

Time : 3 hrs.

M.M.: 100

Note :—

1. Part 'A' may be attempted in first 6 pages of Answer Sheet.
भाग 'क' के सभी उत्तर, उत्तर-पुस्तिका के प्रथम छः पृष्ठों में ही करने हैं।
2. Part 'B' in rest of the Sheets of Answer Sheet.
भाग 'ख' के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
3. Answers may be given in English or Hindi.
प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

PART - 'A'

1. Attempt any ten questions : -

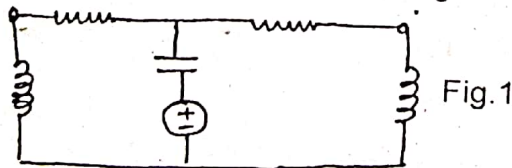
(10x2=20)

- (a) What does resistor represent in any circuit?
- (b) Define Electric flux.
- (c) What is unit of power.
- (d) What is unit of energy?
- (e) What is form factor?
- (f) What is equivalent of 3 capacitor each having value 6F connected in series?
- (g) Define Tree.
- (h) What is two port networks?
- (i) Write rectangular form of $20 \angle 90^\circ$
- (j) What is the condition when maximum power is transferred?
- (k) Define resonance.
- (l) Define frequency.
- (m) What is reciprocity condition of ABCD parameters?
- (n) State Coulomb's law.

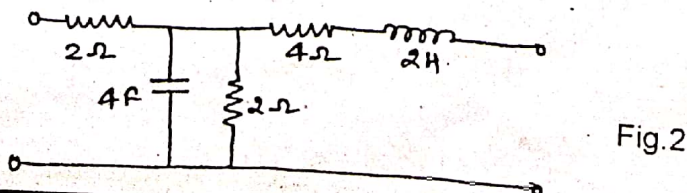
2. Attempt any five questions :

(5x4=20)

- (a) Write an expression to convert delta to star.
- (b) State Maximum power transfer theorem.
- (c) Obtain incidence matrix of the network in fig. 1



- (d) Define power factor. What is lagging power factor?
- (e) Find Z- parameters of the network shown in figure 2.



- (f) An AC circuit has $v = 230 \sin t$ and $i = 10 \sin t$. Calculate active power.
- (g) Write an expression to convert star to delta.
- (h) What are difference between tree and graph?

PART- B

Attempt any three questions.

(3x20=60)

- 3. (a) State and proof superposition theorem using an example.
- (b) Explain procedure to obtain thevenin's and Norton's equivalent circuit.
- 4. (a) Show that when two 2-port networks N1 and N2 are connected in parallel, the equivalent Y-parameters of the combined network is the sum of Y-parameters of each individual 2-port network.
- (b) Find ABCD parameters of the given network in fig.3

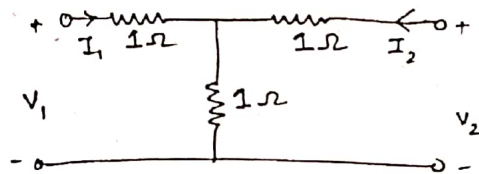


Fig.3

- 5. (a) Explain two wattmeter method of power measurement in detail.
- (b) Determine the relationship between phase and line quantities in 3 phase delta connection.
- 6. (a) Derive relationship between Y and ABCD parameters.
- (b) Compare single phase and three phase system.
- 7. (a) For the circuit shown in fig.4 determine the current I through 10Ω resistor using mesh analysis.

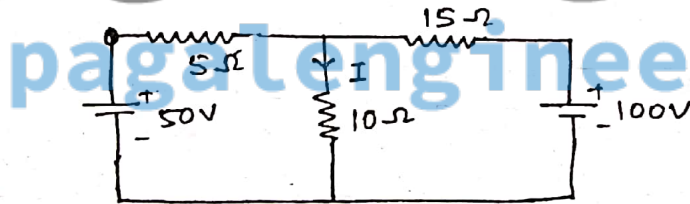


Fig.4

- (b) By super-position theorem, calculate current I in the circuit shown in fig.5.

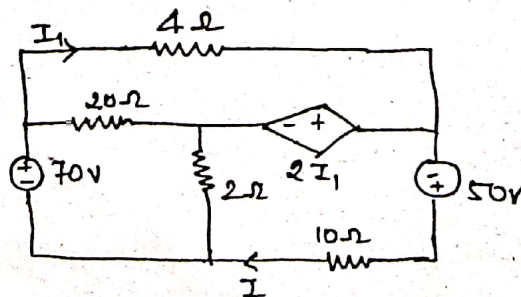


Fig.5