



- b) i) Calculate the current in the $4\ \Omega$ resistor in the given Figure 16. b) i) using superposition theorem.

(7)

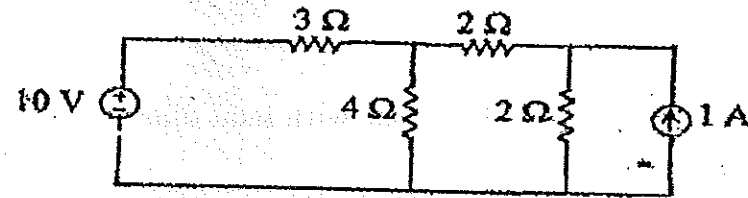


Figure. 16. b) (i)

- ii) In the circuit shown in Figure 16. b) (ii), find the value of R for maximum power transfer. Also calculate the maximum power.

(8)

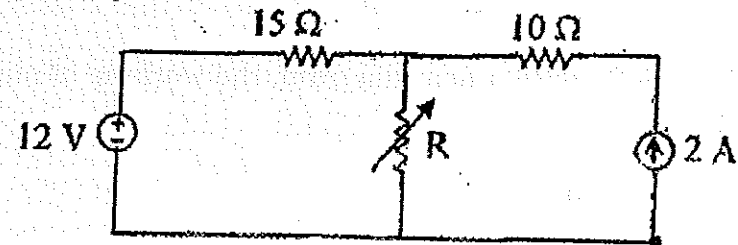


Figure. 16. b) (ii)

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Question Paper Code : 90068

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Second Semester

Computer Science and Engineering

BE 8255 – BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT

ENGINEERING

(Common to Information Technology)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

- The resistance of two wires is $25\ \Omega$ when connected in series and $6\ \Omega$ when connected in parallel. Calculate the resistance of each wire.
- Calculate the value of Norton's current (I_N) for the circuit shown in Figure. 2.

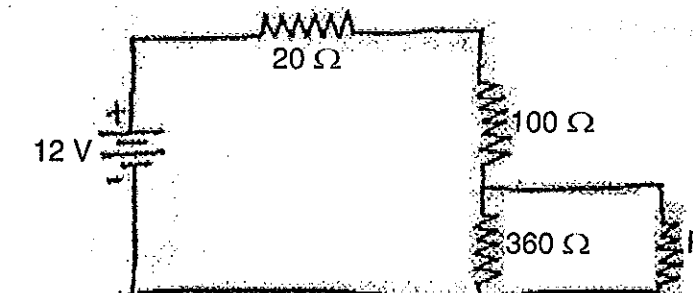


Figure 2

- State double revolving field theory.
- Why an induction motor is called a 'rotating transformer' ?
- Mention the types of energy tariff for domestic loads.
- Write the most commonly used materials for fuse element.



7. What is diffusion current ?
8. When should a transistor be biased ? Name two common biasing circuits.
9. Define reproducibility.
10. What causes errors in moving iron instruments ?

PART - B

(5×13=65 Marks)

11. a) For the circuit shown in Figure. 11. a) find the (i) currents in different branches, (ii) current supplied by the battery, (iii) potential difference between the terminals A and B. (13)

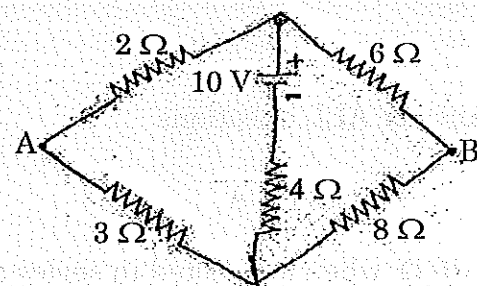


Figure 11. a)

(OR)

- b) Find the current through the 10 Ω resistor in the following Figure. 11. b) using Thevenin's theorem. (13)

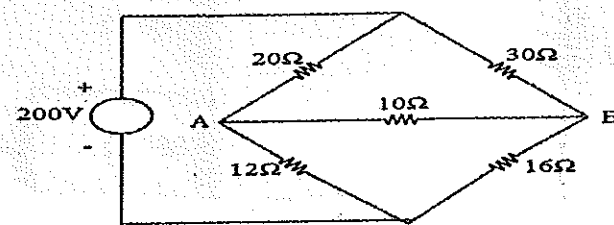


Figure 11. b)

12. a) Explain the principle of operation of a transformer. Derive its EMF equation. (13)

(OR)

- b) Describe the construction and principle of operation of Stepper motor. (13)



13. a) Define Betz limit. Explain the characteristics of Wind Power. (13)

(OR)

- b) Discuss the advantages and disadvantages of concentrating collectors over a flat plate solar collector ? (13)

14. a) Describe the working of a PN junction diode with neat diagram. Also explain its V-I characteristics. (13)

(OR)

- b) Explain with a neat diagram about Hartley oscillator and derive the expression for frequency of oscillation and the necessary conditions for oscillation. (13)

15. a) Describe briefly with a neat diagram, the working of piezoelectric transducer. (13)

(OR)

- b) Explain with neat diagram, the construction and working principle of LVDT. (13)

PART - C

(1×15=15 Marks)

16. a) Find the voltage across 5Ω resistor for the circuit shown in Figure. 16. a) using source transformation technique and verify the results using mesh analysis. (15)

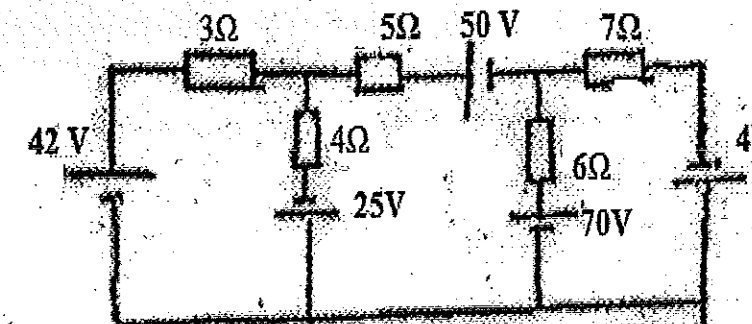


Figure 16. a)

(OR)