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18/05/18 (FN)

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 40020

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018
Second Semester
Computer Science and Engineering
BE 8255 – BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT ENGINEERING
(Common to B.Tech. Information Technology)
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. State Ohm's law.
2. Write the statement of Superposition theorem.
3. List the factors affecting the EMF generated in DC machine.
4. Define all day efficiency.
5. Sketch the fluorescent lamp connection arrangement.
6. List the different types of tariff calculation in electrical system.
7. What you mean by depletion layer in PN junction diode ?
8. Draw the circuit arrangement of op-amp based differentiator.
9. Name the different types of errors in measurement system.
10. Write the functions of LDR.

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PART – B (5×13=65 Marks)

11. a) Determine the current in 12 Ω resistor for the given circuit by Mesh method. (13)

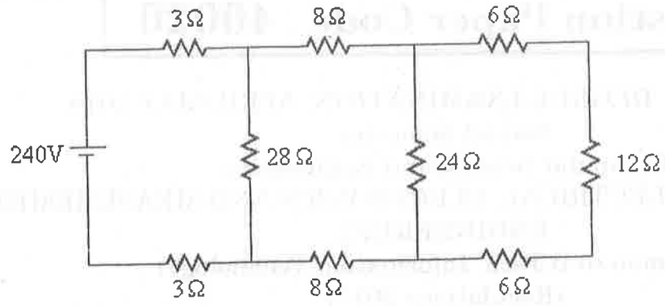

Figure 11(a)

(OR)

b) Calculate the current through branch FC, using Thevenin's theorem. (13)

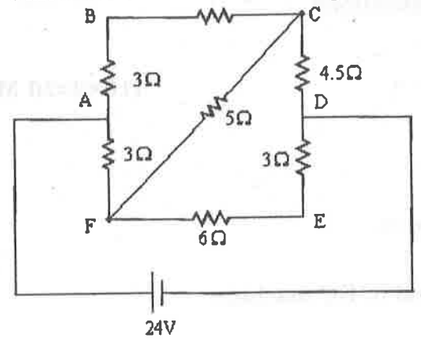

Figure 11(b)

12. a) With neat diagram, explain the construction and working principle of DC generator. (13)

(OR)

b) i) Elucidate the construction and working principle of a single phase transformer with neat diagram. (8)

ii) Derive the expression for EMF induced in a single phase transformer. (5)

13. a) Write a technical note on the following :

i) Wind energy generating system. (8)

ii) Solar panel (any two types). (5)

(OR)

b) What is the need for earthing ? And also explain the different types of earthing. (13)

14. a) Explain the construction and working of Bipolar Junction Transistor (BJT). Also draw the input and output characteristics of the common emitter configuration. (13)

(OR)

b) i) Describe the working principle of full wave rectifier with necessary waveforms. (8)

ii) Explain the operation of OP-AMP integrator circuit. (5)

15. a) Explain the working principle of Permanent Magnet Moving Coil (PMMC) measuring instrument with neat construction arrangement. Also derive the torque developed in PMMC instrument. (13)

(OR)

b) i) With suitable circuit diagram, explain how the strain gauge is used to measure pressure ? (8)

ii) Explain the working of Linear Variable Differential Transformer (LVDT) with relevant circuit diagram. (5)

PART – C (1×15=15 Marks)

16. a) Determine the node voltage for the given circuit by nodal method. (15)

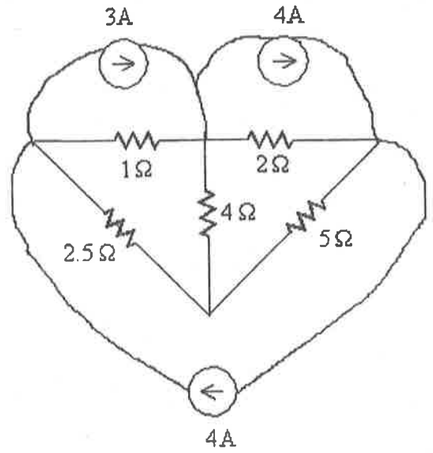

Figure 16(a)

(OR)

b) Find the all day efficiency of 500 kVA distribution transformer whose copper loss and iron loss at full load are 4.5 kW and 3.5 kW, respectively. During a day of 24 hours, it is loaded as under : (15)

Number of hours	Loading in kW	Power factor
6	400	0.8
10	300	0.75
4	100	0.8
4	0	–

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18/05/18 (FN)

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 40020

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018
Second Semester
Computer Science and Engineering
BE 8255 – BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT ENGINEERING
(Common to B.Tech. Information Technology)
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

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10. Write the functions of LDR.

