R-19

Code: 5305E1/R

Faculty of Science

B.Sc(Electronics)III-Year, CBCS–V Semester Regular Examinations –Jan,2023

PAPER: Digital Electronics

Time: 3 Hours Max Marks: 80

Section-A

I. Answer any *eight* of the following questions (8x4=32 Marks)

1. Convert the following decimal numbers to hexadecimal
   a) 375 b)27.125
2. State and explain the two forms of DeMorgan's laws.
3. Briefly discuss parallel adder.
4. Simplify Y=∑(2,3,5,6,13,15)
5. Explain two input multiplexer.
6. What is don't care condition explain with truth table.
7. Explain Serial-in Parallel-out shift register.
8. Briefly explain Propagation delay and Race-around condition.
9. Briefly explain Ring Counter.
10. What is an instruction cycle? Draw the timing diagram of fetch cycle.
11. Explain about address space partitioning.
12. Discuss Branch control operations and stack of 8085 microprocessor.

Section-B

II. Answer the following questions (4x12=48 Marks)

13.(a) What is an Octal number system? How to convert an Octal number into a Binary and a Decimal number and Vice-Versa and explain with suitable examples.

(OR)

(b) Draw the CMOS logic circuit diagram and explain its operation. Draw CMOS NAND and NOR diagrams.

14.(a) What is a Karnaugh map? Explain how to construct a 3-variable map and solve it with an example.

(OR)

(b) What is an Binary-to-Octal Decoder? Explain its working with the help of truth table and circuit.

15.(a) Explain the working of Clocked RS Flip-flop with its logical diagram and truth table.

(OR)

(b) Draw the internal block diagram of 7490 IC and explain its operation as a decade counter.

16.(a) Discuss the architecture of 8085 microprocessor and explain each block.

(OR)

(b) Explain logical and data transfer operations in 8085 microprocessor with suitable examples.

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R-19

Code: 5305E1/BL

Faculty of Science

B.Sc (Electronics) III-Year, CBCS –V Semester

Backlog Examinations –June/July, 2022

PAPER: Digital Electronics

Time: 3 Hours Max Marks: 80

Section-A

I. Answer any *eight* of the following (8x4=32 Marks)

1. Draw the logic circuit described by Y=$\overline{A}$ BC+A $\overline{B}$ C+AB$\overline{C}$ +$\overline{A}$ B$\overline{C}$.
2. Write a note on Noise immunity.
3. Write a brief note on CMOS Non-Inverting buffer.
4. Simplify Y=∑(0,1,3,4,5,6)
5. Explain POS with suitable example.
6. Write the Boolean expression for the output of a 8-3 encoder.
7. Explain Serial-in Serial-out shift register.
8. What is the importance of PRESET & CLEAR inputs in a Flip-flop.
9. Write a short note on Up/Down Counter.
10. Explain about address space partitioning.
11. Discuss logical operations in 8085 microprocessor.
12. Write a short note on Stack and Subroutines.

Section-B

II. Answer the following questions (4x12=48 Marks)

13.(a) Write an essay on Hexadecimal number systems and conversion of Hex numbers into Binary ,Decimal and Octal with suitable examples.

(OR)

(b) Explain half adder and full adder with suitable diagrams and truth tables.

14.(a) What is a Karnaugh map? Explain how to construct a 4-variable map and solve it with an example.

(OR)

(b) What is a multiplexer? Explain the working of a 4-to-1 mux with the help of a circuit diagram and truth a table.

15.(a) Explain the working of JK Flip-flop with its logical diagram and truth table.

(OR)

(b) What is Johnson Counter? Explain 4-bit Johnson ring counter ,truth table and waveforms.

16.(a) Explain the Architecture of 8085 microprocessor.

(OR)

(b)With examples explain different addressing modes of 8085 and the different types of instructions.

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Code:5305E1/19/BL

Faculty of science

B.Sc (Electronics) III-Year, CBSE –V Semester Backlog Examinations – June, 2023

PAPER: Digital Electronics

Section A

I. Answer any *eight* of the following (8x4=32 Marks)

1. Convert the following to the corresponding bases i) (9BCD)16 to octal ii) Convert 126 octal to decimal.
2. Find the two's complement of **110100.**
3. Give the comparison between TTL and CMOS families.
4. Simplify the following using De Morgan's theorem [((AB)'C)'' D]'.
5. List the applications of multiplexer.
6. Draw the logic diagram of a 4 line to 1 line multiplexer.
7. How is NAND gate used as an inverter?
8. What are the different types of flip-flop?
9. What is a master-slave flip-flop?
10. What is cache memory?
11. What are the different types of flags in 8085 microprocessor?
12. Difference between memory mapped I/O and peripheral I/O?

Section B

II. Answer any *four* of the following (4x12=48 Marks)

13. (a) Design and implement a Full Adder circuit.

Or

(b)Discuss universal gates. Implement basic gates using NOR gates only.

14. (a) Simplify the Boolean function using K-map.

F(w, x , y, z) = Σ(0, 1, 2, 4, 5, 6, 8, 9,12, 13, 14).

Or

(b) Design a 3:8 decoder using basic gates.

15. (a) Draw the circuit diagram of a master-slave J-K flip-flop and explain its peration with the help of a truth-table. How is it different from edge triggering? Explain.

Or

(b) Draw and explain the working of Johnson counter with truth table.

16. (a) Draw a neat sketch and explain of architecture of 8085 microprocessor?

Or

(b) Explain the instruction set of 8085 microprocessor.

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