



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Data Structures & Algorithms
Code No: CACS 201
Semester: III

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Center:

Symbol No:

Candidates are required to answer the questions in their own words as far as possible.

Group A

Attempt all the questions.

[10×1 = 10]

1. Circle (O) the correct answer.

i) What is the measurement for time complexity of an algorithm?

- | | |
|--------------------------------------|-------------------------------------|
| a) Counting microseconds | b) Counting kilobytes of algorithms |
| c) Counting number of key operations | d) Counting number of statements |

ii) Which of the following is the result of evaluation of $5\ 7\ 4 - * 8\ 4 / +$?

- | | | | |
|------|------|-------|-------|
| a) 5 | b) 8 | c) 10 | d) 17 |
|------|------|-------|-------|

iii) What is the recursive formula for post order traversal of binary tree?

- | | |
|--------------------|--------------------|
| a) Left-Root-Right | b) Root-Left-Right |
| c) Left-Right-Root | d) Right-Left-Root |

iv) What is the number of disk movement in TOH with 4 disks?

- | | | | |
|------|-------|-------|-------|
| a) 9 | b) 14 | c) 17 | d) 15 |
|------|-------|-------|-------|

v) What is the Big-Oh of best case complexity of insertion sort?

- | | | | |
|-----------|------------------|-----------|-------------|
| a) $O(n)$ | b) $O(n \log n)$ | c) $O(1)$ | d) $O(n^2)$ |
|-----------|------------------|-----------|-------------|

vi) How does the rear index incremented in circular queue?

- | | |
|--|---|
| a) $\text{front} = (\text{rear} + 1) \% \text{SIZE}$ | b) $\text{rear} = (\text{rear} + 1) \% \text{SIZE}$ |
| c) $\text{rear} = \text{rear} + 1$ | d) $\text{rear} = (\text{rear} - 1) \% \text{SIZE}$ |

vii) A variation of linked list in which none of the node contains NULL pointer is

- | | | | |
|-----------|-------------|-------------|-----------|
| a) Singly | b) Multiple | c) Circular | d) Doubly |
|-----------|-------------|-------------|-----------|

viii) Which of the following data structure is used in depth first search of graph?

- | | | | |
|----------|----------|----------------|----------------------|
| a) Stack | b) Queue | c) Linked List | d) None of the above |
|----------|----------|----------------|----------------------|

- ix) Which of the following is true for B-Tree of order M ?
- a) Leaf nodes should be at different level
 - b) All the key values within a node must be in descending order
 - c) Every node has at least M children
 - d) All non-leaf nodes with $M-1$ keys must have M number of children
- x) Which of the following is not a hash function?
- a) Division remainder
 - b) Folding
 - c) Chaining
 - d) Mid square