504 Register No.:

April 2019

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART – A and PART – B

(2) Answer division (a) or division (b) of each question in PART – C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]

PART – A

1. Define primary cell.
2. Write the expression for emf equation of transformer.
3. State any four applications of stepper motor.
4. Draw the circuit diagram and waveforms of half wave rectifier.
5. Define ASCII code and BCD code.
6. Define comparator.
7. Define race condition.
8. What are the various methods of battery charging?

PART – B

9. Write the advantages of AC over DC.
10. State the need for UPS.
11. Define the voltage ratio of a transformer.
12. Draw and explain the illumination characteristics of LDR.
13. With the diagram explain capacitor filter.
14. Describe parity generator with a diagram.
15. Describe modulo 5 counter.
16. State the applications of auto transformer.

[Turn over.....

PART – C

17. (a) (i) Explain: (1)Form factor (2)Peak factor
(ii) Define phase angle and phase difference.

(Or)

(b) Explain with block diagram the working of off-line UPS.

18. (a) (i) Write notes on core type transformer with suitable diagram.
(ii) Explain the construction and working of stepper motor.

(Or)

(b) (i) Explain the operation of AC servo motor.
(ii) State the need and types of fuses.

19. (a) With the diagram, explain the forward and reverse characteristics of PN junction diode.

(Or)

(b) (i) Explain the working principle of PNP transistor.
(ii) Draw and explain the input and the output characteristics of CE configuration.

20. (a) Construct AND, OR, NOT, NAND and EXOR logic gates by using only NOR gates.

(Or)

(b) (i) Explain rolling of a Karnaugh map.
(ii) Explain the working of decoder circuit with suitable sketches.

21. (a) (i) Explain the operation of T flip flop with a neat diagram.
(ii) With the logic diagram, explain the operation of serial in – serial out shift register.

(Or)

(b) Explain the operation of a 4 bit ripple up counter with the logic diagram, waveforms and truth table.
