explain the operation of variable reluctance stepper motor. [6]
c) Compare variable reluctance motor with permanent magnet stepper motor. [5]

