

**A3-R5 : PROGRAMMING AND PROBLEM SOLVING THROUGH PYTHON
LANGUAGE**

अवधि : 03 घंटे
DURATION : 03 Hours

अधिकतम अंक : 100
MAXIMUM MARKS : 100

ओएमआर शीट सं. :					
OMR Sheet No. :					

रोल नं. :
Roll No. :

उत्तर-पुस्तिका सं. :
Answer Sheet No. :

परीक्षार्थी का नाम : _____;Signature of Candidate : _____
Name of Candidate :

परीक्षार्थियों के लिए निर्देश :

Instructions for Candidate :

कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक पढ़ें।	Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
प्रश्न-पुस्तिका की भाषा अंग्रेजी है। परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकता है।	Question Paper is in English language. Candidate can answer in English language only.
इस मॉड्यूल/पेपर के दो भाग हैं। भाग एक में चार प्रश्न और भाग दो में पाँच प्रश्न हैं।	There are TWO PARTS in this Module/Paper. PART ONE contains FOUR questions and PART TWO contains FIVE questions.
भाग एक "वैकल्पिक" प्रकार का है जिसके कुल अंक 40 हैं तथा भाग दो "व्यक्तिपरक" प्रकार का है और इसके कुल अंक 60 हैं।	PART ONE is Objective type and carries 40 Marks. PART TWO is Subjective type and carries 60 Marks.
भाग एक के उत्तर, ओएमआर उत्तर-पुस्तिका पर ही दिये जाने हैं। भाग दो की उत्तर-पुस्तिका में भाग एक के उत्तर नहीं दिये जाने चाहिए।	PART ONE is to be answered in the OMR ANSWER SHEET only. PART ONE is NOT to be answered in the answer book for PART TWO.
भाग एक के लिए अधिकतम समय सीमा एक घण्टा निर्धारित की गई है। भाग दो की उत्तर-पुस्तिका, भाग एक की उत्तर-पुस्तिका जमा कराने के पश्चात् दी जाएगी। तथापि, निर्धारित एक घंटे से पहले भाग एक पूरा करने वाले परीक्षार्थी भाग एक की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, भाग दो की उत्तर-पुस्तिका ले सकते हैं।	Maximum time allotted for PART ONE is ONE HOUR. Answer book for PART TWO will be supplied at the table when the Answer Sheet for PART ONE is returned. However, Candidates who complete PART ONE earlier than one hour, can collect the answer book for PART TWO immediately after handing over the Answer Sheet for PART ONE to the Invigilator.
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। ऐसा नहीं करने पर, परीक्षार्थी को इस मॉड्यूल/पेपर में अयोग्य घोषित कर दिया जाएगा।	Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.
प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार जाँच कर यह सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before starting to answer the questions, the candidate should ensure that the Question Booklet is complete in all respect.

**जब तक आपसे कहा न जाए, तब तक प्रश्न-पुस्तिका न खोलें।
DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

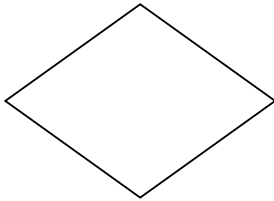
PART ONE

(Answer all the questions)

- 1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

(1x10)

- 1.1** The following symbol represent :



- (A) Decision
 - (B) Initialization
 - (C) Input/Output
 - (D) None of Mentioned
- 1.2** When an algorithm is written in the form of a programming language, it becomes a :
- (A) Flow chart
 - (B) Program
 - (C) Pseudo code
 - (D) Syntax

- 1.3** Which of the following is not a keyword in Python ?

- (A) eval
- (B) assert
- (C) non-local
- (D) pass

- 1.4** Which one of the following has the highest precedence in the expression ?

- (A) Exponential
- (B) Addition
- (C) Multiplication
- (D) Parentheses

- 1.5** Which of the following is correct about Python ?



- (A) It supports automatic garbage collection.
- (B) It can be easily integrated with C, C++, COM, ActiveX, CORBA and Java.
- (C) Both of the above
- (D) None of the above

- 1.6** Which of the following environment variable for Python tells the Python interpreter where to locate the module files imported into a program ?

