

II PUC MID - TERM EXAMINATION
OCTOBER - 2025

①

COMPUTER SCIENCE - IIPUC
SCHEME OF VALUATION

PART-A

- | | | |
|---|------|-------|
| I | 1. a | 9. d |
| | 2. a | |
| | 3. b | 10. b |
| | 4. c | 11. b |
| | 5. d | 12. a |
| | 6. b | 13. c |
| | 7. b | 14. d |
| | 8. b | 15. a |

- II
- 16. oracle
 - 17. Primary key
 - 18. Metadata
 - 19. Schema
 - 20. attribute

III PART-B

- 21) The raise statement is used to manually trigger an exception.
- 1 Mark

Syntax

raise ExceptionType ("optional message")

— 1 Mark

(2)

22) Write () Method

It is used to write data into a text file.
— 1 Mark

Syntax

file object. write (string)

— 1 Mark

23) In Postfix Expression, every operator comes after its operands.
— 1 Mark

Ex $A + B * C \rightarrow$ infix exp

$ABC * + \rightarrow$ Postfix exp.

24) Applications of stack in programming

1. String Reversal

2. Undo/Redo in software

3. Browser Management

4. Balanced Parenthesis checking

25) (any two each 1 Mark)

Compare stack with queue

Stack

1. It follows LIFO Principle

2. Insertion and deletion occurs at the same end

Queue

1. It follows FIFO Principle

2. Insertion occurs at rear end of the queue
Deletion occurs at the front end of queue

(each diff 1 Mark)

26. `def isempty(queue):`
 `if len(queue) == 0:`
 `return True`
 `else:`
 `return False`

- 2 Marks

27. 1. Manual data processing - 1 Mark
 2. Electronic data processing - 1 Mark

PART-C

28. Implementation of PUSH operation in stack using Python.

```
def Push(s):
    ele = int(input("Enter the element "))
    s.append(ele)
    print("Stack elements after PUSH = ", s)
```

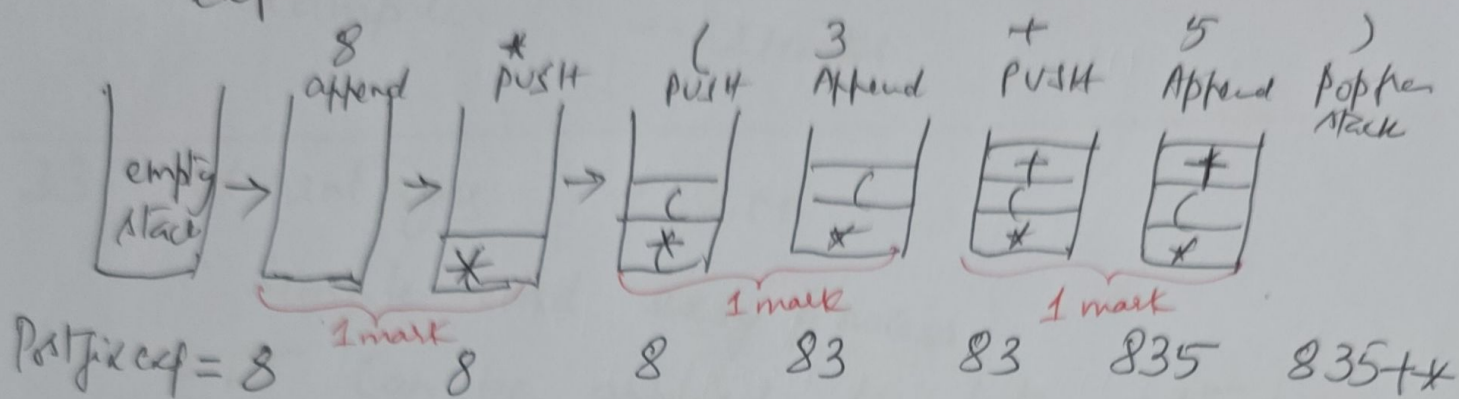
1 Mark

1 Mark

1 Mark

29. Convert - $8 * (3 + 5)$ ^{in prefix} to postfix

(4)



30. Operations on queue.

- a. enqueue
- b. dequeue
- c. isempty

d. Peek

e. isfull

(Any 3, each 1 Mark)

31. Time Complexity - The amount of time an algorithm takes to process a given data

- 14

Estimating the time complexity is an Algorithm

1. Any Algorithm that does not have any loop will have time complexity 1
2. Any Algorithm that has a loop will have time complexity n .
3. Any Algorithm that has Nested loop will have time complexity n^2

(Any 2, each 1 Mark)

5

32. Bubble sort definition - 1M
example - 2 Marks

33. Advantages - 2M

1. Simple and easy process
2. It can be applied for both sorted and unsorted elements
(or any ^{other} point)

disadvantages - 1 Mark

1. Not suitable for large datasets
2. Consumes more time to search

34. data processing steps

1. Data Collection
2. Data input
3. Data processing
4. Data output
5. Data storage

(Mention - 1 Mark)

(Explanation - 2 Marks)

Part-D

35. Define (each 1 Mark)

Bk.

36) Algorithm Insertion Sort (numList, n) (6)

S1 $i = 1$ 1 mark

S2 while $i < n$ Repeat steps S3 to S9 1 mark

S3 $temp = numList[i]$

S4 $j = i - 1$

S5 while $j \geq 0$ and $numList[j] > temp$
Repeat steps S6 to S7 2 marks

S6 $numList[j+1] = numList[j]$

S7 $j = j - 1$

S8 $numList[j+1] = temp$ 1 mark

S9 $i = i + 1$

37) 18, 3, 10, 2, 7

Total elements = 5

No of passes = 4

Pass 1 — 2 M

Pass 3 — 1 M

Pass 2 — 1 M

Pass 4 — 1 M

38) Binary Search (numList, key)

S1 Set $first = 0$, $last = n - 1$ 1 mark

S2 $mid = (first + last) / 2$

S3 while $first \leq last$ repeat step S4 1 mark

S4 if $numList[mid] = key$
print ("element found at position", $mid + 1$)
stop

else if $numList[mid] > key$ then
 $last = mid - 1$

else $first = mid + 1$
S5 print ("search unsuccessful") 3 marks

(7)

39) Explain Limitations of file system

1. Difficulty in accessing data
2. Data redundancy
3. Data inconsistency
4. Data isolation
5. Data dependency
6. Controlled data sharing

[Any 5
Mention - 1 Mark
Explanation
- 3 Marks]

40) Definition - (1 Mark) Tuple - (1 Mark)
Example - (1 Mark) Domain - (1 Mark)
attribute - (1 Mark)
or relation, degree, Cardinality

41) Key - 1 M
(Any 4 types of keys each 1 Mark)

Part-E

VI

42) File Access Modes
(Any 5 Modes each 1 Mark)

43) Operations on Deque

1. Insertfront
2. Insertrear
3. Deletionfront
4. Deletionrear
5. Peek
6. size
7. isempty

(any 5 operations
each 1 Mark)

(Only Mention - 1 Mark)

44) Linear Search $[1, -2, 32, 8, 12]$ (8)

To Search for 8 in the list

— (3 Marks with steps)

To Search for 99 in the list

— (2 Marks with steps)

———— X ————