

Candidates should open the top side of the seal of this Booklet and take out the OMR Answer Sheet placed between page no. 2 and 3.

Test Booklet No. :

**A3-R5 : Programming and Problem Solving
Through Python**

Test Booklet Series : **21**

Time Allowed : 2 Hours

Maximum Marks : 100

Roll No. :

Answer Sheet No. :

Read the following instructions carefully before you begin to answer the questions.

INSTRUCTIONS TO THE CANDIDATES

1. Before you start to answer the questions you must check this booklet and ensure that it contains all the pages (12) and see that no page or portion thereof is missing or repeated. If you find any defect in this Booklet, you must get it replaced *immediately*.
2. OMR Answer-Sheet is within the Question Booklet. Please ensure OMR Answer-Sheet number and Test Booklet No. of Question Paper are same. Read the instructions printed on OMR Answer-Sheet carefully before filling the information on the OMR Answer-Sheet. You must complete and code all the details on the OMR answer sheet correctly, failing which your answer sheet may not be evaluated. You must also put your signature on the OMR Answer-Sheet at the prescribed place before you start answering the questions. These instructions must be fully complied with, failing which, your OMR Answer-Sheet may not be evaluated.
3. This booklet consists of **100** Multiple Choice Questions and are printed in English language only. Each question has 4 (four) alternatives (A), (B), (C) and (D). In case if you find more than one correct answer, then choose the most appropriate single option and darken the appropriate circle in the answer sheet against the related question.
4. For each **correct** answer One mark will be given and **no negative marking** for incorrect answer.
5. Use Black/Blue ball point Pen to darken the circle. Answer once darkened is not allowed to be erased or altered. Against any question if more than one circle is darkened, machine will allot **zero mark** for that question.
6. Do not fold answer sheet in any case.
7. No rough work should be done on the Answer-Sheet. Space for rough work has been provided in this booklet.
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Name of Candidate : _____ Signature of Candidate : _____

1. What is the output of the following ?
`n=5`
`while n>0:`
`n-=1`
`if n ==2:`
`continue`
`print(n)`
 (A) 5 4 3 1 0 (B) 4 3 1 0
 (C) 4 3 2 (D) None of these
2. What type of data is : `arr = [(1, 1), (2, 2), (3, 3)]` ?
 (A) List of tuples
 (B) Tuples of lists
 (C) Array of tuples
 (D) Invalid type
3. What will be the output of the following expression ?
`x = 14`
`print(x>>2)`
 (A) 14 (B) 1
 (C) 3 (D) 2
4. What is the value of the following Python code ?
`>>>print(36 / 4)`
 (A) 9 (B) 4
 (C) 9.0 (D) 4.0
5. What is a variable defined outside a function referred to as ?
 (A) A static variable
 (B) A global variable
 (C) A local variable
 (D) An automatic variable
6. What will be the output of the following Python code ?
`>>>list1 = [1, 3]`
`>>>list2 = list1`
`>>>list1[0] = 4`
`>>>print(list2)`
 (A) [1, 4] (B) [1, 3, 4]
 (C) [4, 3] (D) [1, 3]
7. A _____ statement is used when a statement is required syntactically but you do not want any code to execute.
 (A) break (B) pass
 (C) continue (D) none of these
8. What will be the output of the following Python code ?
`def power(x, y=2):`
`r=1`
`for i in range(y):`
`r=r*x`
`return r`
`print (power(3))`
`print (power(3,3))`
 (A) 212
 32
 (B) 9
 27
 (C) 567
 98
 (D) None of the above

