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C14–CM–302

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2017

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 the limitations of Ohm's law.

2. Differentiate between series and parallel circuit in any three aspects.

3. State the Kirchhoff's laws.

4. Find the equivalent delta connection, when their resistance of 5 , 3 , and 7·5 are connected in star.

5. State Fleming's right hand rule.

6. Differentiate between potentiometer and rheostat.

7. Define valence bond and conduction bond.

8. Draw the circuit symbols of *P-N-P* and *N-P-N* transistors and identify the terminals.

9. Mention the specification of *P-N* junction diode.

10. What is the need of UPS?

PART—B

10×5=50

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

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

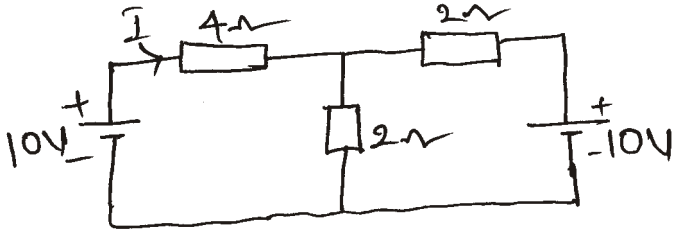
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Explain the laws of resistance.

(b) Define the terms specific resistance and conductivity.

12. Derive and expression for equivalent resistance when three resistors R_1, R_2 and R_3 connected. 10

13. Find the current I in the circuit given below using Kirchhoff's voltage law. 10



14. *(a)* Develop transformation formula of star-delta configuration.

(b) Explain dynamically induced e.m.f.

15. *(a)* Explain self and mutual inductances. 6

(b) State Lonz's law. 4

16. *(a)* Explain PTC and NTC resistors. 5

(b) List the applications of AF and RF choices. 5

17. Explain *V-I* characteristics of *P-N* junctions diode with neat sketch. 10

18. *(a)* Explain the working of ONLINE UPS.

(b) Briefly explain the formation of N-type semiconductor.

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