

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2014

DCM—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.

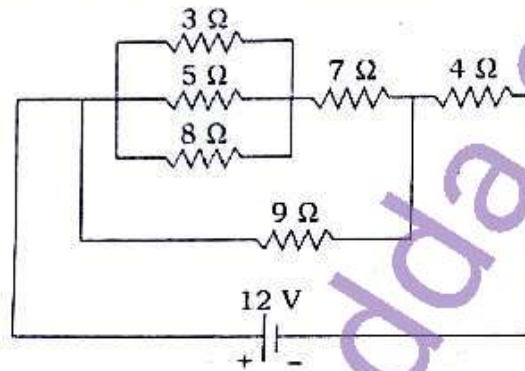
1. Explain the law of resistance.
2. Distinguish between active and passive circuits.
3. Discuss star and delta circuits.
4. Explain briefly Faraday's laws of electromagnetic induction.
5. Define RMS value and average value.
6. What are NTC and PTC resistors? List any two applications.
7. Distinguish between conductor, semiconductor and insulator on basis of electrical properties.
8. Draw the atomic structure of silicon and germanium semiconductor materials.
9. Distinguish between intrinsic and extrinsic semiconductor materials.
10. Classify the stabilizers.

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 $4\ \Omega$ resistance of the circuit shown :



12. Three resistances of $2\ \Omega$, $3\ \Omega$ and $5\ \Omega$ are connected in star. Find the equivalent delta connection. If a battery of $40\ \text{V}$ is connected across any two terminals of equivalent delta connection, find the current supplied by the battery.

13. Explain the following :

(a) Dynamically induced e.m.f.

(b) Statically induced e.m.f.

(c) Coefficient of coupling

14. (a) Classify resistors.

(b) What are NTC and PTC resistors? State their applications.

15. Explain the atomic structure of silicon and germanium.

16. Draw and explain the input and output characteristics of CB configuration of transistor.

17. Describe the operation of P-N junction with forward, reverse bias and no bias.

18. Explain the working principle of UPS with a neat block diagram.
