637

October 2017

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 peak value and average value.
2. What is *off-line* UPS?
3. Define the current ratio of a transformer.
4. State the need of fuses.
5. What is depletion region?
6. Convert the decimal number 85_{10} into binary and hexadecimal numbers.
7. What is meant by toggling in flip-flops?
8. What are the two types of transistors? Draw their symbols.

PART – B

9. What are the differences between AC and DC?
10. Mention the applications of stepper motor.
11. Write down any three differences between autotransformer and two winding transformer.
12. Define Zener breakdown.
13. Explain parity bit and its use.
14. Define comparator. Draw the block diagram of two bit comparator.
15. Distinguish between asynchronous and synchronous counters.
16. Draw the circuit diagram of a fullwave rectifier.

PART – C

17. (a) Explain the constructional details of lead acid battery.

(Or)

(b) Draw the block diagram of *on-line* UPS. Explain each block.

18. (a) (i) Define: Step-up transformer, Step-down transformer.
(ii) Explain about auto transformer with neat sketch.

(Or)

(b) Explain the principle of operation of servo motors.

19. (a) Explain the input and output characteristics of a transistor in CE configuration.

(Or)

(b) Explain the operation, construction and characteristics of LED.

20. (a) (i) Draw the symbols and the truth tables of any three logic gates.
(ii) Explain the working of encoder with a diagram.

(Or)

(b) Explain with diagram the working of half adder and full adder.

21. (a) Explain the operation of JK master slave flip-flop.

(Or)

(b) Draw the circuit diagram of four bit asynchronous counter and explain.
