C Quiz 7 Q&A (30-11-2023)

```
1. #include<stdio.h>
#include<string.h>
#include<stdlib.h>

int main()
{
    char *s;
    char *fun();
    s = fun();
    printf("%s\n", s);
    return 0;
}
char *fun()
{
    char *buffer;
    buffer = (char*)malloc(sizeof(char)*5);
    strcpy(buffer, "RAM");
    return (buffer);
}
```
Answers

1. Segmentation fault
2. compile time error :function returns address of local variable
3. RAM
4. none of these


```
2. note: consider 64 bit compilation
#include<stdio.h>
#include<stdlib.h>

int main()
{
    int *a[3];
    a[0] = (int*) malloc(sizeof(int)*3);
    a[1] = (int*) malloc(sizeof(int)*3);
    a[2] = (int*) malloc(sizeof(int)*3);

    printf("\n sizeof(a) = %d \n",sizeof(a));
    free(a);
    return 0;
}
```
Answers

1. sizeof(a) = 24 unable to allocate memory
2. sizeof(24) = 24, 36bytes of memory allocated and segmentation fault
3. sizeof(24) = 24, 36bytes of memory allocated and freeup memory allocated by all malloc.
4. sizeof(24) = 12, 36bytes of memory allocated and segmentation fault

3. Find the output of the following
```c
int main()
{
    char *cptr = calloc((char)127,1);
    strcpy(cptr,"sunbeam pune");
    free(*cptr);
    return 0;
}
```
Answers

1. compiler error
2. runtime error
3. will deallocate memory successfully
4. None of the above

4. what will be the output of this code?

```c
#include<stdio.h>
#define a 10
#define z(a) a-1
#define SQR(x) (x*x)
int main()
{
int c, b=3;
c = z(a) * SQR(b+2);
printf("%d\n", c);
return 0;
}
```
Answers

1. -1
2. 225
3. 99
4. 5

5. What is the output of C program with #define.?
```c
#define Q 156
int main()
{
    int a=10;
    a = a*'Q';
    printf("a=%d",a);
    return 0;
}
```
Answers

1. 1560
2. 156
3. 810
4. 1130

6. What will be the output of the C program?
```c
#include<stdio.h>
#define i 10
int main()
{
        #define i 20
        printf("%d",i);
        return 0;
}
```
Answers

1. Compilation error
2. 20
3. 30
4. Runtime error

7. What will be output of following code?
```c
#include<stdio.h>
#define p 11+2
int main()
{
    int i;
    i=p++ * p++;
    printf("%d",i);
    return 0;
}
```
Answers

1. 35
2. 26
3. 169
4. lvalue required error

8. What is the output of C program
```c
#include<stdio.h>
#define CONDITION(x)\
printf("Machine Learning\n"+8);
int main()
{
  CONDITION(0);
  return 0;
}
```
Answers

1. Runtime Error
2. Compilation error
3. Learning
4. 0

9. What is the output of C program
```c
#include <stdio.h>
#define p 24;
int main()
{
  printf("%d",p);
  return 0;
}
```
Answers

1. Garbage value
2. Runtime error
3. 24
4. Compilation error

10.
```c
#include<stdio.h>
#include<stdlib.h>
int main()
{
char *ptr=NULL;
int alloc_length =16 ;
int new_length;

ptr = (char *)malloc(sizeof(char)*alloc_length);

ptr = realloc(ptr, alloc_length << 1);

free(ptr);
ptr=NULL;

return 0;
}
```
Answers

1. allocated 16bytes and free 32bytes
2. allocated 32bytes and free 32bytes
3. allocated 32bytes and free 16bytes
4. allocated 16bytes and free 16bytes

-- Compiled by Utkarsh Singh --