

1294

Code : 15EC01T

Register
Number

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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.

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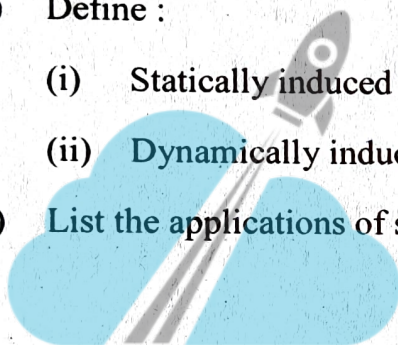
PART – A

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 $25\ \Omega$ & $30\ \Omega$ 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 $10\ \Omega$ and an inductance of $0.2\ \text{H}$ are connected across 30 V, 50 Hz AC supply. 4
- Find : (i) Inductive reactance
- (ii) Impedance of a circuit at 50 Hz.

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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

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