THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2019

ELECTRONICS

Time : 3 Hours]   [Max. Marks: 80

All answers should be written in the same answer book.

Part A – (Marks: 10 × 2 = 20)

Answer any ten of the following.

1. Mention the applications of LED.

2. Draw the output charateristics of photo transistor.

3. Find the binary equivalent of the decimal fraction 0.375.

4. Find using 2's complements method $1111_{(2)} - 0101_{(2)}$

5. Draw logic circuit for $Y = (A + \overline{B}). (A + B)$ using basic gates.

6. Prove that $xy + xyz + xy\overline{z} + \overline{x}yz = y(x + z)$ using Boolean algebra.

7. What is overlapping in K-map? Give example.

8. Define Rise time and fall time in pulse.

9. Draw logic circuit for half adder and write its truth table.

10. What is a demultiplexer? How many select lines are required in 1:4 demultiplexer?

11. What is flip-flop?

12. What is a ring counter?

Part B – (Marks: 6 × 5 = 30)

Answer any six of the following.

13. Explain the construction and working of photo diode.

14. Discuss the conversion of decimal to binary and vice-versa with examples.

15. Explain Binary to gray code conversion using X-OR gates.

16. Simplify $F(A,B,C,D) = \Sigma m (5,7,8,12) + d (9,10,11,13,14,15)$ using k-map and draw the circuit diagram for simplified expression.

17. What is a priority encoder? Explain decimal to BCD priority encoder.

18. With a neat circuit diagram, explain R-2R ladder, D/A Converter.

19. Explain JK flip-flop with suitable logic circuit.

20. With neat diagram, explain the working of 3-bit ripple counter and sketch timing diagram.

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Part C – (Marks: 3 × 10 = 30)

Answer any **three** *of the following.*

21. Describe the construction, working and characteristics of LDR and mention its applications.

22. With suitable examples explain 1's and 2's complements method of binary addition.

23. Why NAND and NOR gates are called universal gates? Explain universal property of NOR Ti gate.

24. Design and explain half adder & full adder circuits.

25. What is shift register? Explain serial-in parallel-out register.   1.

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