C – Programming

1. Write a C code to convert a number from decimal to binary.
2. Write a C code to convert a number from binary to decimal.
3. Write a C code to calculate LCM of two numbers.
4. Write a C code to print an element of 2D array.
5. How to access structure elements using pointer.
6. Write a C code to find 1's compliment of a number.
7. What is the difference between static and local variables?
8. Write a C code for swapping of 2 numbers with and without a temp variable.
9. What is casting?
10. Explain about Null pointer.
11. What is the difference between call by value and call by reference?
12. Write a C code reverse the given numbers.
13. Write a C program to find whether number is signed or unsigned.
14. Explain about accessing arrays using pointers.
15. Explain about accessing structure using pointers.
16. Explain about functions and types of functions in C programming.

General

17. Difference between Block RAM and Distributed RAM.
18. What is Integrated Logic Analyzer (ILA)?
19. Explain about Chip scope software tool?
20. Explain about Xilinx HLS tools.
21. Explain about AXI-4 and AXI-4 Lite.
22. What is Clock domain crossing?
23. What is FIFO? How does it work? Where is it used in FPGA?
24. Discuss about the timing diagram of D-FF.
25. Explain briefly about Router protocol
26. Explain about AXI4 protocol.
27. Write an RTL code for SIPO shift register.
28. Discuss about positive edge detection circuit using timing diagram.
29. What is the difference between AXI3 and AXI4?
30. What is the difference between RAM and FIFO?
31. What are the different ports in a FIFO?
32. What is the difference Between ASIC and FPGA?

BASIC ELECTRONICS

1. What is the total capacitance when two capacitors are connected in series?
2. What is the Input impedance of an ideal amplifier?
3. What are the Characteristics of an ideal amplifier?
4. What is the input impedance of a common source amplifier?
5. What are the Ideal characteristics of an op-amp?
6. What will be the output of a low pass filter circuit with 1 kHz cut-off frequency, where the input is a 5 kHz pulse with a transition from 0 to 1?
7. An op-amp with open loop gain of 10 is configured in unity feedback configuration. At the non-inverting terminal 1 volt is applied. What is the output voltage of op-amp?
8. What is resultant inductance when two inductors are connected in series?
9. Give an example of constant voltage source.

APTITUDE

1. A person sold 40% of total apples, now he has 420 apples left. What would be the total number of apples he had?
2. A Person's speed is 15 Km/hr and wind is 2.5 km/hr. if person goes towards the air what will be his final speed?
3. Find the length of the train travelling with a speed of 60 km/hr ,which pass through a tree for 18 secs.
4. Consider 5 children in a family with 3 years difference between each other, and their total age being 50. What is the age of the youngest child?

Basic Electronics and C Programming

1. What is a cache memory?
2. What is TLB?
3. What is the use of page tables?
4. What is the difference between virtual address and physical address?
5. How to map a memory in cache with the help of address?
6. Write a C program to find prime numbers.
7. Write a C program to find the sum (n) of numbers a and b. where a and b should be a prime number.
8. Write a C program to find the number of squares in an NxN chess board.
9. What is an interrupt?
10. What is the difference maskable and non-maskable interrupt?
11. Design circuit for pulse detection.
12. Write a C program for bubble sort.
13. Explain about ASIC design flow.
14. Write a C code to generate a palindrome for a string.
15. Write a C code to generate a one-line expression for generating powers of two.
16. Write a C code to print reverse of a number.
17. Explain about cross section of PMOS and NMOS.
18. Explain about VI characteristics of CMOS inverter.
19. Explain Id vs Vds characteristics of NMOS.
20. Explain Id vs Vgs characteristics of NMOS.
21. Draw the Integrator circuit using resistor and capacitor.
22. Explain the response of the integrator for square, pulse and sinusoidal waveforms.
23. Explain the functionality of integrator as a low pass filter.
24. What are the main characteristics of CMOS?
25. Explain the Ideal current equations of NMOS and PMOS.
26. Explain about FET transfer characteristics.
27. What is the difference between KVL AND KCL?
28. What is voltage divider and current divider rule?
29. What is the major difference between SRAM ad DRAM?

