1276

Code : 15EE-01E

I/II Semester Diploma Examination, Nov./Dec. 2016

BASIC OF ELECTRICAL AND ELECTRONICS ENGINEERING

Time : 3 Hours | **| Max. Marks : 100**

Note :   (i)   Answer any **six** questions from Part – **A**. Each question carries **5** marks.

       (ii)   Answer any **seven** full questions from Part – **B**. Each full question carries **10** marks.

PART – A

1. Mention any five applications of Electrical energy.   **5**

2. Distinguish between conductors and insulators.   **5**

3. Define :   **5**
   (i) Magnetic flux
   (ii) Flux density
   Mention their SI units.

4. State Faraday's first and second laws of Electro-magnetic induction.   **5**

5. Define :   **5**
   (i) RMS value
   (ii) Average value
   Write the equations

6. Define power factor and mention its effect on electric power.   **5**

7. What is a motor ? List the types of AC motor.   **5**

8. List the different types of switches with their symbols.   **5**

9. What is a relay ? List the types and its applications.   **5**

PART – B

10. (a) State any five advantages of Electrical energy over other forms of energy. **4**

    (b) A 100 watt lamp is used for 6 hours and a 60 watt lamp is used for 4 hours a day.

    Find :

    (i) Energy consumed per month

    (ii) Cost of energy if each unit costs ₹ 2.70 **6**

11. (a) Determine the equivalent resistance of three resistances R_1, R_2, R_3 when connected in series across a supply voltage of V volts. **4**

    (b) Three resistances of 2 Ω, 4 Ω and 6 Ω are connected in series across 100 V supply.

    Find :

    (i) Effective resistance

    (ii) Total current in the circuit

    (iii) Voltage drop across each resistance **6**

12. (a) Distinguish between self induced and mutual induced e.m.f. **4**

    (b) Explain with sketch dynamically induced emf with an example. **6**

13. (a) Define the following with reference to a sinusoidal wave form

    (i) Maximum value

    (ii) Form factor **4**

    (b) A resistance of 20 Ω is connected in series with a inductance of 0.07 H. If this is connected to a 200 V, 50 Hz supply, find

    (i) Impedance

    (ii) Current in the circuit

    (iii) Power factor **6**

14. (a) What is a transformer ? Explain its working principle. **5**

    (b) State any five applications of DC motors. **5**

15. (a) Mention the importance of name plate details of an AC motor. Give one example of name plate details of any motor. 5

(b) State the necessity of starters for 3 phase a.c. motors. List the types of a.c. starters. 5

16. (a) List the different types of mechanical enclosures for motors with their applications. 5

(b) Explain the necessity of earthing. List the types. 5

17. (a) Distinguish between MCB and ELCB. 5

(b) What is an UPS and its rating ? List the types. 5

18. (a) What is a battery ? List the types of batteries and their applications. 5

(b) Explain VI characteristics of a P-N junction diode. 5

19. (a) Distinguish between intrinsic and extrinsic semiconductors. 4

(b) Explain with a neat sketch and waveforms the working of a full wave bridge rectifier. 6

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