Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

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)

1. The resistance of two wires is 25 Ω when connected in series and 6 Ω when connected in parallel. Calculate the resistance of each wire.

2. Calculate the value of Norton's current (I_N) for the circuit shown in Figure. 2.
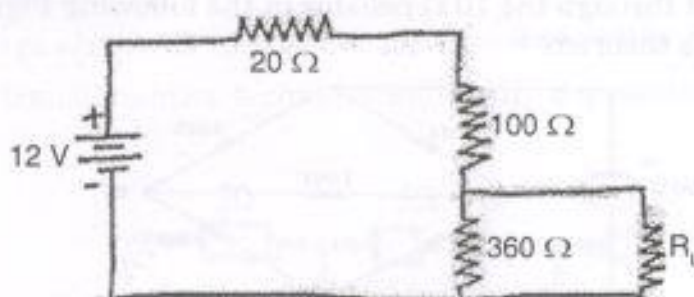

Figure 2

3. State double revolving field theory.

4. Why an induction motor is called a 'rotating transformer' ?

5. Mention the types of energy tariff for domestic loads.

6. 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 ?

<div align="center">

PART – B   (5×13=65 Marks)

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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)
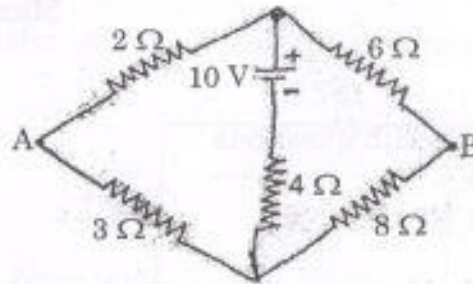

Figure 11. a)

(OR)

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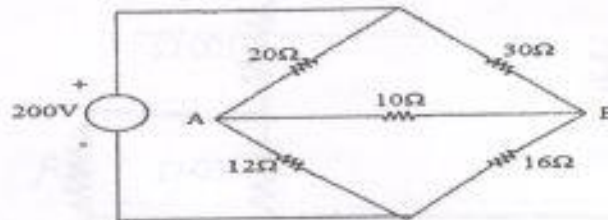

Figure 11. b)

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)
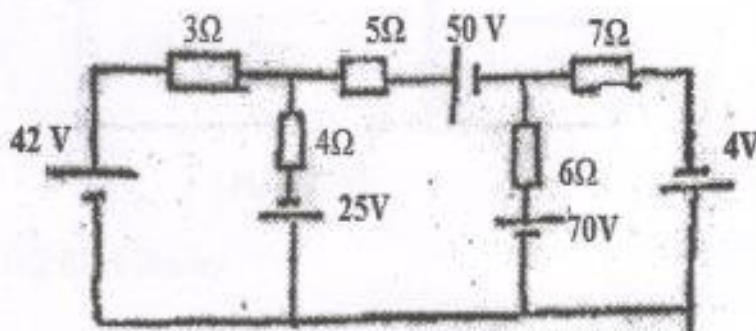

Figure 16. a)

(OR)

b) i) Calculate the current in the 4 Ω resistor in the given Figure 16. b) i)
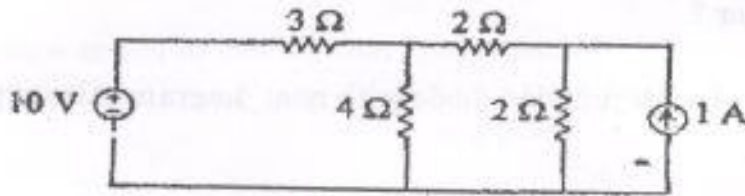   using superposition theorem.   (7)

Figure. 16. b) (i)

ii) In the circuit shown in Figure 16. b) (ii), find the value of R for maximum
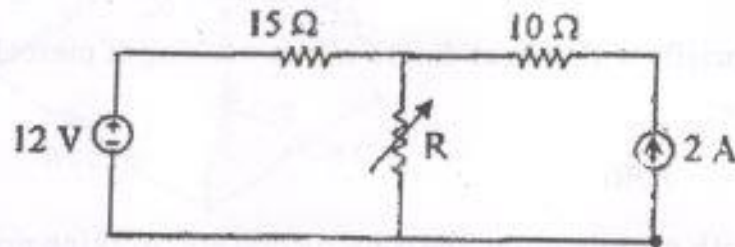   power transfer. Also calculate the maximum power.   (8)

Figure. 16. b) (ii)