

**ADICHUNCHANAGIRI INSTITUTE OF TECHNOLOGY, CHIKAMAGALURU**  
**DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING**

**Date:** 05/08/2024

**Marks=20**

**Quiz on Advanced Java**

10  
20

|   | Student Name      | USN        |
|---|-------------------|------------|
| 1 | Abhishek N.S      | 4AI22IS001 |
| 2 | Akash M.K         | 4AI22IS003 |
| 3 | Darshan G.S       | 4AI22IS012 |
| 4 | Dishanth R Prasad | 4AI22IS016 |

- What is Collection in Java?
  - A group of objects
  - ~~A group of classes~~
  - A group of interfaces
  - None of the mentioned
- Which of these packages contain all the collection classes?
  - java.lang
  - ~~java.util~~
  - java.net
  - java.awt
- What is the purpose of the Java Collections Framework?
  - To provide a unified architecture for representing and manipulating collections
  - To provide a way to create arrays
  - To define primitive data types
  - ~~To handle exceptions~~
- Which interface in the Java Collections Framework represents an ordered collection of elements that can contain duplicate values?
  - Collection
  - Map
  - ~~Set~~
  - List
- What is the primary difference between a 'List' and a 'Set' in the Java Collections Framework?
  - ~~A 'Set' allows duplicate elements, while a 'List' does not~~
  - A 'List' is unmodifiable, while a 'Set' is modifiable
  - A 'List' allows duplicate elements, while a 'Set' does not
  - A 'Set' is indexed, while a 'List' is not
- Which class is typically used to implement a 'List' in the Java Collections Framework?
  - HashMap
  - ArrayList
  - ~~LinkedList~~
  - HashMap
- In the Java Collections Framework, which interface extends the 'List' interface to provide more efficient insertions and deletions in the middle of the list?
  - Map
  - Set
  - Deque
  - ~~Queue~~
- What is the purpose of the 'Map' interface in the Java Collections Framework?
  - To store a collection of objects
  - To provide a stack data structure
  - To store unique elements
  - ~~To store key-value pairs~~
- Which class is typically used to implement a 'Map' in the Java Collections Framework?
  - ~~HashMap~~
  - ArrayList
  - HashSet
  - LinkedList

10. What is the primary difference between a 'HashMap' and a 'TreeMap' in the Java Collections Framework?
- a) A 'TreeMap' uses a linked list to store elements
  - b) A 'HashMap' is synchronized, while a 'TreeMap' is not
  - c) A 'TreeMap' allows duplicate keys, while a 'HashMap' does not
  - d) A 'HashMap' does not maintain order, while a 'TreeMap' does
11. In the Java Collections Framework, which interface represents a collection of unique elements with no duplicates?
- a) List
  - b) Map
  - c) Set
  - d) Collection
12. Which class is typically used to implement a 'Set' in the Java Collections Framework?
- a) HashMap
  - b) HashSet
  - c) LinkedList
  - d) HashMap
13. In Java, which class is used to represent a sequence of characters as a string?
- a) String
  - b) StringBuilder
  - c) StringSequence
  - d) StringArray
14. What is the correct way to create a new empty String object in Java?
- a) String emptyString = "";
  - b) String emptyString = new String();
  - c) String emptyString = " ";
  - d) String emptyString = null;
  - e) Both A and B
15. In Java, which operator is used to concatenate two strings?
- a) +
  - b) &
  - c) .
  - d) None of the above
16. Which of the following methods is used to compare two strings for equality in Java?
- a) equals()
  - b) compareTo()
  - c) equalsIgnoreCase()
  - d) compare()
17. What does the length() method of a String object in Java return?
- a) The capacity of the string
  - b) The size of the string
  - c) The length of the string
  - d) The index of the last character
18. Which of the following is true about Java strings?
- a) Strings are mutable
  - b) Strings can contain only letters
  - c) Strings can have a null value
  - d) Strings are implemented as arrays of characters.
19. What is the purpose of the charAt() method of a String object in Java?
- a) To add a character to the string
  - b) To remove a character from the string
  - c) To get the character at a specific index
  - d) To get the length of the string
20. In Java, what is the result of the expression "Hello".substring(1, 4)?
- a) "Hel"
  - b) "H"
  - c) "ell"
  - d) "llo"



