1. Explain the levels of the programming language.
2. Explain assembly language and compiling programming languages process with suitable examples.
3. Explain different types of addressing modes with examples.
4. What do you mean by instruction set in the processor ? How are they different from micro instructions? Explain the machine cycles associated with the instruction cycle with the example.
5. Write about ISA. What are the factors to be considered while designing ISA? Explain.
6. Explain the basic computer organization with a block diagram.
7. Explain the linear chip organization with an example.
8. what do you understand by high order into leaving and low order interleaving? Explain with an example.
9. Design two dimensional chip organization of 16 X 2 ROM chips.
10. Construct 8 X 4 memory subsystems using 8 X 2 ROM chips with required control signals.
11. Design and 8 into 4 memory subsystems at address 80H constructed using 8 X 2 ROM.
12. A computer is connected with multiple input and output devices to the CPU through I/O processor via a common bus. Explain the memory mapped I/O and Isolated mapped I/O.
13. Write about IO system organization and interfacing for input device and output device with necessary diagram.
14. Generate a load logic for an output device at CFH. Assume that the system is being operated in isolated mode.
15. There is an input device at address 00 H and an output device at 20 H, illustrate the design with necessary logic.
16. A computer has a CPU with an 8 bit address bus and 16 bit data bus. The computer uses isolated IO. It has 64 into 16 ROM at 00H constructed using two 32 X 16 ROM chips. It also has 32 X 16 of RAM at C0H. The system has an input device at 15 H and the output device at 75H. Show the design for the required system including all necessary logic.
17. A computer system has an 8 bit data bus and 8 bit address bus. The system operates in isolated IO mode. It has 64 byte of ROM at 00H, constructed using two 32 byte ROM. It also has RAM of 128 byte. The RAM is constructed using two 128 X 4 RAM chips at address 80H. The system also has an I/O device at 7EH. SHow the necessary design for the system.
18. There is a simple computer with a 16 bit address bus and 8 bit data bus. There is 8K of ROM immediately followed by 8K of RAM. There is an I/O device at 40H. The system uses memory mapped I/O. Show the design of the system.
19. A computer system with an 8 bit address bus and data bus using isolated I/O. It has 16X8 ROM starting at the address 00H constructed using 8X8 chips, 64X8 of RAm starting at address 80H constructed using 64X4 chips. There is an I/O device at 40H. Show the design for the system.
20. A computer has a CPU with 8 bit address and 16 bit data bus in isolated I/O. It has 64 bytes ROM chips. It has 32 bytes of RAM at C0H. The system has an I/O device at 85H. Show the design including the logic.

21. A computer has a CPU with an 8 bit address bus and 8 bit data bus with memory mapped I/O. It has 32 byte of ROM at 10H, constructed using two 16 byte ROM chips. It also has 32 byte RAM at 80H. The system has an input device at F7H and output device at F8H. Show the necessary design for the system including required logic.
22. A computer has a CPU of 16 bit data bus and 8 bit address bus in isolated I/O. It has 64X16 of ROM at 00H, constructed using two 32 32X16 ROM chips. It also has a 32X16 of RAM at C0H. The system has an Input device at 17H and an output device at B5H. Show the design including necessary logic.
23. Design an 8X4 ROM chip using 4X4 ROM chips. Illustrate using low level interleaving.
24. Design 32 byte RAM using four 16X4 ROM chips.
25. What do you mean by RTL? In how many ways RTL are implemented explain with an example.
26. List out the arithmetic and logical microoperations and illustrate the implementation of each of them.
27. Draw the state diagram of the modulo 6 counter and implement it using registers.
28. Draw the state diagram of the modulo 6 counter and implement it using a 3 bit counter.
29. Explain different types of shift micro operations with examples.
30. Perform eight different shift operations on X=110101010110
31. Repeat the above on 10101100.
32. Write about VHDL code and explain different sections of VHDL with its advantages and disadvantages.
33. Write down VHDL code for the following:
    a. AND gate
    b. OR gate
    c. NOT gate
    d. NAND gate
    e. NOR gate
    f. XOR gate
    g. XNOR gate
    h. Half adder
    i. Full adder
    j. Half subtractor
    k. Full subtractor
    l. 4X1 multiplexer
    m. 1X4 demultiplexer
    n. 8X3 encoder
    o. 3X8 decoder
    p. SR flip flop
    q. JK flip flop
    r. T flip flop
    s. D flip flop
34. Write down the VHDL code for Modulo 6 counter using a low level of abstraction.
35. Write a VHDL code for the following combinational circuits.
    a. F=AB + A'B'

b. $F(X,Y,Z)=\sum(1,3,4,6)$
c. $F(X,Y,Z)=\sum(1,3,6,7)$
d. $F(X,Y,Z)=\Pi(0,2,5,7)$