

CBCS SCHEME

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17EE32

Third Semester B.E. Degree Examination, Jan./Feb. 2023 Electric Circuit Analysis

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Differentiate between:
- i) Active and passive elements
 - ii) Unilateral and bilateral elements
 - iii) Linear and non-linear elements
 - iv) Lumped and distributed elements
 - v) Independent and dependent sources.
- (10 Marks)
- b. Find the current flowing through the 10Ω resistor using source transformation technique for the circuit given in Fig.Q.1(b). (10 Marks)

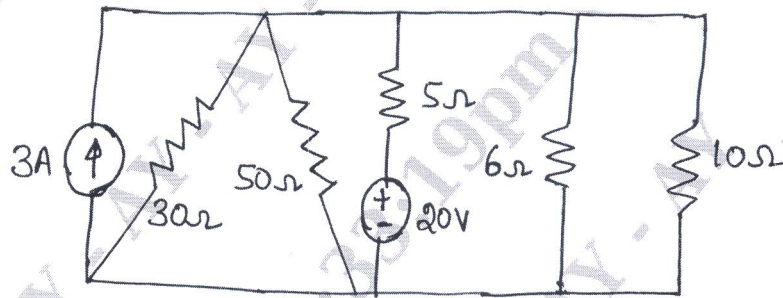


Fig.Q.1(b)

OR

- 2 a. Define and explain supernode. (04 Marks)
- b. Find the equivalent resistance between the terminals A and B using star-delta transformation technique for the circuit given in Fig.Q.2(b). (08 Marks)

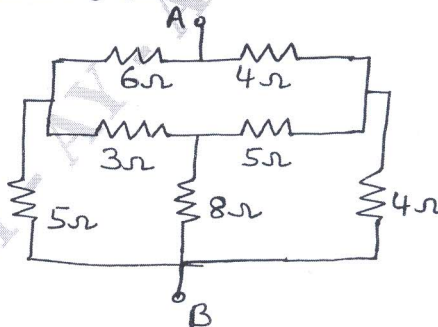


Fig.Q.2(b)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- c. For the circuit shown in the Fig.Q.2(c), find the current through the 5Ω resistor using mesh analysis. (08 Marks)

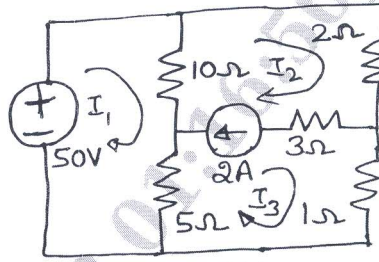


Fig.Q.2(c)

Module-2

- 3 a. State and explain superposition theorem. (05 Marks)
 b. Find the current through the 10Ω resistor using Thevenin's theorem for the circuit shown in Fig.Q.3(b). (08 Marks)

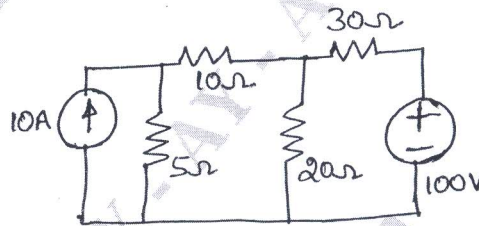


Fig.Q.3(b)

- c. For the circuit given in Fig.Q.3(c), find the value of load impedance Z_L for which power transferred is maximum. (07 Marks)

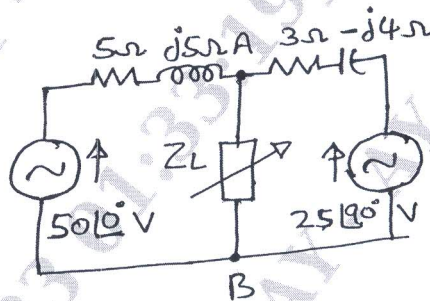


Fig.Q.3(c)

OR

- 4 a. Use Norton's theorem for the circuit of Fig.Q.4(a) to determine the power absorbed by the 9Ω resistor. (10 Marks)

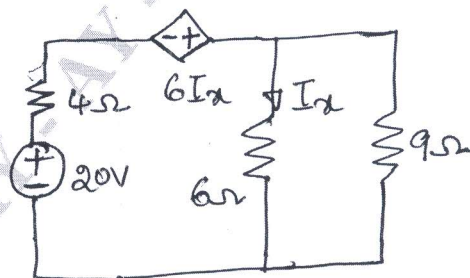


Fig.Q.4(a)