**ADICHUNCHANAGIRI INSTITUTE OF TECHNOLOGY, CHIKAMAGALURU**  
**DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING**

Date: 07/03/2024

Marks=20

Crossword on Clustering Algorithms

18  
20

| Student Name | USN        |
|--------------|------------|
| Deeksha G.A  | 4AI21IS016 |
| Anjum.F      | 4AI21IS006 |
| Pratha.C.R   | 4AI21IS038 |
| Anu. Malika  | 4AI21IS008 |
| Chaya.B.R    | 4AI21IS014 |

**Crossword**

**Across**

- \_\_\_\_\_ is a measure of how close the samples are in a cluster.
- \_\_\_\_\_ measures the farthest distance of a sample of a cluster to another cluster.
- A subset of attributes is called \_\_\_\_\_.

**Down**

- Dendrogram shows \_\_\_\_\_ relationships.
- If the number of points is more than the threshold value, it is called \_\_\_\_\_ cell.
- The partitional method uses \_\_\_\_\_ approach for grouping.

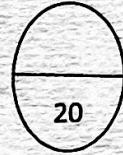


**ADICHUNCHANAGIRI INSTITUTE OF TECHNOLOGY, CHIKAMAGALURU**  
**DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING**

Date: 07/03/2024

Marks=20

Word Search on *Classification Algorithms*



| Student Name  | USN        |
|---------------|------------|
| Chaya B.R     | 4AI21IS014 |
| Anu malika G. | 4AI21IS008 |
| Deeksha G.A   | 4AI21IS016 |
| Pratha C.R    | 4AI21IS038 |
| Anjum K       | 4AI21IS006 |

**Word Search**

Find and mark the words listed below.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | N | Q | T | R | U | E | G | B | L | P | G | Q | E | D | A | A | M | Y | C | X | T | G | P |   |
| Q | J | F | X | J | N | V | R | U | R | L | K | F | V | H | L | P | T | B | Y | A | A | R | R | D |
| A | G | L | D | T | R | I | Y | E | E | G | T | R | B | U | S | M | S | S | B | Q | Z | U | U | J |
| S | E | Q | C | F | R | U | B | G | J | S | H | R | U | X | J | Z | S | I | Y | V | I | E | A | D |
| Z | Q | U | N | K | Q | Q | S | V | Y | P | F | Q | L | E | O | N | F | L | X | A | K | Y | O | H |
| D | U | A | X | H | E | T | C | E | E | F | T | S | V | B | R | X | V | H | C | X | N | P | N | I |
| Z | A | N | Z | W | M | E | F | O | P | A | W | Z | T | O | O | D | A | O | R | D | P | A | Y | E |
| H | L | T | V | J | I | Q | D | Q | S | A | N | B | K | E | T | V | S | U | A | H | A | E | C | E |
| H | I | I | C | C | W | K | Y | Y | W | I | R | D | H | C | L | Z | L | E | W | N | R | M | F | A |
| R | T | T | O | T | R | U | E | G | T | G | N | A | W | B | I | P | P | T | S | D | T | D | T | R |
| U | A | A | L | Y | Y | T | E | E | V | O | A | E | T | I | Z | F | L | T | U | R | L | E | P | C |
| H | T | T | H | E | T | S | R | J | L | H | B | Q | Z | I | D | M | L | E | B | O | T | Q | X | H |
| F | I | I | N | S | N | W | J | U | D | E | F | T | E | T | O | T | C | Q | S | C | I | M | N | I |
| C | V | Y | J | E | A | D | P | M | E | S | X | R | H | K | U | N | N | V | P | H | O | X | Y | G |
| J | E | E | D | H | U | S | V | W | Y | I | D | U | E | T | X | E | S | X | A | A | N | R | F | A |
| A | S | T | F | O | G | Y | J | T | P | O | H | E | C | R | C | L | Q | Q | C | M | A | K | V | L |
| T | F | N | X | T | R | U | E | L | D | N | S | B | A | I | H | I | P | V | E | S | L | S | P | K |

