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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.



PART - B

(5×13=65 Marks)

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

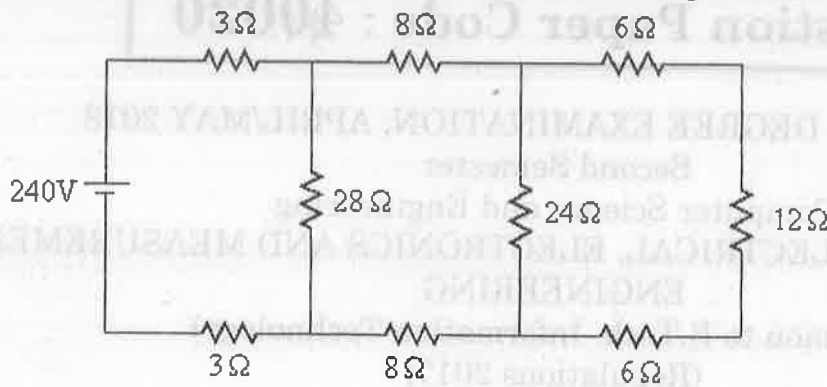


Figure 11(a)

(OR)

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

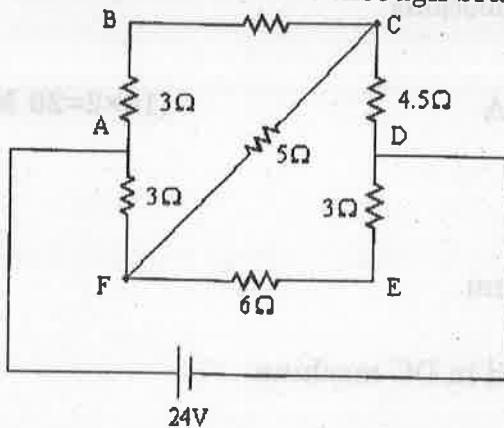


Figure 11(b)

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)

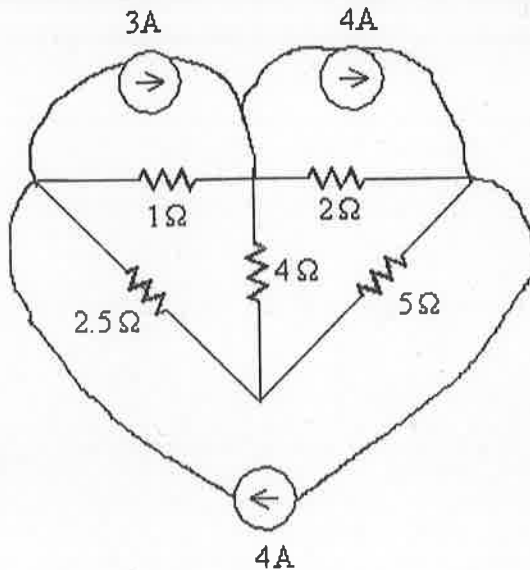


Figure 16(a)

(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	—

