

JB Academy, Ayodhya
Half Yearly Examination 2023
Class XI-Computer Science

Time Allowed: 3 Hrs.

MM-70

Instructions: This question paper contains three sections A,B and C. Section A contains 19 objective questions of 1 marks each, section B contains 18 short type questions of 2 marks each and section C contains 5 descriptive type questions of 3 marks each .

Section-A

1. Which of the following is not valid symbol in octal number system?

- A. 2 B. 7 C. 8 D. 6

2. Hexa decimal form of the binary number $(1100011010)_2$ will be?

- A. 32A B. 31A C. 33B D. AB2

3. 2's complement of binary number 00010100 will be?

- A.11101011 B. 00010100 C. 11110110 D. 11101100

4. Which operator is used for integer division-

- A. % B. / C. // D. \\\

5. What is an interpreter?

- A. It does the conversion of the source code to machine code line by line.
- B. It does the conversion of the source code to machine code at one go.
- C. An interpreter is the representation of the system being design.
- D. None of the above.

6. IDE stands for?

- A. Internal development environment.
- B. Integrated development environment.
- C. Integrated development and learning environment.
- D. Both A and C

7. Python's ____ mode is useful for creating programs then run the program.

- A. Python's shell B. Interactive mode
- C. Script mode C.Both options A and B

8. Who is father of Python programming language?

- A. Guido Van Raskin
- B. Guido Van Rossum
- C. Guido Van Rasam
- D. Glado Van Rossum

9. In a counter controlled loop the counter must be-

- A. Initialized
- B. Tested
- C. Updated
- D. All of these

10. Which is not a feature of Python language?

- A. Cross Platform
- B. Case sensitive
- C. Interpreted
- D. Fifth generation language

11. Operator that acts upon two operands are referred as:

- A. Unary
- B. Binary
- C. Relational
- D. Augmented

12. _____ statement is used when a statement is required syntactically but no instruction has to be executed:

- A. Loop else
- B. break
- C. continue
- D. pass

13. Which of the following statement will make a selection construct?

- A. If
- B. If-else
- C. for
- D. while

14. Which of the following is True regarding loops in Python?

- A. Loops should be ended with keyword "end".
- B. Range function cannot be used with loops.
- C. continue is used to continue with the remaining statements inside the loop.
- D. break can be used to bring control out of the current loop.

15. Find the output of the following program segments:

```
i = 0
sum = 0
while i < 9:
    if i % 4 == 0:
        sum = sum + i
    i = i + 2
print (sum)
```

- A. Infinite Loop
- B. 12
- C. 14
- D. 10

16. ASCII is a _____ bit character code.

- A. 8 B. 7 C. 5 D.2

17. Indentation specifies a statement block [T/F]

Q18 and 19 are ASSERTION AND REASONING based questions. Mark the correct choice as

- (a) Both A and R are true and R is the correct explanation for A
- (b) Both A and R are true and R is not the correct explanation for A
- (c) A is True but R is False
- (d) A is false but R is True

18. Assertion (A) Python support multiple execution modes.

Reason(R) Interactive mode allows the user to enter and execute one statement at a time, while script mode allows the user to run a file containing multiple statements.

19. Assertion (A) In conditional and looping group of statements are indented to show the execution group

Reason (R) We can use brackets to make the group of statements in Python

Section-B

1. Convert following as directed:

- (a) $(98E)_{16}$ to $(\quad ? \quad)_2$ (b) $(764)_8$ to $(\quad ? \quad)_2$

2. What do you mean by syntax and semantic error?

3. Identify and correct the problem with following code:

```
countdown=10
while countdown>0:
    print(countdown, end=' ')
    countdown-1
print("Finally")
```

4. Draw a flow chart to print table of an input number.

5. Explain flowcharts with its major symbols.

6. Write a program to count the number of digits in a given number.

7. Rewrite the following code fragment using for loop:

```
num = 10
while num > 0:
    sum += num
    num -= 2
print( sum)
```

8. What will be the output of the following code if the input is 3

```
n = int ( input( "Enter an integer "))
if n < 1 :
    print("invalid value")
else :
    for i in range(1,n+1) :
        print( i * i)
```

9. Rewrite the following code fragment using while loop:

```
min = 0
max= num
if num < 0 :
    min = num
    max = 0
    for i in range(min, max +1):
        sum +=i
```

10. Subtract $(1100101)_2 - (1110100)_2$ using 2's compliment method.

11. Convert $(1011.101)_2$ to decimal equivalent

12. Explain range function with suitable example.

13. What is an infinite loop, give suitable example.

14. What will be the output of the given code:

```
for i in range(-6,5,2):
    print(i**2)
    if i<0:
        print("Hello")
    else:
        continue
else:
    print("Finished")
```

15. Suhani is a new programmer, she has some problems to complete the code to print factorial of an input number, she has given an incomplete code, help her to complete the code:

```
n=int(input("Enter a number"))
f=_____ #Statement 1, to initialize variable f to store factorial
while n>0:
    _____ #Statement 2, formula to calculate factorial
    n-=1
print("Factorial of the number is-",f)
```

16. Predict the error in the programme, underline the error and write correct code:

```
n=int(input("enter a number")
s==n
for i in range(2,6):
    n=int("enter a number")
    if n<s
        s=n
print(s)
```

17. Predict the output;

```
for i in range(1,6):
for j in range(65,70):
    if j==68:
        break
    else:
        print(chr(j),end="")
print(i,"round")
```

18. Differentiate between else and elif statements. Give suitable examples.

Section-C (3 marks each)

Attempt any five questions:

[3x5=15]

(1) Write a Python program to input one number and check that it a Perfect number or not.

Hint: *Perfect number* is a positive integer which is equal to the sum of its proper positive divisors.

For example: 6 is the first perfect number

Proper divisors of 6 are 1, 2, 3

Sum of its proper divisors = 1 + 2 + 3 = 6.

Hence 6 is a perfect number.

(2) Write a program to find out the sum of first n terms of following series:

$1 - X + X^2 - X^3 + X^4 - \dots (+|-) X^n - 1$

(3) Write a program to print following pattern: -

11111

22222

33333

44444

55555

(4) Write a program to find and print sum of the given series:

$$\frac{3}{!3} + \frac{4}{!4} + \frac{5}{!5} + \dots + \frac{N}{!N}$$

(5) Write a program to print the given pattern:

```
A  
bb  
CCC  
dddd  
EEEE
```

(6) Write a Python program to input electricity unit charge and calculate the total electricity bill according to the given condition:

```
For first 50 units Rs. 0.50/unit  
For next 100 units Rs. 0.75/unit  
For next 100 units Rs. 1.20/unit  
For unit above 250 Rs. 1.50/unit  
An additional surcharge of 20% is added to the bill.
```

(7) Write a program to print all the prime numbers from 10 to 50..