- (A) PYTHONPATH
- (B) PYTHONSTARTUP
- (C) PYTHONCASEOK
- (D) PYTHONHOME

- 1.7 Which of the following data types is not supported in python ?
- (A) Numbers
 - (B) String
 - (C) List
 - (D) Slice
- 1.8 Which of the following function of dictionary gets all the keys from the dictionary ?
- (A) getkeys()
 - (B) key()
 - (C) keys()
 - (D) none of the mentioned
- 1.9 Select the reserved keyword in python :
- (A) else
 - (B) raise
 - (C) import
 - (D) all of the mentioned
- 1.10 Which statement is correct ?
- (A) List is mutable and Tuple is immutable.
 - (B) List is immutable and Tuple is mutable.
 - (C) Both List and Tuple are Mutable.
 - (D) Both List and Tuple are Immutable.
2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)
- 2.1 In computer science, algorithm refers to a special method usable by a computer for the solution to a problem.
- 2.2 Any algorithm is a program.
- 2.3 Python is case sensitive when dealing with identifiers.
- 2.4 Mathematical operations can be performed on a string.
- 2.5 Addition and Subtraction has the same precedence level.
- 2.6 The expression int(x) implies that the variable x is converted to integer.
- 2.7 values () is a function of dictionary gets all the values from the dictionary.
- 2.8 nested if-else are allowed in Python.
- 2.9 unichr(x)function convert an integer to octal string in python.
- 2.10 frozenset(s)function convert a sequence of tuples to dictionary in python.

3. Match words and phrases in column X with the closest related meaning/word(s)/phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

X		Y	
3.1	filter()	A.	It take iterables (can be zero or more), makes iterator that aggregates elements based on the iterables passed, and returns an iterator of tuples.
3.2		B.	A function convert a string to a list in python.
3.3	strip()	C.	flow chart symbol that is used for processing of data or calculations
3.4	Isalnum()	D.	constructs an iterator from elements of an iterable for which a function returns true.
3.5	list()	E.	used in flow chart for input and output of data
3.6	Algorithm	F.	in-built function of Python is used to remove all the leading and trailing spaces from a string.
3.7	bin()	G.	start and end of a flow chart.
3.8	getcwd()	H.	creates a slice object representing the set of indices specified by range(start, stop, step).
3.9		I.	method converts a value to Boolean (true or false) using the standard truth testing procedure.
3.10	zip()	J.	converts and returns the binary equivalent string of a given integer.
		K.	an explicit set of step by step specific instructions that solve a problem with an end or a solution.
		L.	method returns true if all characters in the string are alphanumeric (either alphabets or numbers). If not, it returns false.
		M.	Method displays the current working directory

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

A.	help()	B.	fp.shutdown()	C.	flow chart
D.	fp.close()	E.	tell()	F.	unpickling
G.	uppertolower()	H.	swapcase	I.	readline()
J.	alias	K.	seek	L.	scanoneline()
M.	arrange				

- 4.1 A graphical representation of a computer program in relation to its sequence of functions _____.
- 4.2 _____ method calls the built-in Python help system.
- 4.3 To create sequences of numbers, NumPy provides a function _____ analogous to range that returns arrays instead of lists.
- 4.4 _____ return the current file position after reading the first line.
- 4.5 _____ is a method sets the file's current position at the offset.
- 4.6 _____ is used for object deserialization.
- 4.7 _____ method converts all uppercase characters to lowercase and vice-versa of the given string, and returns it.
- 4.8 ndarray is also known as the _____ array.
- 4.9 _____ is used to close a file object (fp).
- 4.10 _____ reads one entire line from the file.

PART TWO

(Answer any FOUR questions)

5. (a) What do you mean by an Algorithm? What are the characteristics of an Algorithm? Write an Algorithm to find the factorial of given integer number.
- (b) What do you mean by decision making statements in python? Explain nested if statements with suitable example. **(7+8)**
6. (a) What is list and tuple in python? Give the differences between list and tuple.
- (b) Why Python programming language is becoming so popular in programming world? List the applications of python and explain any one with suitable example. **(7+8)**
7. (a) Explain numPy library in python. Write a numPy program to generate five random numbers from the normal distribution.
- (b) Explain the following :
1. broadcasting in numPy
 2. islower()
 3. read()
 4. dictionary in python
 5. Indentation in Python **(5+10)**
8. (a) Define recursive function. Write a recursive function to convert decimal number to binary number.
- (b) How to create a string in Python? List and explain the operations which can perform on strings. **(7+8)**
9. Attempt **any three** from the following :
- (a) Write a python program to remove multiple elements from a list in Python.
 - (b) Draw a flow chart to find gcd of two numbers.
 - (c) Write a Python program to copy odd lines of one file to other.
 - (d) Explain join(), isspace() with suitable example. **(3x5)**

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SPACE FOR ROUGH WORK

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