

1472**Code : 15EE01E**Register
Number

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I/II/III Semester Diploma Examination, April/May-2018**BASIC ELECTRICAL AND ELECTRONICS
ENGINEERING****Time : 3 Hours]****[Max. Marks : 100**

- Note :** (i) Answer any **six** full questions from Part – A. Each question carries **five** marks.
(ii) Answer any **seven** full questions from Part – B. Each questions carries **ten** marks.

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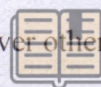
1. Define :

- (i) Resistance
- (ii) Potential difference and mention the meters used to measure with units.



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2. Mention any five advantages of electrical energy over other forms of energy.

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3. Define :

- (i) Magnetic flux
- (ii) Flux density
- (iii) MMF
- (iv) Reluctance
- (v) Inductance

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4. Define with equation :

- (i) Inductive reactance
- (ii) Capacitive reactance

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5. Explain with illustration :

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(i) In phase

(ii) Out of phase

6. Compare single phase and three phase A.C. motors.

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7. Define cell and battery. List the types of batteries.

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8. Explain necessity of protective devices. List the types.

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9. Explain with neat sketch and waveform the working of full wave rectifier.

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PART - B

10. (a) Distinguish between conductor and insulator.

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(b) Define electric power and write the three forms of power equations.

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11. (a) Mention any five applications of Electrical Energy.

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(b) Determine the equivalent resistance of three resistances R_1 , R_2 and R_3 when connected in parallel across a supply voltage of 'V' volts.

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12. (a) Explain with sketch mutually induced EMF.

4

(b) Explain dynamically induced EMF and mention the applications.

6

13. (a) Explain working principle of transformer.

4

(b) An alternating voltage has a maximum value of 150 V. Find

6

(i) RMS value

(ii) Average value

(iii) Form factor

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14. (a) Compare between three phase supply over single phase supply. 4
- (b) A resistance of $10\ \Omega$, an inductance of $0.02\ \text{H}$ and a capacitor of $200\ \mu\text{F}$ are connected in series across a $200\ \text{V}$, $50\ \text{Hz}$ supply. Find 6
- (i) Inductive reactance
- (ii) Capacitive reactance
- (iii) Impedance
- (iv) Current
- (v) Power factor.
15. (a) What is a D.C. motor ? List the types of D.C. motor. 5
- (b) List out the various industrial applications of D.C. motor. 5
16. (a) List the advantages of three phase A.C. motors over single phase A.C. motors. 5
- (b) List the A.C. motors used for the following : 5
- Textile, Cement, Printing Mechanical and Mining Industries
17. (a) Differentiate between primary and secondary batteries. 5
- (b) State the sequence of steps for shock treatment. 5
18. (a) Explain the operation of Zener diode as voltage regulator. 5
- (b) What is a SCR ? Write the symbol. List the industrial applications of SCR. 5
19. (a) What are Semiconductors ? List the types of semiconductor. 4
- (b) Draw the logic symbol, truth table for the following gates : 6
- (i) EX-OR gate
- (ii) NOR gate
- (iii) OR gate

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