C14–CM–**302**

4232

BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2017

DCME—THIRD SEMESTER EXAMINATION

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. How much current flows through a conductor of resistance 20 when it is supplied with a pd of 200 V?

2. State the laws of resistance.

3. Define *(a)* KVL and *(b)* KCL, and write the equations.

4. Compare active network and passive network.

5. State and explain Lenz's law.

6. Write the applications of capacitor.

7. What is meant by doping? Write majority and minority carriers in *P*-type and *N*-type materials.

8. List the transistor configurations.

9. What is meant by *P-N* junction diode? Write its application.

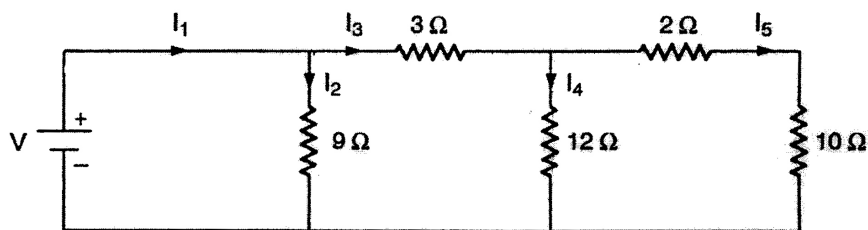**10.** List the different types of stabilizers.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. In the circuit shown in figure, find supply voltage *V* so that 10 resistor can dissipate 900 watts :

12. When 3 resistances—5 , 10 and 20 are connected in parallel across 240 V supply, calculate the total resistance and current through each resistance.

13. Obtain transformation equation for delta-star configuration circuit.

14. *(a)* Define *(i)* active element, *(ii)* passive element, *(iii)* node and *(iv)* loop.

(b) Explain statically induced e.m.f. and dynamically induced e.m.f.

15. Derive the expression for energy stored in a magnetic field.

16. Classify the capacitors and write their applications.

17. Draw the *V-I* characteristics of diode and explain.

18. *(a)* Distinguish between *P*-type and *N*-type semiconductors.

(b) Explain the working of OFF line UPS.

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