

**718****October 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 P type semiconductor.
2. Draw the symbol of NPN and PNP transistor.
3. Define the condition for oscillation.
4. Mention any two applications of Op-Amp.
5. Name the basic logic gates.
6. What is interrupt?
7. What is RAM?
8. Define PN junction diode.

PART – B

9. What are the applications of PN junction diode?
10. Draw differentiator circuit and derive its output.
11. Define counter. What are its types?
12. What is half adder? Draw the circuit diagram of half adder.
13. What are the functions of program counter?
14. What are the types of addressing modes?
15. List out the modes of operation of 8255.
16. Explain the logic diagram of 2 input EXOR gate with truth table.

[Turn over.....

PART - C

17. (a) With neat diagram, explain the operation of PN junction diode under forward and reverse bias.

(Or)

- (b) Explain the operation of transistor as amplifier with neat diagram.

18. (a) Explain the operation of RC coupled amplifier with necessary diagram.

(Or)

- (b) Explain the operation of crystal oscillator with a diagram.

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

(Or)

- (b) Explain in detail about the operation of 4 bit asynchronous 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) Draw the block diagram of IC 8255 and explain in detail.

(Or)

- (b) Explain in detail about the interfacing of 8051 with 8255.

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