Register No.:

421

April 2018

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 PN junction diode.
2. Draw the circuit diagram for transistor as a switch.
3. Classify the amplifiers based on configurations and Q point.
4. What are the two conditions for Barkhausen criterion ?
5. Draw the logic symbol for two input AND gate and OR gate.
6. List out the interrupts available in 8051.
7. Draw the mode 1 input configuration signal diagram.
8. Draw the logic symbol for two input XOR gate and its truth table.

PART – B

9. Draw the circuit diagram for CC and CE configuration.
10. Draw the drain characteristics for an n-channel FET.
11. Draw the circuit diagram of transistorised RC phase shift oscillator.
12. Define colpitts oscillator.
13. Draw the logic diagram of two input NAND and NOR gate and its truth table.
14. Explain the function of ALU.
15. Define read and write control logic of 8255.
16. Convert the following (i)$(15)_{10} = (?)_2$ (ii)$(0110)_2 = (?)_{10}$

[Turn over.....

PART – C

17. (a) Explain the VI characteristics of FET in detail.

(Or)

(b) Explain in detail about how transistor act as switch.

18. (a) Explain the operation of Hartley oscillator in detail.

(Or)

(b) Explain how an Op-Amp is used as comparator and buffer in detail.

19. (a) Draw the logic diagram of full adder and explain in detail.

(Or)

(b) Explain in detail about Mod n counter.

20. (a) Draw the block diagram of 8051 microcontroller and explain.

(Or)

(b) Explain the various addressing modes of 8051 in detail.

21. (a) Explain the various modes of operation of 8255 IC in detail.

(Or)

(b) Explain sensor interfacing with 8051 in detail.
