1294

Code : 15EC01T

Register Number | | | | | | | |

I Semester Diploma Examination, April/May-2018

CONCEPTS OF ELECTRICAL AND ELECTRONICS ENGINEERING

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **six** questions from Part – **A.**

(ii) Answer any **seven** questions from Part – **B.**

PART – A

1. Define Electric current and voltage. Write their SI units. **5**

2. Define Ohm's law. What are the three forms of Ohm's law ? **5**

3. State and explain Faraday's laws of Electro magnetic induction. **5**

4. Draw AC voltage waveform and mark the parameters given below : **5**

   (a) Amplitude (b) Time period

   (c) Cycle (d) Peak to peak value

5. Compare between single phase and three phase AC supply. **5**

6. List different types of transformers and write their applications. **5**

7. Explain the need of spike busters for protection of computer components. **5**

8. What is rectifier and list different types. **5**

9. List the ideal characteristics of Op-amp. **5**

PART – B

10. (a) Compute the total effective resistance of two resistors connected in series. 5

(b) Two resistances of 25 Ω & 30 Ω are connected in series across a 50 V supply. Calculate

(i) Effective resistance

(ii) Total current in the circuit 5

11. (a) State & explain Kirchhoff's current law. 4

(b) Mention the meters to measure Electric current, Voltage and Resistance. 6

12. (a) Define : 5

(i) Statically induced EMF.

(ii) Dynamically induced EMF.

(b) List the applications of stepper motor. 5

13. (a) Define : 6

(i) RMS Value

(ii) Average Value

(iii) Form factor

(b) An AC voltage is given by V = 100 sin 314t, what is the maximum voltage and frequency ? 4

14. (a) Define inductive reactance and capacitive reactance. 6

(b) A circuit consists of a resistance of 10 Ω and an inductance of 0.2 H are connected across 30 V, 50 Hz AC supply. 4

Find : (i) Inductive reactance

(ii) Impedance of a circuit at 50 Hz.

15. Analyze the behaviour of series RLC circuit for AC input. **10**

16. (a) List different types of switches and write its symbols. **5**

    (b) Explain the working of Relay. **5**

17. (a) Explain Conductor, Insulator and Semiconductors with examples. **6**

    (b) Explain V-I characteristics of PN junction diode. **4**

18. (a) List the types of transistor. Write their symbols and mention applications. **5**

    (b) With a neat circuit diagram explain the working of Op-amp inverting amplifier. **5**

19. (a) Explain U.P.S. with block diagram. **5**

    (b) Explain the maintenance of a battery. **5**