MCA Takshak'24

HACK&SLASH- Quiz Round

Date: 27-09-2024 | Paper : I

Read the Instructions carefully:

- Total time: **20 minutes**
- You will be notified when 5 minutes and 1 minute are remaining.
- The test consists of multiple-choice questions (MCQs).
- Each question has **4 options** (A, B, C, or D), and only **1 correct answer**.
- Mark your answers clearly on the provided answer sheet using a **blue/black ballpoint pen**.
- **Only mark one option** for each question. **Marking more than one option will be considered incorrect**.
- **Crossing out or changing answers is not allowed**. Choose carefully before marking, as no changes can be made after selecting an option.
- Each correct answer will be awarded **1 mark**.
- **No negative marking** for incorrect answers.
- Stop writing when instructed and hand in your answer sheet to the invigilator.
- **No calculators, notes, or other aids** are allowed unless specified.
- All bags, books, and electronic devices must be kept away from the test area.
- You must work independently. **No communication or cheating** will be tolerated.
- Remain seated and raise your hand if you need assistance.
- If you have any questions about the instructions, ask the invigilator before the test begins.
- Once the test starts, **no clarifications** will be provided.

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1. In C++, what happens if you use delete on a pointer to an array without using delete[]?

   A) Only the first element of the array is deleted, and the rest is leaked
   B) The entire array is properly deleted, but memory for other variables might be corrupted
   C) Undefined behavior, as it may only delete the first element and fail to delete the rest properly
   D) All elements of the array are deleted, but the memory is not freed

2. What is the output of the following code?

```
class TrieNode:
    def __init__(self):
        self.children = {}
        self.is_end_of_word = False

trie = TrieNode()
trie.children['a'] = TrieNode()
trie.children['a'].children['b'] = TrieNode()
trie.children['a'].children['b'].is_end_of_word = True

def search(trie, word):
    node = trie
    for char in word:
        if char not in node.children:
            return False
        node = node.children[char]
            return node.is_end_of_word

print(search(trie, 'ab'))
```

A) True B) False C) Error D) None

3. What is the output of the following C++ code?

```
int x = 5;
int* p = &x;
int** q = &p;
*q = new int(10);
std::cout << *p << std::endl;
```

A) 5
B) 10
C) 0x...
D) Error: cannot dereference pointer

4. What operation does the following pseudo code performs

```
Declare an array of string type variable called word
Declare a loopcounter
Store a string in the array word
for loopcounter = (length of the word) – 1 to 0
loopcounter = loopcounter – 1
print arrayword[loopcounter]
endfor
Algorithm end
```

A) It accepts string
B) It reverse string
C) It prints the string in the same order
D) None of the above

5. Find output of following code based on Python Dictionaries:

```
d = {'a': 1, 'b': 2}
d['a'] = d['a'] + 1
print(d['a'])
```

A) 1 B) 2 C) 3 D) KeyError

6. Find the output of the following code in Java:

```
List<String> list = Arrays.asList("a", "b", "c");
list.add("d");
```

A) Compilation error
B) Runtime exception
C) "a", "b", "c", "d"
D) "a", "b", "c"

7. Which of these is a super class of all errors and exceptions in the Java language?

   A) RunTimeExceptions
   B) Throwable
   C) Catchable
   D) None of the above

8. What is the output of the following C++ code?

```
int x = 5;
int y = 10;
int z = x && (y %= 3);
std::cout << z << std::endl;
```

   A) 1 B) 5 C) 2 D) 0

9. What does ~~~~~~5 evaluate to?

   A) +5 B) -11 C) +11 D) -5

10. Find output of following Java code based on Exception Handling:

```
try {
   int[] arr = new int[2];
   arr[3] = 10;
} catch (ArrayIndexOutOfBoundsException e) {
   System.out.println("Exception caught");
}
```

   A) "Exception caught"
   B) "ArrayIndexOutOfBoundsException"
   C) "0"
   D) Runtime error

11. What will the following JavaScript code output?

```
console.log(0.1 + 0.2 == 0.3);
```

A) true
B) false
C) NaN
D) Undefined

12. What is the time complexity of searching for an element in a balanced binary search tree (BST)?

A) O(log n)
B) O(n)
C) O(n log n)
D) O(1)

13. The process of pickling in Python includes _____

A) conversion of a Python object hierarchy into byte stream
B) conversion of a datatable into a list
C) conversion of a byte stream into Python object hierarchy
D) conversion of a list into a datatable

14. Which of the following statements is true about stochastic gradient descent?

A) It processes one training example per iteration
B) It is not preferred, if the number of training examples is large
C) It processes all the training examples for each iteration of gradient descent
D) It is computationally very expensive, if the number of training examples is large

15. In a precision-recall curve, which axis represents precision?

A) Horizontal axis
B) Vertical axis
C) Both axes equally
D) None of the above

16. What should be placed in the below **blank space** to complete the find function in Disjoint set?

```
int find(int i) {
   if (parent[i] == i) {
      return i;
   } else {
```

```
        return _____ ;
    }
}
```

A) i
B) 0
C) find(i)
D) find(parent[i])

17. What do you call the message wrapped in curly braces below?

```
const message = 'Hi there';
const element = <p>{message}</p>;
```

A) a JS function
B) a JS element
C) a JS expression
D) a JSX wrapper

18. Which of the following precedence order is correct in Python?

A) Parentheses, Exponential, Multiplication, Division, Addition, Subtraction
B) Multiplication, Division, Addition, Subtraction, Parentheses, Exponential
C) Division, Multiplication, Addition, Subtraction, Parentheses, Exponential
D) Exponential, Parentheses, Multiplication, Division, Addition, Subtraction

19. Which of the following hash functions is most likely to cause clustering in a hash table?

A) h(k) = k % m
B) h(k) = floor(m * (kA mod 1))
C) h(k) = k
D) h(k) = ((k / m) + k * m) + k % m

20. Which of these is not a core data type?

A) Lists
B) Dictionary
C) Tuples
D) Class