9. Which symbol is used as a flowline to connect two blocks in a flow chart ?
 (A) arrow (B) circle
 (C) box (D) parallelogram
10. What will be the output of the following Python code ?
`from math import *
 floor(11.7)`
 (A) 12 (B) 11
 (C) 11.0 (D) None of these
11. What is the output of the following code ?
`def s(n1):
 print(n1)
 n1 = n1 +2
n2=4
s(n2)
print(n2)`
 (A) 6 4 (B) 4 6
 (C) 4 4 (D) 6 6
12. Which of the following is a valid arithmetic operator in Python ?
 (A) // (B) ?
 (C) < (D) and
13. What will be the output of the following code snippet ?
`from math import *
a = 2.19
b = 3.999999
c = -3.30
print(int(a), floor(b), ceil(c), fabs(c))`
 (A) 2 3 -3 3.3 (B) 3 4 -3 3
 (C) 2 3 -3 3 (D) 2 3 -3 -3.3
14. What will be the output of following statement ?
`>>>"m"+"nl"`
 (A) 'm+nl' (B) 'mnl'
 (C) 'm nl' (D) 'm'
15. Which statement will move file pointer 10 bytes backward from current position ?
 (A) `f.seek(-10, 0)`
 (B) `f.seek(10, 0)`
 (C) `f.seek(-10, 1)`
 (D) none of the above
16. What will be the output of following ?
`import numpy as np
a = np.array([[1,2,3],[4,5,6]])
print(a.shape)`
 (A) (2, 3) (B) (3, 2)
 (C) (1, 1) (D) None of these
17. Kite/diamond symbol in flow chart is used for _____.
 (A) Execution (B) Decision
 (C) Statement (D) All of the above
18. What is the output of the following code ?
`M=['b' * x for x in range(4)]
print(M)`
 (A) [' ', 'b', 'bb', 'bbb']
 (B) ['b', 'bb', 'bbb', 'bbbb']
 (C) ['b', 'bb', 'bbb']
 (D) None of these
19. The sequence logic will not be used while _____.
 (A) Subtracting two numbers
 (B) Comparing two data values
 (C) Providing output to the user
 (D) Adding two numbers

20. The correct extension of the Python file is _____.
- (A) .py (B) .pyth
(C) .python (D) None of these
21. Which of the following error is returned by the given code ?
- ```
>>> f = open("test.txt","w")
>>> f.write(345)
```
- (A) Syntax Error (B) Type Error  
(C) String Error (D) Run Time Error
22. Choose the correct option with respect to Python.
- (A) Both tuples and lists are immutable  
(B) Tuples are immutable while lists are mutable  
(C) Both tuples and lists are mutable  
(D) Tuples are mutable while lists are immutable
23. What will be output for the following code ?
- ```
import numpy as np
a = np.array([[1,2,3],[0,1,4]])
print (a.size)
```
- (A) 1 (B) 5
(C) 6 (D) 4
24. Which statement is correct to import all modules from the package ?
- (A) from package import all
(B) from package import *
(C) from package include all
(D) from package include *
25. Which of the following software is required to run the hardware ?
- (A) Task Manager
(B) Task Bar
(C) Program Manager
(D) Device Driver
26. What will be the output of the following Python code ?
- ```
x = 'abcd'
for i in x:
 print(i.upper())
```
- (A) a B C D (B) a b c d  
(C) error (D) A B C D
27. What is the output of the following ?
- ```
y = 'klmn'
for i in range(len(y)):
    print(y)
```
- (A) klmn klmn klmn klmn
(B) k
(C) k k k
(D) None of the option
28. What is the output of the following code snippet ?
- ```
print([i.lower() for i in "HELLO"])
```
- (A) hello (B) ['h','e','l','l','o']  
(C) hel (D) HELLO
29. What is the output of the following ?
- ```
print(max([1, 2, 3, 4], [4, 5, 6], [7]))
```
- (A) [4, 5, 6] (B) [7]
(C) [1, 2, 3, 4] (D) 7

