

3229

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV-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. What must be the value of voltage to be supplied across 50Ω resistance to draw a current of 5 A ?

2. Three resistances of 10Ω , 15Ω and 25Ω are connected in delta. Find out the equivalent star arrangement.

3. Define (a) junction, (b) branch and (c) loop.

4. Define Q-factor of resonance circuit.

5. Define form factor.

6. What are the specifications of transformer?

7. State the specifications of *p-n* junction diode.

8. Draw the DC equivalent circuit of transistor for CE configuration.

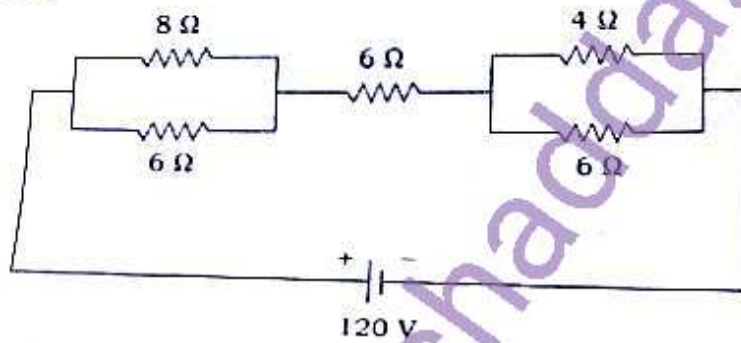
9. Write a short note on *p*-types semiconductor.

10. List different types of stabilizer.

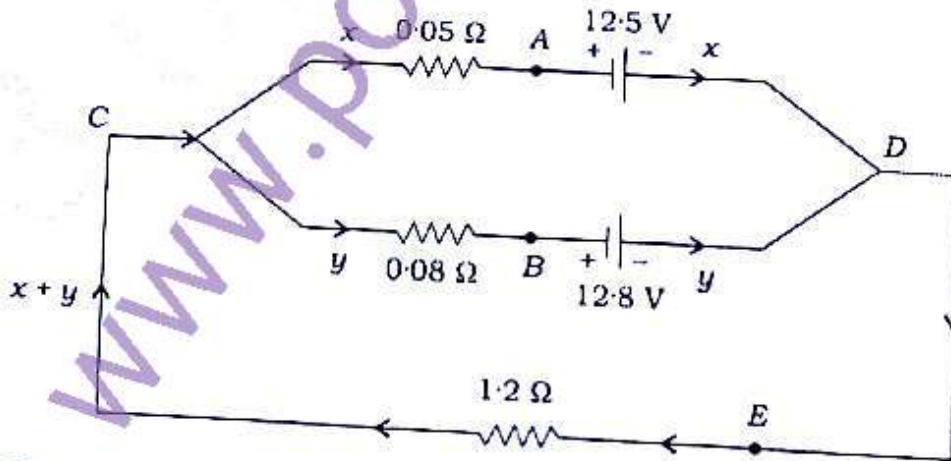
PART—B

- 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. Two storage batteries *A* and *B* are connected in parallel to supply a load resistance of which is 1.2Ω . The open-circuit e.m.f. of *A* is 12.5 V and that of *B* is 12.8 V , the internal resistances of *A* being 0.05Ω and that of *B* is 0.08Ω . Calculate (a) the current in the load and (b) the current supplied by each battery :



13. (a) State and explain Faraday's laws of electro-magnetic induction.

(b) Two coils of 1000 turns and 2000 turns are tightly wound over the wooden ring which has a mean length of 60 cm and a cross-sectional area of 30 cm^2 . Find the mutual inductance between the coils.

14. (a) Classify the resistors.

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

15. Explain the working principle of transistor with neat sketch.

16. Draw and explain energy band diagrams of conductors, semiconductors and insulators.

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

18. (a) List the types of UPS.

(b) Explain the maintenance of stabilizers and UPS.
