

Class XI [Mid Term Examination]

**Syllabus:** Overview, Elementary Concepts, IO, Operators, If-else, Loops, Strings, Boolean, Computer Mgt and Operating systems.

**Question 1** [Python - Overview, Elementary Concepts, IO, Operators]

[10x1=10]

1. Differentiate between flowchart and an algorithm
2. What does the following statement will do: ('a' < 'b')
3. If a,b,c=4,5,6 and you write an expression like F=a+bc+ac, then what error it will produce
4. What is the purpose of type conversion?
5. Define block and indentation used in python
6. Define the line a=b=c=d=10
7. Define the term LVALUE and RVALUE used with reference to python.
8. What is the conditional expression? Give one example
9. Define the term operator precedence.
10. Write an if-else block to check whether a number assigned is positive or a negative.

**Question 2** [Python - Strings]

[5x1+1x5=10]

A)

1. Give output: var1 = 'Hello World!' print "Updated String :- ", var1[:6] + 'Python'	2. Give output: x="abcdE" print(x.lower())
3. Give output: b = "Hello, World!" print(b[2:4])	4. Give output: x="abcdE" print(x.islower())
5. Give output: a = "pineaPple" print(a.replace("p", "t"))	# Note: Give working, if needed

B)

Write a statement in python for the following string:

St="My City is the BEST"

- check if all the characters are alphabetic
- check if string ends with 'T'
- check if it contains a digit
- check if it contains a Title Words
- check if it contains a spaces

**Question 3** [Python - If-else, Loops]

[2+2+2+1+1+1+1=10]

1. A loop is to be repeated 30 times. Except a loop is to be terminated if value reaches 20

2. Write a loop to print first 10 multiple of n. (n is entered by the user).

3. Write a loop to print the following: 1 , 2<sup>2</sup> , 3 , 4<sup>4</sup> , 5 , 6<sup>6</sup> , 7 , 8<sup>8</sup>

4. Differentiate in between break and continue.

5. Give output:

```
a=0
for t in range(10):
    a=a+1
print(a)
```

6. What is the use of else with loop? Give example

7. Define the term infinite loop with the help of an example.

**Question 4** [Python – Outputs/Errors/Conversions]

[10x1=10]

1	<pre>for x in range(0,10):     if (x==5):         break print(x) # Give output</pre>	6	Convert (3) in for
2	<pre>for x in range(5) print(x,2**x) #Give output</pre>	7	Convert (2) in while
3	<pre>C=100 while C&lt;5:     print(C)     C=C+2 #Give output</pre>	8	<pre>va=input("") if va=='s':     print("Sunday") elif va=='m':     print("Monday") else:     print("No Day") #Give output if va="M"</pre>
4	<pre>for d in range(-8,-5):     print(d+1) #Give output</pre>	9	<pre>for x in range(-10,-100,-30):     print(x) #Give output</pre>
5	<pre>for c in range(1,10):     print(c)     if c==4     break # Rectify the code such that output should be 1,2,3</pre>	10	<pre>A=3 B=6 print(A,B) A=A+B B=A-B A=A-B print(A,B) # Give output</pre>

**Question 5** [Computer Mgt - Operating systems, Boolean]

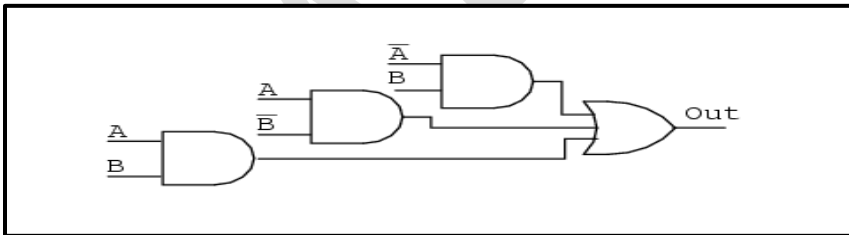
[10x1=10]

1. Write two characteristics of cloud computing.
2. What are libraries?
3. What is parallel computing?
4. What are utilities?
5. Give three input OR gate truth table
6. Give three input AND gate truth table
7. Give two forms of associative law.
8. Name two types of gates which have a single input and also generates a single output.
9. Define universal gates.
10. Define the term tautology.

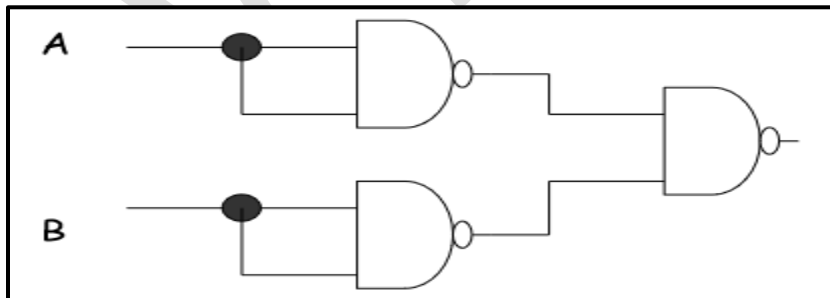
**Question 6** [Boolean]

[10x1=10]

1. Draw the circuit diagram of the following using basic gates:  $(x+y).(x+y').(x'+y)$
2. Draw the circuit diagram of the following using universal gates:  $(a+b')(b+c')$
3. Write the equivalent equation/ expression of the following circuit diagram:



4. Give the equivalent equation / expression of the following circuit diagram:



5. Algebraically prove that:  $x+x'y=x+y$
6. Algebraically prove that:  $(x+y)(x+z)=x+yz$

7. Prove by truth table...  $x+xy = x$
8. Verify using the truth table, if it can be:  $U(U'+V)=(U.V)$
9. Represent NOT using NOR gate/s
10. Define De Morgan's law

**Question 7** [[Python – Programs]

[4+3+3=10]

1. A prime number is a number which is having only two factors (a number with which it is divisible). You have to write a program to accept a number. Add two to it and now check whether a newly number generated is a prime number or not.  
Eg: If input is 9. After adding 2 it is now 11. Check whether 11 is a prime number or not.  
**OR**  
Accept a number ("n") and a choice ("ch") from the user:  
If ch is 1 then print all odd numbers from 1 till "n"  
If ch is 2 then print all even numbers from 1 till "n"  
The program should get executed like a menu driven program
  2. A Fibonacci series of numbers in which each number ( *Fibonacci number* ) is the sum of the two preceding numbers. You have to accept 'n' i.e. the limit till which a user can generate all Fibonacci numbers till that number.  
Eg: If user enters 8 then output will be: 0,1,1,2,3,5,8,13
  3. The product of an integer and all the integers below it is a factorial; e.g. factorial four ( *4!* ) is equal to 24. It may also be generated by multiplying all numbers from 1 till that number. You have to write a program to check if a number entered is positive or not. If it is positive then print the factorial of the number entered.  
Eg: If user enters 3... It is a positive number so output should be 6 ie  $1 \times 2 \times 3$  or  $3 \times 2 \times 1$
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