**Microprocessor and Microcontroller**

1. What is the use of control lines in microprocessor?
2. A microprocessor is capable of addressing 512KB of memory. What is the width of it’s address bus?
3. What is the use of 8086 microprocessor XCHG instruction?
4. What is the use of control lines in microprocessor?
5. What is the use of 8086 microprocessor REP instruction?
6. Why is a microprocessor data bus bidirectional?
7. If a microprocessor has a 16 bit address bus ,what is the maximum amount of memory it can address?
8. What are the 4 distinct types of memory in 8051?
9. Write an assembly language program to read a character from the keyboard.
10. If a microprocessor has a 64 bit address bus ,what is the maximum amount of memory it can address?
11. How many IO ports are present in 8086?
12. What is static memory allocation and dynamic memory allocation?
13. State the number and type of registers in 8086.
14. Write an assembly language program to display string “SMARTDV” for 8086.
15. What is the use of 8086 microprocessor JNG instruction?
16. Write an assembly language program to find factorial of number for 8086.

**Digital Electronics**

1. Convert decimal 111 to hexadecimal
2. Simplify F(A,B,C,D)=S(0,1,4,5,7,8,9,12,13) using K-Map
3. Draw the truth table of 2 input nand gate.
4. Build a 4:1 mux using only 2:1 mux.
5. Design full adder using only nand gates.
6. Convert decimal 35 to binary.
7. Create a 2 input X OR gate using 2 input nand gate.
8. How can you convert a JK flipflop into a D flipflop?
9. Draw the truth table of 2 input EXNOR gate.
10. Convert hexadecimal CD to octal.
11. Create 2 input AND gate using 2 input NAND gate.
12. Draw the truth table for SR FF.
13. Create a 2 input NAND gate using 2 input NOR gate.

**Electronic devices**

1. Why is silicon diode preferred when knee voltage of germanium diode is less?
2. Which power amplifier is least efficient amplifier among all classes? Why?
3. What is the color code for a 4.7kΩ resistor with 5% tolerance?
4. Why crystal is a preferred clock source?
5. What is the difference between cb and ce configuration of npnbjt?
6. What is the beta value of bc548 transistor?
7. State Norton’s theorem.
8. What is the use of feedback amplifiers instead of conventional amplifiers?
9. What is the advantage of negative feedback in an amplifier?
10. Draw the symbols of triac and diac.
11. What is the difference between NMOS and PMOS?
12. What are the merits of full wave rectifier?
13. Why PMOS and NMOS are sized equally in a transmission gate?
14. Why do we use a diac for triggering a triac?
15. What is the fundamental difference between a MOSFET and BJT?Why in a CMOS inverter we connect PMOS near +VDD and NMOS near ground? What if we interchange them?
16. Could you measure voltage in series?
17. What is the maximum power transfer theorem?
18. What is the maximum value in the tolerance range of a resistor with a color code brown-brown?

**Digital communication**

1. Modulation techniques can help to overcome interference. Draw the graphs for the number 111111 for ASK, FSK, and PSK
2. If the baud rate is 400 for a QPSK signal, the bit rate is \_\_\_

a.100 b. 400 c. 800 d. 1600

1. Modulation techniques can help to overcome interference. Draw the graphs for the number 000000 for ASK, FSK, and PSK
2. What do you mean by ASK, FSK and PSK?
3. QAM is the combination of\_\_\_\_\_

a. ASK and FSK b. ASK and PSK c. PSK and FSK d. None of the above

1. Modulation techniques can help to overcome interference. Draw the graphs for the number 101010 for ASK, FSK, and PSK
2. The Characteristic impedance of a 20 meter length of transmission line is 52 ohm. If 10 meters is cut off, the impedance will be

a.13 ohm b. 26 ohm c. 39 ohm d. 52 ohm

1. What is the standing wave ratio?

**C program**

1. Is using exit() the same as using return? Give reason.
2. Write a C program to compare two strings without using the strcmp() function.
3. How can you increase the size of a statically allocated array?
4. Difference between pass by reference and pass by value?
5. Write a C program to reverse a string without using temporary array.
6. Can a program be compiled without main() function? Give reason.
7. What are the layers of a OSI reference model?
8. Why n++ executes faster than n+1?
9. What is a NULL pointer? Whether it is same as an uninitialized pointer?
10. Difference between = and == operator.
11. What is memory leak? Why it should be avoided?
12. What is the quickest sorting method to use? Give reason.
13. What is an infinite loop?Give an example.
14. Write a program to print a semicolon without using a semicolon anywhere in the code.

**Aptitude**

1. Here are some words translated from an artificial language:

Morpirquat means birdhouse

Beelmorpir means bluebird

Beelclak means bluebell

What word could mean ‘house guest’?

a.Morpirhunde b. beelmoki c. quathunde d. Clakqua

2. How many 3 digit positive integers exist that when divided by 7 leave a reminder of 5?

a.128 b. 142 c. 141 d. 129

3. Look at this series: XXIV,XX,\_,XII,VIII,…

What number should fill the blank?

a.XXII b. XIII c. XVI d. IV

4. 2 hours after a freight train leaves Delhi a passenger train leaves the same station travelling in the same direction at an average speed of 16kmph. After travelling 4 hours the passenger train overtakes the freight train.The average speed of the freight train was?

a.30 b. 40 c. 58 d. 60

5. Set A contains all the even numbers between 2 and 50 inclusive.Set B contains all the even numbers between 102 and 150 inclusives.What is the difference between the sum of elements of set B and sum of elements of set A.

6. Look at the series:0.15,0.3,\_,1.2,2.4

7. Here are some words translated from an artificial language:

jlkamofti means happy birthday

moftihoze means birthday party

mentogunn means goodness

What word could mean ‘happiness’?

a.jalkagunn b. mentohoze c. moftihoze d. Hozemento

8. If the ratio of the sum of the first 6 terms of a G.P to the sum of the first 3 terms of the G.P is 9, what is the common ratio of G.P?

a.3 b. 1/3 c. 2 D. 1/9

9. A man leaves office daily at 7 p.m. A driver with car comes from his home to pick him from office and ring back home. One day he gets free at 5:30 and instead of waiting for driver he starts walking towards home. In the way he meets the car and returns home on car. He reaches home 20 minutes earlier than usual. In how much time does the man reach home usually?

10. Look at the series: F2,\_,D8,C16,B32