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C09-CM-303

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 50 resistance to draw a current of 5 A?
2. Three resistances of 10 , 15 and 25 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.

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PART—B

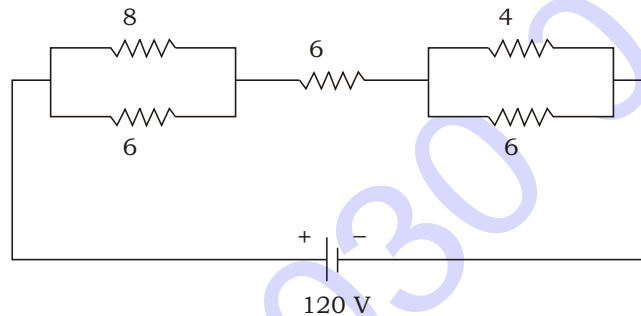
10×5=50

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

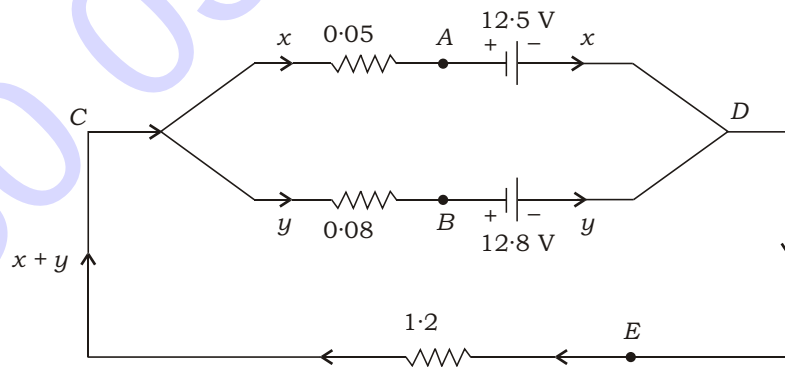
(2) Each question carries **ten** marks.

(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.** 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.

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- 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.

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