

1225**Code : 15EE01E**Register
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I/II Semester Diploma Examination, Nov./Dec. 2017**BASIC ELECTRICAL & ELECTRONICS ENGG.****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. State any 5 effects of Electric current with an example for each. **5**

2. State Ohm's law. Mention its limitations. **5**

3. Define :

- (i) Reluctance
(ii) Magneto motive force
Mention their units.

4. What is a Transformer ? Mention any 3 applications of transformer. **5**

5. State any 5 advantages of three phase supply over single phase supply. **5**

6. List out any 5 applications of DC motor. **5**

7. What is a fuse ? List the types of fuses. **5**

8. Distinguish between primary & secondary batteries. **5**

9. What is a diode ? List any 3 types of diode. **5**

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PART – B

10. (a) Distinguish between conductors and insulations. 4
- (b) Three resistors of $6\ \Omega$, $10\ \Omega$ and $20\ \Omega$ are connected in parallel across a voltage source of 100 V supply. Calculate 6
- (i) Effective resistance
- (ii) Total current in the circuit
- (iii) Current through each branch
11. (a) Define Electrical Power and Electrical Energy. Mention the meters used to measure them. 4
- (b) Two bulbs of $100\ \Omega$ each are connected in series across a 230 V supply. Find the power taken and energy consumed in the circuit, if the current flows for 4 hours through the lamp. 6
12. (a) Explain the construction of DC generator. 6
- (b) Distinguish between statically induced emf and dynamically induced emf. 4
13. (a) Draw a sine wave and mark the following : 6
- (i) Peak value
- (ii) One cycle
- (iii) Time period
- (iv) Positive instantaneous value
- (b) An alternating current i is given by $i = 141.4 \sin 314t$. Find : 4
- (i) Frequency
- (ii) Time period
14. (a) Explain the construction of an A.C. generator. 5
- (b) An AC circuit consists of $30\ \Omega$ resistance and an inductive reactance of $19\ \Omega$ connected in series across 200 V, 50 Hz supply. Find : 5
- (i) Impedance
- (ii) Current
- (iii) Power factor

15. (a) What is FHP motor ? List any 3 types of FHP motor. 5
(b) State the applications of single phase AC motor. 5
16. (a) List different types of motor enclosures. 5
(b) State the advantages of 3- ϕ motor over 1- ϕ motors. 5
17. (a) Explain the necessity of protective devices. List any 3 types of protective devices. 6
(b) State any 4 general electrical safety precautions. 4
18. (a) Explain P type and N type semi-conductors. 4
(b) With a neat circuit diagram and wave forms explain the working of half wave rectifier. 6
19. (a) Draw the logic symbol and write the truth table for following gates : 6
(i) NOT
(ii) OR
(iii) NAND
(b) What is a BJT ? List the types. 4

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