



C14-CM-302

4232

BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—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. State and explain Ohm's law.
2. Distinguish between insulator and conductor.
3. Define (a) active circuit and (b) passive circuit with examples.
4. Define Fleming's right-hand rule.
5. List the applications of thermistors.
6. Define (a) valence band, (b) conduction band and (c) forbidden energy gap.

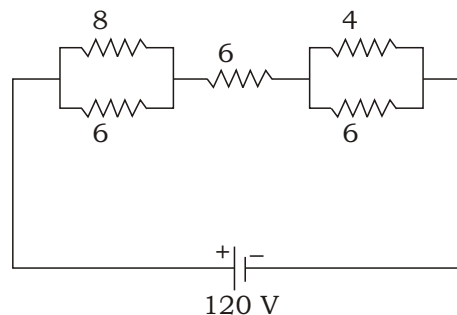
- * 7. Mention the specifications of $P-N$ diode.
8. State and explain Kirchhoff's laws.
9. Define the following terms :
- (a) Drift process
- (b) Diffusion process
10. List the need of stabilizer.

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.

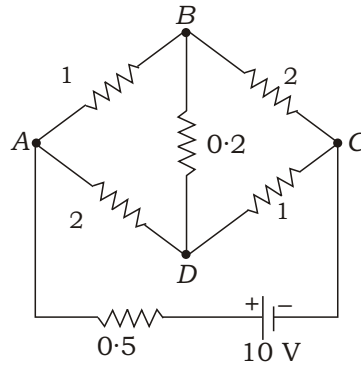
11. In the circuit shown below, calculate the voltage drop across each resistance, current flowing through each resistance and total power consumed :



12. (a) Classify the materials depend upon their valence electrons and explain.
- (b) Compare series circuit and parallel circuit.

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13. The Wheatstone bridge network shown in figure below. Find the current through 0.2 resistor by using Kirchoff's laws.



14. (a) Define (i) junction, (ii) branch and (iii) loop.
(b) State and explain Faraday's laws of electromagnetic induction.
15. Derive an expression for equivalent inductance when two inductances are connected in series (a) aiding and (b) opposing.
16. (a) Classify the thermistors.
(b) What are NTC and PTC resistors? State their applications.
17. Explain the working of $P-N$ diode with various bias conditions.
18. (a) Distinguish between intrinsic and extrinsic semi-conductors.
(b) Explain the maintenance of stabilizers.

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