30. Recursive function is _____.
- (A) A function that calls itself
 (B) A function that calls other functions
 (C) Both (A) and (B)
 (D) None of the above
31. Which of the following error is returned when we try to open a file in write mode which does not exist ?
- (A) File Found Error
 (B) File Not Exist Error
 (C) File Not Found Error
 (D) None of the above
32. When we open file in append mode the file pointer is at the _____ of the file.
- (A) anywhere in between the file
 (B) end
 (C) beginning
 (D) second line of the file
33. Pictorial representation of an algorithm is called as _____.
- (A) Statement (B) Program
 (C) Flow chart (D) All the above
34. What does readlines() method return ?
- (A) Dictionary (B) String
 (C) Tuple (D) List
35. The brain of computer system is _____.
- (A) RAM (B) CPU
 (C) ROM (D) Control Unit
36. Which of the following symbols is used to represent output in a flow chart ?
- (A) Square (B) Circle
 (C) Parallelogram (D) Triangle
37. What is 'f' in the following statement ?
- ```
f=open("Data.txt", "r")
```
- (A) File Name (B) File Handle  
 (C) Mode of file (D) File Handling
38. What will be output for the following code ?
- ```
import numpy as np
a = np.array([1,2,3,5,8])
print (a.ndim)
```
- (A) 0 (B) 1
 (C) 2 (D) 3
39. What will be the output of the following ?
- ```
print(sum(1,2,3))
```
- (A) Error (B) 6  
 (C) 1 (D) 3
40. What will be output for the following code ?
- ```
import numpy as np
a = np.array( [2, 3, 4, 5] )
print(a.dtype)
```
- (A) int 32 (B) int
 (C) float (D) None of these
41. Which function is used to add an element (5) in the list list1 ?
- (A) list1.sum(5)
 (B) list1.add(5)
 (C) list1.append(5)
 (D) list1.addelement(5)
42. Which of the following words is not a keyword of python language ?
- (A) val (B) raise
 (C) try (D) with

43. What will following code segment print ?
if True or True:
 if False and True or False:
 print('A')
 elif False and False or True and True:
 print('B')
 else:
 print('C')
 else:
 print('D')
- (A) A (B) B
(C) C (D) D
44. A _____ stores information in the form of a stream of ASCII or unicode characters i.e. human readable.
(A) Text file (B) Binary file
(C) Both (A) and (B) (D) None of these
45. What will be the output of following ?
Y=[2,5],6]
Y.sort()
(A) [2,6,5]] (B) [5],2,6]
(C) Error (D) [6,5],2]
46. What will be the output of the following Python code ?
def func(a, b=5, c=10):
print('a is', a, 'and b is', b, 'and c is', c)
func(13, 17)
func(a=2, c=4)
func(5,7,9)
(A) a is 13 and b is 15 and c is 10
a is 2 and b is 5 and c is 4
a is 5 and b is 7 and c is 9
(B) a is 13 and b is 17 and c is 10
a is 2 and b is 4 and c is 4
a is 5 and b is 9 and c is 7
(C) a is 13 and b is 17 and c is 10
a is 2 and b is 5 and c is 4
a is 5 and b is 7 and c is 9
(D) None of the above
47. Given a string x="hello" What is the output of x.count('l') ?
(A) 2 (B) 1
(C) 0 (D) none
48. Python supports the creation of anonymous functions at runtime, using a construct called _____.
(A) pi
(B) anonymous
(C) lambda
(D) none of the above
49. What will be the output of the following Python code ?
tuple1=(5,1,7,6,2)
tuple1.pop(2)
print(tuple1)
(A) (5,1,6,2) (B) (5,1,7,6)
(C) (5,1,7,6,2) (D) Error
50. What is the output of the following ?
x=123
for i in x:
 print(i)
(A) 1 2 3 (B) 123
(C) Error (D) None of these
51. Debugging is the process of fixing a _____ in the software.
(A) procedure (B) function
(C) bug (D) None of these
52. A detailed flow chart is called as _____.
(A) stack (B) macro
(C) micro (D) union

