

II PUC MID-TERM EXAMINATION, SEPT./OCT. - 2026

COMPUTER SCIENCE (41)

Time : 3 Hours

Max Marks : 70

PART-A

I Answer ALL the questions. Each question carries ONE mark. Select the correct answer from the choices given: 20x1=20

1. The exception raised when a local or global variable is not defined is
a) Import error b) Type error c) Value error d) Name error
2. Which block will be executed only if no exceptions are found ?
a) try b) except c) finally d) else
3. What is the purpose of the raise statement in Python ?
a) To continue program execution after an error b) To throw an exception
c) To skip an iteration d) To display a warning
4. The method which is used to convert objects for writing data into a binary file.
a) load () b) dump () c) seek () d) tell ()
5. Which module provides functions to read from and write to a binary file in Python?
a) math module b) file module c) pickle module d) io module
6. What does the readlines () method return ?
a) A single string b) A list of strings c) A dictionary d) A tuple
7. What happens when you try to pop an element from an empty stack ?
a) Overflow b) Underflow c) exception d) no effect
8. Assertion (A) : Stack data structure is used to reverse a string.
Reason (R) : The principle of stack is LIFO.
a) A is True, R is correct reason b) A is True, R is not correct reason
c) A is False, R is correct reason d) A is False, R is not correct reason
9. The + ab is an example for which notation ?
a) Polish b) reverse polish c) postfix d) infix
10. An arrangement of linear data structure in which addition and removal of elements can happen from any end is known as
a) stack b) queue c) Deque d) enqueue
11. What is the principle followed by a queue ?
a) Last In First Out (LIFO) b) Random Access
c) First In First Out (FIFO) d) First In Last Out (FLIO)
12. The nested loop will have the time complexity as
a) n^2 b) $\log n$ c) 1 d) n
13. The process of arranging elements in order is called _____.
a) searching b) sorting c) merging d) indexing
14. Which of the following is necessary for binary search to work ?
a) The list must be unordered b) The list must be sorted
c) The list can be of any data type d) The list must contain at least 100 elements
15. The process of managing collisions in a hash table is
a) hash resolution b) collision avoidance c) collision detection d) collision resolution

(P.T.O)

**II Fill in the blanks choosing the appropriate word from those given in brackets.
(Java, relational data model, redundancy, distinct, mysql, degree)**

16. The number of attributes in a relation is called _____.
17. Each tuple in a relation must be _____.
18. The most commonly used data model in DBMS is _____.
19. The query language used by RDBMS is _____.
20. _____ refers to duplication of data in a data base.

PART-B

III Answer any FOUR questions. Each question carries TWO marks.

4x2=8

21. Explain any two built-in exceptions in Python.
22. Write the syntax and example of open () function in Python.
23. Mention any two applications of stack in programming.
24. Write a python user defined function to add element to rear end of queue.
25. Give the differences between constant time algorithm and linear time algorithm.
26. Mention the two types of search methods.
27. What is meant by structured data ? Give an example.

PART-C

IV Answer any FOUR questions. Each question carries THREE marks.

4x3=12

28. What is the use of assert statement in python ? Explain with syntax and example.
29. Write a note on Text file.
30. Define stack. Explain the two basic operations performed on stack.
31. What is deque ? Mention the operations of deque.
32. Explain how selection sort arranges elements in ascending order.
33. What are the three possibilities which may arise when the middle element is compared with the key element in binary search method ?
34. Define a) Domain b) query c) Data constraints

PART-D

V Answer any FOUR questions. Each question carries FIVE marks.

4x5=20

35. Evaluate step by step of the postfix expression using stack given
A = 3, B = 5, C = 1, D = 4
AB * C/D *
36. Explain the operations performed on a queue.
37. Write an algorithm for bubble sort.
38. Explain the steps of data processing cycle.
39. Write an algorithm for Linear search.
40. Explain the advantages of databases.
41. What is key in a relational database ? Explain the types of keys.

PART-E

VI Answer any TWO questions. Each question carries FIVE marks.

2x5=10

42. Write the process to sort the following elements using the insertion sort method
80, 60, 20, 40, 50, 10
43. Use the hash function :
 $h(\text{element}) = \text{element} \% 10$ to store the collection of numbers :
[44, 121, 55, 33, 110, 77, 22, 66] in a hash table. Display the hash table created. Search if the values 11, 44, 121 are present in the hash table.
44. Consider the temperature (in Celsius) of 7 days of a week as 34, 34, 27, 28, 27, 34, 34.
a) Find the temperature range of that week.
b) Find the standard deviation of temperature.
