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B.E (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014

Computer Science and Engineering

Third Semester

EC 8303 – ELECTRONICS DEVICES AND CIRCUITS FOR COMPUTER ENGINEERS

(Regulation 2012)

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Determine the current through 7Ω resistor in the circuit shown in Fig.1.

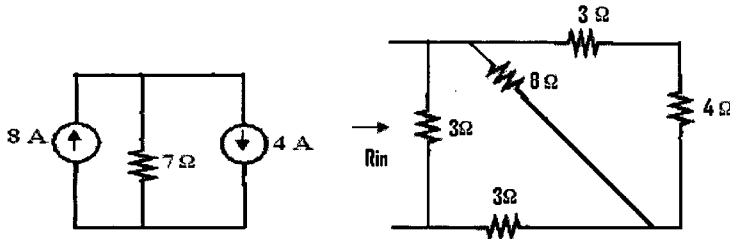


Fig.1

Fig.2

- Determine the equivalent resistance R_{in} of the network shown in Fig.2.
- State superposition principle.
- State Thevenins theorem.
- What is Zener effect?
- Differentiate between EMOS and DMOS transistors.
- State the advantages of negative feedback in amplifier.
- Write the p-n junction diode current equation under forward bias condition.
- Write the salient features of operational amplifier.
- Draw the circuit of a negative feedback opamp used as an integrator.

PART-B (5 x 16 = 80 Marks)

11. Determine the current i_t in the circuit shown in Fig.3

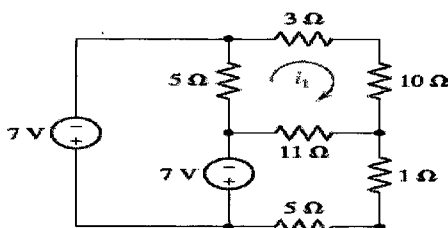


Fig.3

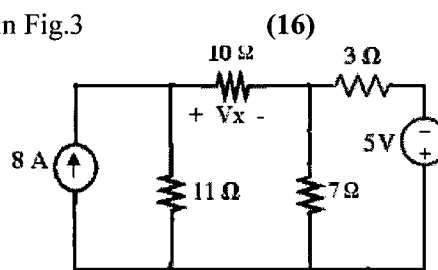


Fig.4

(16)

12. a. Determine voltage V_x in the circuit shown in Fig.4 using superposition principle. **(16)**
(OR)

12. b. Determine the maximum power transferred to the load resistor 10Ω shown in Fig.4 using maximum power transfer theorem. **(16)**

13. a. i. Draw the small signal equivalent circuit of BJT and derive its h-Parameters. **(8)**

ii. Draw and explain CE configuration of BJT and explain its V-I characteristic. **(8)**

(OR)

13. b. Explain the principle of operation of MOSFET. Draw its V-I characteristic and explain its various operating regions. **(16)**

14. a. Explain the principle of operation of common source amplifier and derive its voltage gain. **(16)**

(OR)

14. b. Explain the principle of operation of common emitter amplifier and derive its small signal voltage gain. **(16)**

15. a. Derive the gain of inverting and non inverting amplifier using opamp. **(16)**

(OR)

15. b. Draw the circuit diagram of an ADC using opamp and explain its principle of operation. **(16)**