1. What do you mean by computer Architecture and Computer Organization?

2. What is Von-Neumann architecture? Briefly explain the basic building blocks of the computer.

3. Define Logical gate? List and define basic gates require to design logical circuit. Describe Universal gates in brief.

4. Given the Boolean function

$$F = xy'z+x'y'z+xyz$$

   List the truth table for the above function and draw the logical circuit.

5. Convert the hexadecimal number F3AC72 to binary and octal.

6. Convert the following numbers into Binary

   i. $(4310)_5$
   ii. $(198)_{10}$

   iii. $(246)_8$

7. Convert the following into decimal

   i. $(10110.0101)_2$

   ii. $(BABA)_{16}$

   iii. $(26.24)_8$

8. The 8-bit registers AR, BR, CR and DR initially have the following values:

   AR=11110010; BR=11111111; CR=10111001; DR=11101010

   Determine the 8-bit values in each register after the execution of the following sequence of microoperations

AR←AR+BR	Add BR to AR
CR←CR∧DR	AND DR to CR
BR←BR+1	increment BR
AR←AR-CR	Subtract CR from AR

9. The solution of the quadratic equation $x^2-11x+22=0$ are $x=3$ & $x=6$. What is the base/radix of the number?

10. Add these number without converting them into Decimal
    i.   Binary numbers 1011 and 101

ii.   Hexadecimal numbers 2E and 34

11. Complete the Following

Decimal	Binary	Octal	Hexadecimal
33			
	1101011.11		
		3.07	
			C82

12. Convert:

a. $(10110.0101)_2 \rightarrow ($ $)_{10}$

b. $(16.5)_{16} \rightarrow (?)_{10}$

c. $(26.24)_{16} \rightarrow (?)_{10}$

13. Perform the arithmetic operations $(-70) + (+80)$ and $(-70) + (-80)$ in binary using signed-2's complement representation for negative numbers.

14. Represent 100.125 in IEEE 754 single and double precision hexadecimal notation.

15. Differentiate
    i.   Multiplexer and Demultiplexer
    ii.   Binary adder and CLA
    iii.   Memory read and Memory write
    iv.   Full Adder and Full Subtractor

16. What is the need of stack organization? Explain PUSH and POP operations. Convert the following arithmetic expression into reverse polish notation (RPN) and show the stack operations for evaluating it.

    7*5+(5+6)+(4*6+2)