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PART – B (5×13=65 Marks)

11. a) Determine the current in 12 Ω resistor for the given circuit by Mesh method. (13)

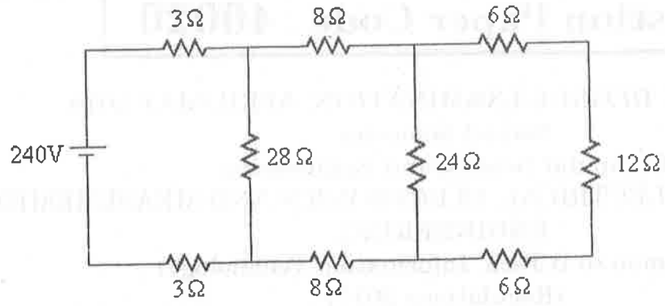

Figure 11(a)

(OR)

b) Calculate the current through branch FC, using Thevenin's theorem. (13)

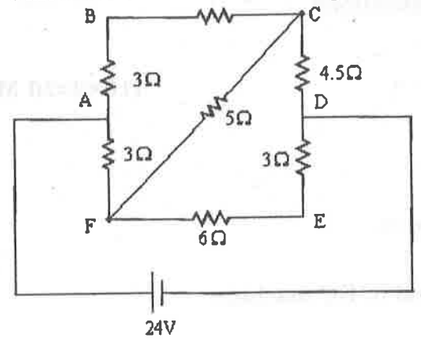

Figure 11(b)

12. a) With neat diagram, explain the construction and working principle of DC generator. (13)

(OR)

b) i) Elucidate the construction and working principle of a single phase transformer with neat diagram. (8)

ii) Derive the expression for EMF induced in a single phase transformer. (5)

13. a) Write a technical note on the following :

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PART – C (1×15=15 Marks)

16. a) Determine the node voltage for the given circuit by nodal method. (15)

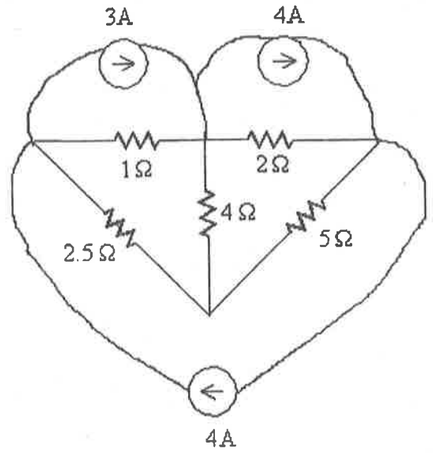

Figure 16(a)

(OR)

b) Find the all day efficiency of 500 kVA distribution transformer whose copper loss and iron loss at full load are 4.5 kW and 3.5 kW, respectively. During a day of 24 hours, it is loaded as under : (15)

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6	400	0.8
10	300	0.75
4	100	0.8
4	0	–

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

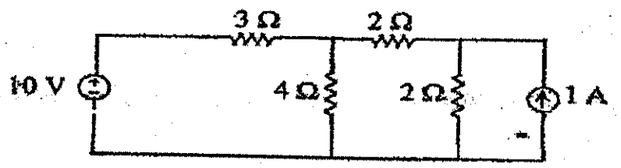

Figure. 16. b) (i)

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)

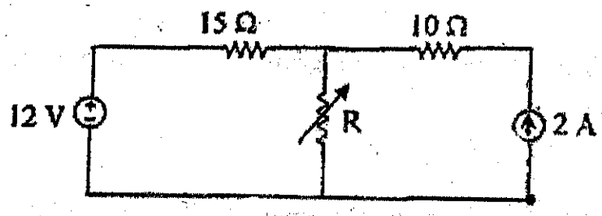

Figure. 16. b) (ii)

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Reg. No. :

19/11/19/AN

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.

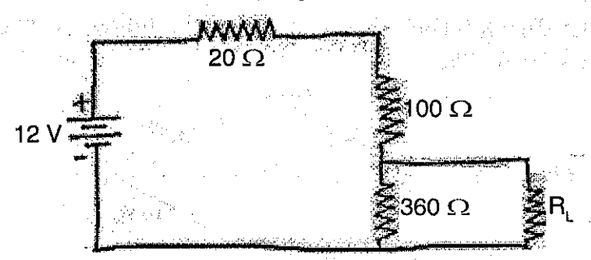

Figure 2

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.