- True ✓
- Quantitative ✓
- Qualitative ✓
- Cosine ✓
- Greedy ✓
- Dendrograms ✓
- Partitional ✓
- True ✓
- True ✓
- True ✓
- True ✓
- True
- L<sub>2</sub> ✓
- True ✓
- Hierarchical ✓
- Bandwidth ✓
- True
- Subspace ✓
- Dense ✓
- Cohesion ✓
- Separation ✓
- Yes ✓
- Silhouette ✓



Marks=20

Quiz on Data Structure and Its Applications

Student Name: Sahana Y.S

USN: 4AI22IS036

15  
20

1. What is the advantage of a hash table as a data structure? 1M

- a) easy to implement
- b) faster access of data
- c) exhibit good locality of reference
- d) very efficient for less number of entries

2. A linear collection of data elements where the linear node is given by means of pointer is called? 1M

- a) Linked list
- b) Node list
- c) Primitive list
- d) Unordered list

3. In linked list each node contains a minimum of two fields. One field is data field to store the data second field is? 1M

- a) Pointer to character
- b) Pointer to integer
- c) Pointer to node
- d) Node

4. Consider the following definition in c programming language.

```
struct node
{
    int data;
    struct node * next;
}
typedef struct node NODE;
NODE *ptr;
```

Which of the following c code is used to create new node? 1M

- a) ptr = (NODE\*)malloc(sizeof(NODE));
- b) ptr = (NODE\*)malloc(NODE);
- c) ptr = (NODE\*)malloc(sizeof(NODE\*));
- d) ptr = (NODE)malloc(sizeof(NODE));

5. What is a Doubly Linked List in data structure? 1M

- a) It is a type of linked list where each node contains a data field and two references, one to the next node and one to the previous node.
- b) It is a type of linked list where each node contains a data field and a reference only to the next node.
- c) It is a type of linked list where each node contains a data field and a reference only to the previous node.
- d) It is a type of linked list where each node contains two data fields and a reference to the next node.

6. What is a data structure? 1M

- a) A programming language
- b) A collection of algorithms
- c) A way to store and organize data
- d) A type of computer hardware

7. The data structure required to check whether an expression contains a balanced parenthesis is? 1M

- a) Queue
- b) Stack
- c) Tree
- d) Array

8. Which data structure is needed to convert infix notation to postfix notation? 1M

- a) Tree
- b) Branch
- c) Stack
- d) Queue



9. The data structure required for Breadth First Traversal on a graph is? 1M

- a) Array
- b) Stack
- c) Tree
- d) Queue

10. How is an array initialized in C language? 1M

- a) `int a[3] = {1, 2, 3};`
- b) `int a = {1, 2, 3};`
- c) `int a[] = new int[3]`
- d) `int a(3) = [1, 2, 3];`

11. Which of the following is a linear data structure? 1M

- a) Array
- b) Trees
- c) Binary Trees
- d) Graphs

12. Which data structure is used for implementing recursion? 1M

- a) Stack
- b) Queue
- c) List
- d) Array

13. What is the disadvantage of array data structure? 1M

- a) The amount of memory to be allocated should be known beforehand.
- b) Elements of an array can be accessed in constant time
- c) Elements are stored in contiguous memory blocks.
- d) Multiple other data structures can be implemented using arrays.

14. How are String represented in memory in C? 1M

- a) An array of characters.
- b) The object of some class.
- c) Same as other primitive data types.
- d) Linked List of characters.

15. The prefix form of  $A-B / (C * D ^ E)$  is? 2M

- a)  $-A/B * C ^ DE$
- b)  $-A/BC * ^ DE$
- c)  $-ABCD * ^ DE$
- d)  $- / * ^ ACBDE$

16. Which data structure is based on the Last In First Out principle? 1M

- a) Tree
- b) Linked List
- c) Stack
- d) Queue

17. What is the need for a circular queue? 1M

- a) easier computations
- b) implement LIFO principle in queues
- c) effective usage of memory
- d) to delete elements based on priority

18. What is the value of the postfix expression  $6 3 2 4 + - * ?$  2M

- a) 74
- b) -18
- c) 22
- d) 40

