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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 3_MCQ_Updated

Attempt : 1
Total Mark : 20
Marks Obtained : 19

Section 1 : MCQ

1. A user performs the following operations on stack of size 5 then which of the following is correct statement for Stack?

```
push(1);
pop();
push(2);
push(3);
pop();
push(2);
pop();
pop();
push(4);
pop();
pop();
push(5);
```

Answer

Underflow Occurs

Status : Correct ***Marks : 1/1***

2. The user performs the following operations on the stack of size 5 then at the end of the last operation, the total number of elements present in the stack is

```
push(1);
pop();
push(2);
push(3);
pop();
push(4);
pop();
pop();
push(5);
```

Answer

1

Status : Correct ***Marks : 1/1***

3. Which of the following operations allows you to examine the top element of a stack without removing it?

Answer

Peek

Status : Correct ***Marks : 1/1***

4. In an array-based stack, which of the following operations can result in a Stack underflow?

Answer

Popping an element from an empty stack

Status : Correct ***Marks : 1/1***

5. In a stack data structure, what is the fundamental rule that is followed for performing operations?

Answer

Last In First Out

Status : Correct ***Marks : 1/1***

6. Which of the following Applications may use a Stack?

Answer

All of the mentioned options

Status : Correct ***Marks : 1/1***

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

Answer

-18

Status : Correct ***Marks : 1/1***

8. In the linked list implementation of the stack, which of the following operations removes an element from the top?

Answer

Pop

Status : Correct ***Marks : 1/1***

9. What is the primary advantage of using an array-based stack with a fixed size?

Answer

Efficient memory usage

Status : Correct ***Marks : 1/1***

10. When you push an element onto a linked list-based stack, where does the new element get added?

Answer

At the beginning of the list

Status : Correct ***Marks : 1/1***

11. What will be the output of the following code?

```
#include <stdio.h>
#define MAX_SIZE 5
int stack[MAX_SIZE];
int top = -1;
void display() {
  if (top == -1) {
    printf("Stack is empty\n");
  } else {
    printf("Stack elements: ");
    for (int i = top; i >= 0; i--) {
      printf("%d ", stack[i]);
    }
    printf("\n");
  }
}
void push(int value) {
  if (top == MAX_SIZE - 1) {
    printf("Stack Overflow\n");
  } else {
    stack[++top] = value;
  }
}
int main() {
  display();
```

```
    push(10);
    push(20);
    push(30);
    display();
    push(40);
    push(50);
    push(60);
    display();
    return 0;
}
```

Answer

Stack is emptyStack elements: 30 20 10Stack OverflowStack elements: 50 40 30 20 10&nbsp;

Status : Correct ***Marks : 1/1***

12. Consider a linked list implementation of stack data structure with three operations:

push(value): Pushes an element value onto the stack.pop(): Pops the top element from the stack.top(): Returns the item stored at the top of the stack.

Given the following sequence of operations:

push(10);pop();push(5);top();

What will be the result of the stack after performing these operations?

Answer

The top element in the stack is 5

Status : Correct ***Marks : 1/1***

13. Pushing an element into the stack already has five elements. The stack size is 5, then the stack becomes

Answer

Overflow

Status : Correct ***Marks : 1/1***

14. What will be the output of the following code?

```
#include <stdio.h>
#define MAX_SIZE 5
int stack[MAX_SIZE];
int top = -1;
int isEmpty() {
   return (top == -1);
}
int isFull() {
   return (top == MAX_SIZE - 1);
}
void push(int item) {
   if (isFull())
      printf("Stack Overflow\n");
   else
      stack[++top] = item;
}
int main() {
   printf("%d\n", isEmpty());
   push(10);
   push(20);
   push(30);
   printf("%d\n", isFull());
   return 0;
}
```

Answer

10

Status : Correct ***Marks : 1/1***

15. What will be the output of the following code?

```
#include <stdio.h>
#define MAX_SIZE 5
```

```
void push(int* stack, int* top, int item) {
   if (*top == MAX_SIZE - 1) {
      printf("Stack Overflow\n");
      return;
   }
   stack[++(*top)] = item;
}
int pop(int* stack, int* top) {
   if (*top == -1) {
      printf("Stack Underflow\n");
      return -1;
   }
   return stack[(*top)--];
}

int main() {
   int stack[MAX_SIZE];
   int top = -1;
   push(stack, &top, 10);
   push(stack, &top, 20);
   push(stack, &top, 30);
   printf("%d\n", pop(stack, &top));
   printf("%d\n", pop(stack, &top));
   printf("%d\n", pop(stack, &top));
   printf("%d\n", pop(stack, &top));
   return 0;
}
```

Answer

102030Stack Underflow

Status : Wrong ***Marks : 0/1***

16. Elements are Added on _______ of the Stack.

Answer

Top

Status : Correct ***Marks : 1/1***

17. Here is an Infix Expression: 4+3*(6*3-12). Convert the expression from Infix to Postfix notation. The maximum number of symbols that will appear on the stack AT ONE TIME during the conversion of this expression?

Answer

4

Status : Correct ***Marks : 1/1***

18. Consider the linked list implementation of a stack.

Which of the following nodes is considered as Top of the stack?

Answer

First node

Status : Correct ***Marks : 1/1***

19. What is the advantage of using a linked list over an array for implementing a stack?

Answer

Linked lists can dynamically resize

Status : Correct ***Marks : 1/1***

20. The result after evaluating the postfix expression 10 5 + 60 6 / * 8 - is

Answer

142

Status : Correct ***Marks : 1/1***