4232

C14–CM–302

4232

BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2018

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. At 0°C temperature the resistance and temperature coefficient of resistance of a conductor material are 20 and 0.005 / C . At what temperature the resistance becomes 25 .

2. Define the following terms:

(a) Resistance

(b) Specific resistance

(c) Temperature coefficient of resistance

3. State and explain Kirchhoff's current law.

4. Three resistances of 5 , 3 , 7.5 are connected in star. Find its equivalent delta resistance values.

5. Define and explain coefficient of coupling.

6. List the applications of thermistors.

7. What is meant by doping? Define majority and minority carriers in *p*-type and n-type materials.

8. Distinguish between *p*-type and *n*-type semiconductors.

9. Sketch the ISI symbols of PNP and NPN transistors and write the significance of arrow on emitter terminal.

10. List the specifications and ratings of UPS.

PART—B

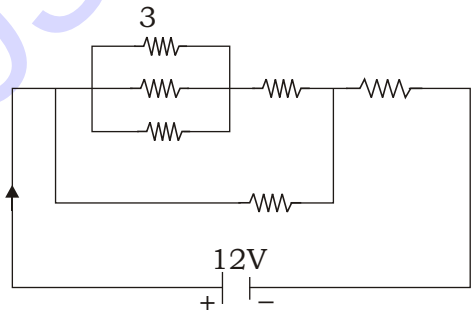
10×5=50

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

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

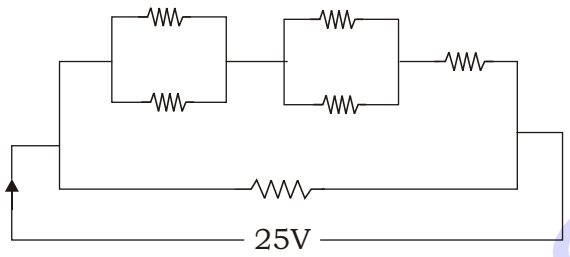
(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Find the current through each resistance of the circuit given below.

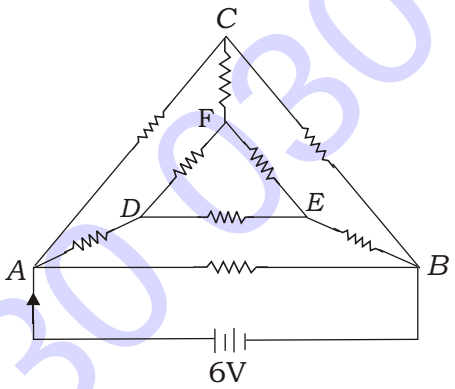


12. *(a)* Distinguish between parallel circuit and series circuit.

(b) In the circuit given below, calculate voltage across 10 resistance :



13. Find the current supplied by the battery in the network given below by star-delta transformation :



14. *(a)* State and explain Kirchhoff's voltage law with example.

(b) State and explain the following :

(i) Dynamically induced EMF

(ii) Statically induced EMF

15. *(a)* State and explain Lenz's law.

(b) State and explain the

(i) Self-inductance

(ii) Mutual inductance

16. *(a)* List and explain the specifications of resistors.

(b) Explain the process of resistor colour coding with example.

17. Explain the operation of PN junctions with forward, reverse and no-bias.

18. *(a)* Distinguish among conductor semiconductor and insulate on basis of electrical properties.

(b) Write a brief note on maintenance of stabilizers and UPS.

★ ★ ★