15.Question Bank(Unit-wise)

Long Questions

UNIT -1

1. What are digital logic gates and Different types of logic gates with truth table, logic circuit diagram?
2. Simplify the Expression using K-map $F(X,Y,Z)=\sum m(1,2,4,7)$
3. What is Digital System? And explain about the characteristics of digital System?
4. Simplified function in sum-of-minterms form$(A,B,C,D)=\sum(0,6,8,13,14)+d\sum(2,4,10)$
5. Write a short note on Gray codes, Excess-3 codes.
6. Explain about floating –point representation with an example.
7. Explain about Signed binary numbers detailed.
8. Design a 4-bit Gray Code to Binary converter?
9. Explain about POS with an example?
10. Explain about NAND-NOR Implementation?

UNIT -2

1. Construct the logic circuit of a full adder and give its truth table
2. Explain Analysis& design procedure of Combinational Circuit? Give Example.
3. Comparisons between combinational and sequential logic circuits.
4. Design and truth table of 3×8 decoder
5. Explain about 4:1 and 8:1 MUX with neat sketches?
6. Construct the logic circuit of a Half-adder and give its truth table.
7. Explain the working of the following i) J-K flip-flop ii) S- R flip-flop iii) D flip-flop.
8. Explain about Shift Registers?
9. Explain the working of the following i) J-K Latch ii) S- R Latch iii) D Latch
10. Explain about Ring counter Johnson Counter?
11. Explain about ripple counter?
12. Explain about Binary Adder-Subtractor?

UNIT-3

1. With a neat sketch, explain in detail about the functional units of computers.
2. Discuss about Instruction Codes.
3. Explain about Basic Computer Register?
4. What are the different types of computer Instruction Codes?
5. Explain about Timing and Control?
6. Explain about micro program Example?
7. With a neat sketch, give the internal *architecture* of Intel *8086 microprocessor*.
8. Discuss about different types of addressing modes.
9. Explain various types of computer registers with block diagrams
10. What is Instruction Cycle? Briefly explain with state diagram.
11. Explain various instruction formats and write various instruction formats for X= (A+B)*(C+D).
12. Explain different Types of Assembler Directives?

UNIT-4

1. Construct the block diagram, flow chart to show the hardware for signed magnitude addition and subtraction.

2. Explain in detail about booth multiplication algorithm with an example?
3. Draw and explain a flowchart of the hardware multiply algorithm.
4. Illustrate the binary division process through a numerical example.
5. With the help of a block diagram. Explain DMA transfer in detail.
6. Explain the mechanism of Asynchronous data transfer
7. Discuss about Daisy-Chaining priority Interrupt
8. Explain programmed I/O in detail.
9. Explain input-output processor in detail.

UNIT-5

1. Illustrate memory hierarchy in a computer system using a Block diagram?
2. Explain in detail various mapping techniques in cache memory.
3. How is the Associative memory suited to do parallel searches by data association. Explain with the help of a block diagram
4. Discuss about Daisy-Chaining priority Interrupt
5. Explain about parallel processing?
6. Explain in detail about arithmetic Pipeline and Instruction Pipeline?

Short Questions

1. Convert octal number 574 to binary and decimal-
2. Define canonical and standard forms by giving an example.
3. Construct OR gate using NAND gates only.
4. What are minterms and maxterms? Give examples for each
5. Why NAND and NOR gates are universal gates?
6. Convert following hexadecimal to decimal numbers: a) $F28_{16}$ b) $BC2_{16}$
7. State Demorgans Theorem.
8. What is Boolean function?
9. Define K-map? Name its advantages and disadvantages?
10. Write short notes on binary number systems?
11. Discuss 1's and 2's complement methods of subtraction?
12. Convert 0.640625 decimal numbers to its octal equivalent.
13. Define (r -1)'s complement and r's complement?
14. Comparison between SOP and POS.
15. What is meant by don't care condition?
16. Explain about Universal gates?
17. What is meant by parity bit?
18. Explain about Diminished Radix complement
19. Convert (10110)2 to Gray code and (110101)G to binary number
20. (2469)10 in to BCD.
21. What are basic properties of Boolean algebra?
22. What are the classifications of sequential circuits?
23. Difference between latch and flip-flop
24. Write the differences between synchronous and asynchronous counters?
25. Differences between Encoder and Decoder?

26. Differences between Multiplexer&De-Multiplexer?
27. Explain Applications of Multiplexer and Demultiplexer?
28. Define subtractor?
29. Define priority encoder?
30. What is assembly level programming?
31. Differences between Hardwired control unit Micro Prommed control unit
32. What is the maximum memory size that can be addressed by 8086?
33. Construct Hardware implementation of multiplication algorithm?
34. List the advantages of Booth's algorithm.
35. What is an I/O Interface?
36. What is DMA and Explain?
37. Define DMA controller
38. Differences between Static RAM and Dynamic RAM
39. Differences between RAM and ROM
40. What is Cache memory?
1. What is the use of Associative memory?
2. Define pipelining?
3. What are the different types of ROM?
4. Briefly explain Primary storage and secondary storage.
5. Define Hit and Miss?