



C09-CM-303

3229

**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2016
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. What must be the value of voltage to be supplied across a 50-ohm resistor to draw a current of 5 A?
2. State Kirchhoff's laws.
3. Define (a) junction, (b) branch and (c) loop.
4. A coil of 200 turns is placed in a magnetic field of 1 m Wb. If the coil is moved to a field strength of 0.8 m Wb in $\frac{1}{5}$ th second, find the average e.m.f. induced in coil.
5. State the expression for the resonant frequency of *R-L-C* series circuit.
6. Define the term 'capacitance' and give its units.
7. Distinguish between intrinsic and extrinsic semiconductors.
8. Define and .

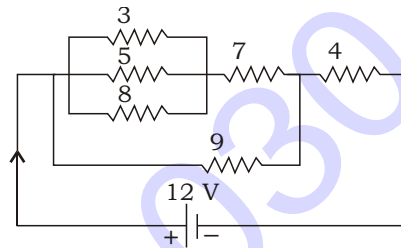
- * 9. Draw the symbol of $n-p-n$ transistor and $p-n-p$ transistor and specify the leads.
10. State the need of stabilizers.

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. Find the current through 4 resistance of the circuit shown below :



12. Derive the transformation formula of star-delta configuration.
13. (a) Explain the procedure of calculation of current in $R-L$ series circuit.
 (b) A coil having an inductance of $0.014 H$ is connected across an AC voltage of $200 \sin 314 t$. Calculate the current flowing.
14. (a) Classify resistors. 5
 (b) What are NTC and PTC resistors? State their applications. 5
15. Discuss the behaviour of $p-n$ junction under forward, reverse biasing.
16. What is the effect of temperature on the forward bias and reverse bias characteristics of diode?
- * 17. (a) Draw the approximate equivalent circuit for CB configuration. 5
 (b) Derive the expression for collector current in CB configuration. 5
18. Explain the working principle of UPS with a neat block diagram.
