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C20-CHPC –302

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DCHPC – THIRD SEMESTER EXAMINATION

ELECTRICAL TECHNOLOGY

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. Define form factor.

2. State Ohm's law.

3. State equation for reactive power in single phase AC circuits.

4. State Fleming's left hand rule.

5. State the EMF equation of DC generator.

6. Mention any three applications of 1-phase induction motors.

7. State the uses of Megger.

8. List any three applications of electric heating.

9. Draw the energy band diagram of a semiconductor.

10. Classify the materials based on valence electrons.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

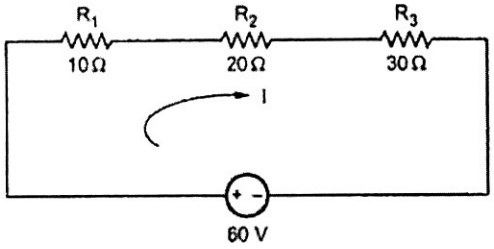
(2) Each question carries **eight** marks.

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

11. *(a)* Explain phase and phase difference between two alternating quantities.

(OR)

(b) Find the voltage across each resistor.



12. *(a)* Explain the following terms :

(i) Permeability

(ii) Magnetic field strength

(iii) Flux

(iv) Flux density

(OR)

(b) Derive the expression for the field strength on the axis of a solenoid.

13. *(a)* Explain the necessity of starter.

(OR)

(b) Explain about autotransformers.

14. *(a)* Explain the construction and working of moving iron instruments.

(OR)

(b) Explain the construction and working of moving coil instruments.

15. *(a)* Explain the basic principles of electric heating.

(OR)

(b) Describe the working of DC welding generator with a neat diagram.

PART—C

10×1=10

Instructions : (1) Answer the following question.

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

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

16. Why can the speed control of DC shunt motor using field control techniques only give above-rated speeds?

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