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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)**

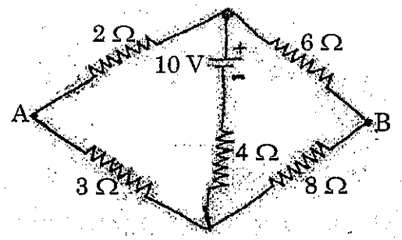

Figure 11. a)

(OR)

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

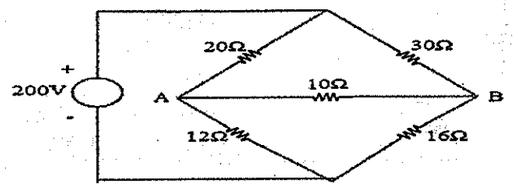

Figure 11. b)

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)**

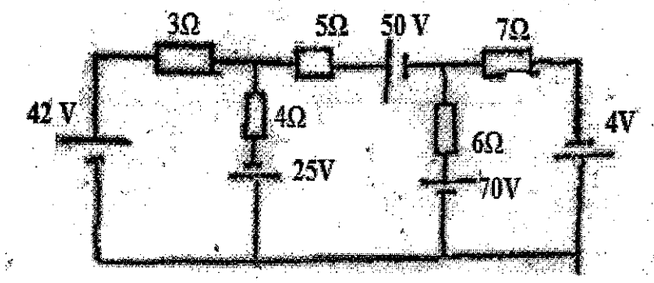

Figure 16. a)

(OR)

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14/05/19

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80042

OFFICE OF EXAMCELL * AGNI COLLEGE OF TECHNOLOGY * CHENNAI 600 130

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Second Semester

Computer Science and Engineering

BE 8255 – BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT ENGINEERING

(Common to Information Technology)

(Regulation 2017)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. An Inductive circuit has an inductance of 0.4 Henry and takes a current of 0.5 Amp when connected to 200V, 50Hz supply. Determine the resistance of the circuit.

2. State Thevenin's theorem and draw its equivalent circuit.

3. What is Stepper Motor?

4. Define All Day Efficiency of a Transformer.

5. How does the sodium vapour lamp works?

6. What are Renewable energy sources?

7. Why do BJT's are called Bipolar transistors?

8. Distinguish between Zener breakdown and Avalanche breakdown.

9. Compare moving coil and moving iron instruments based on any two salient features.

10. What is the basic requirement of a transducer?

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PART B — (5 × 13 = 65 marks)

11. (a) In the circuit shown in figure (i), find the current in the load resistance R_L= 200 Ω. (13)

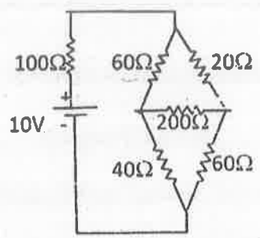

Fig. (i)

Or

(b) Consider a resistive circuit having two meshes with one voltage source in each mesh and derive the steps involved in solving through

(i) Mesh analysis (6)

(ii) Superposition theorem. (7)

12. (a) Explain the principle of operation of DC motor and derive its torque equation. (13)

Or

(b) With a neat diagram explain the construction and working principle of Transformer. (13)

13. (a) Describe the various components of the Refrigerator in detail. (13)

Or

(b) (i) What is the importance for Earthing, Fuses and Circuit breaker in an electrical circuit? (6)

(ii) Discuss the working of the circuit breaker. (7)

14. (a) (i) What is Maximum forward current and Peak inverse voltage in a PN junction Diode? (4)

(ii) Discuss the VI characteristics of zener diode. (9)

Or

(b) What are the essential functions of analog DAC? Discuss in detail the R-2R Ladder type DAC. (13)

15. (a) With a neat sketch explain the construction and principle of operation of Energy meter. (13)

Or

(b) Write short notes on :

(i) LVDT (7)

(ii) LDR. (6)

PART C — (1 × 15 = 15 marks)

16. (a) Construct the resistive circuit on your own and assign the values of resistances and voltages. Evaluate the current in the load resistor (assume) of the circuit using Thevein's theorem and compare the result using mesh analysis technique (by direct inspection). (15)

Or

(b) How does the tariff support energy efficiency and demand-side management? Explain in detail. (15)

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