53. In which of the following, data is stored permanently ?
 (A) Variable
 (B) File
 (C) Both of the above
 (D) None of the above
54. Which statement will return one line from a file (file object is 'f') ?
 (A) f.readlines() (B) f.readline()
 (C) f.read() (D) f.line()
55. What will be the output of the following algorithm for a=5, b=8, c=6 ?
 Step 1 : Start
 Step 2 : Declare variables a, b and c.
 Step 3 : Read variables a, b and c.
 Step 4 : If a < b
 If a < c
 Display a is the smallest number.
 Else
 Display c is the smallest number.
 Else
 If b < c
 Display b is the smallest number.
 Else
 Display c is the smallest number.
 Step 5 : Stop
 (A) a is the smallest number
 (B) b is the smallest number
 (C) c is the smallest number
 (D) stop
56. What will be the output of the following code snippet ?
 numbers = (4, 7, 19, 2, 89, 45, 72, 22)
 sorted_numbers = sorted(numbers)
 odd_numbers = [x for x in sorted_numbers if x % 2 != 0]
 print(odd_numbers)
 (A) [7, 19, 45, 89]
 (B) [2, 4, 22, 72]
 (C) [4, 7, 19, 2, 89, 45, 72, 22]
 (D) [2, 4, 7, 19, 22, 45, 72, 89]
57. The contents inside the "for loop" are separated by :
 (A) colon (B) comma
 (C) semicolon (D) hyphen
58. Which translator is used to convert assembly language into machine language ?
 (A) Compiler (B) Interpreter
 (C) Assembler (D) None of these
59. What is the output of following Python code ?
 >>>print(5*(2//3))
 (A) 3 (B) 3.3
 (C) 0 (D) error
60. What is the datatype of x ?
 import numpy as np
 a=np.array([1,2,3,4])
 x= a.tolist()
 (A) int (B) array
 (C) tuple (D) list

61. Structured program can be broken into _____ to assign to more than one developer.
 (A) Segments (B) Modules
 (C) Units (D) All the above
62. What will be the output of the following Python code ?

```
def display(b, n):
    while n>0:
    print(b, end="")
    n=n-1
    display('z', 3)
```

 (A) zzz
 (B) zz
 (C) Infinite loop
 (D) An exception is thrown
63. What is the output of the following code ?

```
import numpy as np
a = np.array([1,2,3])
print(a.ndim)
```

 (A) 1 (B) 2
 (C) 3 (D) 0
64. Which of the following is used to define a block of code in Python language ?
 (A) try (B) Brackets
 (C) Indentation (D) Catch
65. Which function is used to write data in binary mode ?
 (A) write (B) writelines
 (C) dump (D) pickle
66. What will be the output of the following Python code ?

```
example = "helle"
example.rfind("e")
```

 (A) 1 (B) 2
 (C) 4 (D) 5
67. In which format Binary file contains information ?
 (A) Quick response code
 (B) Same format in which the data is held in memory
 (C) ASCII format
 (D) Unicode format
68. Choose the correct function declaration of fun1() so that we can execute the following two function calls successfully.

```
fun1(25, 75, 55)
fun1(10, 20)
```

 (A) def fun1(**kwargs)
 (B) def fun1(args*)
 (C) No, it is not possible in Python
 (D) def fun1(*data)
69. In python language, which of the following cannot be defined as variable ?
 (A) _val (B) val
 (C) try (D) _try_
70. Which of the following functions is a built-in function in python ?
 (A) factorial() (B) print()
 (C) seed() (D) sqrt()
71. Flow charts and Algorithms are used for _____.
 (A) Better Programming
 (B) Optimized Coding
 (C) Systematic testing
 (D) All the above

72. `f.read(5)` will read _____ from a file (file object 'f').
 (A) 5 characters
 (B) 5 words
 (C) 5 lines
 (D) None of the above
73. For performing the addition of two numbers, which of the following symbol in a flow chart are used ?
 (A) Control flow (B) Terminal
 (C) Processing (D) Decision
74. The connector symbol for flow chart is _____.
 (A) Circle (B) Parallelogram
 (C) Diamond (D) All the above
75. What will be output for the following code ?
`import numpy as np`
`ary = np.array([1,2,3,5,8])`
`ary = ary + 1`
`print (ary[1])`
 (A) 0 (B) 1
 (C) 2 (D) 3
76. What will be the output of the following code snippet ?
`d = {3, 4, 5}`
`for k in d:`
`print(k)`
 (A) {3, 4, 5} {3, 4, 5} {3, 4, 5}
 (B) 3 4 5
 (C) Syntax Error
 (D) None of the above
77. What is the output of the following code ?
`a = set('abc')`
`b = set('cdef')`
`print(a&b)`
 (A) {'c'}
 (B) {'a','b','c','d','e','f'}
 (C) {c}
 (D) None of these
78. To use a module in another module, you must import it using an _____ statement.
 (A) `import`
 (B) `include`
 (C) both (A) and (B)
 (D) none of the above
79. Which mode creates a new file if the file does not exist ?
 (A) write mode
 (B) read mode
 (C) append mode
 (D) Both (A) and (C)
80. Which of the following is not a control structure ?
 (A) Loop (B) Process
 (C) Decision (D) None of these
81. Which of the following will read entire content of file (file object 'f') ?
 (A) `f.reads()` (B) `f.read()`
 (C) `f.read(all)` (D) `f.read(*)`
82. Python is written in _____.
 (A) Java (B) C
 (C) PHP (D) All of the above