LOGICAL

1. Find the next number 8,6,9,23, 87, …
2. You have two ropes and a lighter. Each rope has the following property: If you light one end of the rope, it will take one hour to burn to the other end. They don't necessarily burn at a uniform rate. How can you measure a period of 45 minutes?
3. You have 100 doors in a row that are all initially closed. you make 100 passes by the doors starting with the first door every time. the first time through you visit every door and toggle the door (if the door is closed, you open it, if its open, you close it). the second time you only visit every 2nd door (door #2, #4, #6). the third time, every 3rd door (door #3, #6, #9), etc., until you only visit the 100th door.
4. You have 3 jars that are all mislabeled. One jar contains Apple, another contains Oranges and the third jar contains a mixture of both Apple and Oranges. You are allowed to pick as many fruits as you want from each jar to fix the labels on the jars. What is the minimum number of fruits that you have to pick and from which jars to correctly label them?
5. If COVALENT is coded as BWPBUOFM, what will ELEPHANT be coded as?
6. If there are two gatekeepers one for hell and other for heaven, one of them always lies and other always tells the truth. What question will you ask to both of the gatekeepers in order to determine the gate of heaven?
7. There are 4 bottles of wine, one is poisoned. How many minimum no. of rats will you need to find out the poisonous bottle? A rat drinks any number of bottles at a time?
8. It takes 5 minutes for a person to share a secret with 2 people. How much time is needed to share the secret to 768 people?
9. 4 people are playing a game. One person is telling the truth, other 3 are lying.

   Jack: “Britney did it”
   Britney: “Jack did it”
   Selena: “Britney is not lying”
   Martha: “Selena is telling the truth”
   Find out who’s telling the truth.

General

1. For a sequential circuit. Calculate Slack, hold time violations explanation.
2. What is FPGA? How you are writing the pin constraints for the respective ports. How you are dumping the file.
3. grep "Synopsys" filename.txt
4. Three inverters are cascaded, o/p of the last inverter is fed back to the first inverter, each inverter has the propagation delay of 1ns.what is the maximum output frequency.
5. There are three ants on three corners of an equilateral triangle. What is the probability that any two ants collide with each other?
6. How to run Perl script
7. Use of chop () in Perl
8. Command use to give is name, version and CPU type in Perl
9. Explain the complete architecture of microprocessor or microcontroller ?
10. Explain the data types with respect to C ?
11. Write a C program to find the palindrome ?
12. Write a C program to swap two variables by using call by reference ?
13. How to control the speed of the DC motor ?
14. What is the use CRO and voltmeter ?
15. Define the OS, Compiler, Assembly programs ?
16. Problems on op amp ?
17. Problems on calculations of total resistance in the circuit (resistors in parallel and serial)?
18. Problems on RLC circuit ?

Basic Electronics

1. Explain the characteristics of CMOS.
2. What is a MOSFET? Give the drain current equation of MOSFET.
3. If a square pulse is given to a capacitor and resistor, what will be the output?
4. Explain about the different regions of CMOS inverter.
5. What are the methods to improve the speed of CMOS circuits?
6. What causes delay in CMOS circuits? Explain the ways to reduce it.
7. Explain the responses of RC circuit for square wave and sine wave.
8. Explain the difference between enhancement and depletion type MOSFET.
9. Explain the Ig vs Vds characteristics of MOSFET.
10. What is the major difference between RISC & CISC processor?

Basic Electronics

1) What are the basic electronic components?
2) What is a diode? Explain and draw the VI characteristics of a Diode.
3) What are the configurations of Transistor & draw the diagrams.
4) What is the i/p impedance and o/p impedance of Common emitter, common base, common collector configuration ?
5) What are different types of MOSFETS?
6) Draw the structure of n-channel MOSFET and explain?
7) What is Kirchoff's current law,Kirchoff's voltage law ?
8) What are the different types of Filters?
9) Draw the diagram of Low pass filter and characteristics?