83. In python language, which of the following operators is the correct option for raising k to the power l ?
 (A) k^l (B) k^{**l}
 (C) $k^{^l}$ (D) $k^{^*l}$
84. What will be the output of the following pseudo code ?
 Integer a, b
 Set a = 10, b = 5
 a = a mod (a - 6)
 b = b mod (b - 2)
 Print a - b
 (A) 4 (B) 0
 (C) 1 (D) 8
85. What will be the output of the following pseudo code, where & represent AND operation ?
 Integer a, b, c
 Set b = 5, a = 1
 c = a & b
 Print c
 (A) 1 (B) 3
 (C) 5 (D) 7
86. Which one of the following is immutable data type ?
 (A) list (B) set
 (C) tuple (D) dict
87. Which of the following is not an advantage of using modules ?
 (A) Provides a means of reuse of program code
 (B) Provides a means of dividing up tasks
 (C) Provides a means of reducing the size of the program
 (D) Provides a means of testing individual parts of the program
88. _____ function returns the current position of file pointer.
 (A) get() (B) tell()
 (C) seek() (D) cur()
89. What will be the output of the following Python code ?
`d1={"abc":5,"def":6,"ghi":7}`
`print(d1[0])`
 (A) abc (B) 5
 (C) {"abc":5} (D) Error
90. What will be the output of the following Python code ?
`len(["hello",2,4,6])`
 (A) Error (B) 6
 (C) 4 (D) 3
91. What is the output of the following ?
`m = 0`
`while m < 5:`
`print(m)`
`m += 1`
`if m == 3:`
`break`
`else:`
`print(0)`
 (A) 0 1 2 0 (B) 0 1 2
 (C) 0 0 1 0 2 (D) error

92. Which of the following will delete key-value pair for key="tiger" in dictionary ?
- ```
dic={"lion":"wild","tiger":"wild","cat":"domestic","dog":"domestic"}
```
- (A) `del dic["tiger"]`  
 (B) `dic["tiger"].delete()`  
 (C) `delete(dic["tiger"])`  
 (D) `del(dic["tiger"])`
93. Which of the following declarations is incorrect ?
- (A) `_x = 2`                      (B) `x = 3`  
 (C) `__xyz__ = 5`                (D) None of these
94. In which software development phase quality of software is documented ?
- (A) Testing                      (B) Delivery  
 (C) Idea                         (D) Development
95. NumPY stands for :
- (A) Numbering Python  
 (B) Number In Python  
 (C) Numerical Python  
 (D) None of the above
96. What will be the output of the following Python code ?
- ```
from math import factorial
print(math.factorial(5))
```
- (A) 120
 (B) Nothing is printed
 (C) Error, method factorial doesn't exist in math module
 (D) Error, the statement should be : `print(factorial(5))`
97. Hierarchy in a pseudo-code can be shown by :
- (A) Curly Braces (B) Round Brackets
 (C) Indentation (D) Semicolon
98. What is the output of the following code ?
- ```
import numpy as np
a = np.array([1,2,3,5,8])
b = np.array([0,3,4,2,1])
c = a + b
c = c*a
print (c[2])
```
- (A) 10                              (B) 21  
 (C) 12                              (D) 28
99. Which of the following are valid string manipulation functions in Python ?
- (A) `count()`                      (B) `upper()`  
 (C) `strip()`                      (D) All of the above
100. What is the use of the `zeros()` function in Numpy array in python ?
- (A) To make a Matrix with all element 0  
 (B) To make a Matrix with all diagonal element 0  
 (C) To make a Matrix with first row 0  
 (D) None of the above

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**SPACE FOR ROUGH WORK**