Table of Contents

Table of Contents 1
Contributors 2
1 Programming and DS: Programming (20) 3
1.1 Array (5) 3
1.2 Array Of Pointers (3) 4
1.3 Output (3) 5
1.4 Pointers (2) 5
1.5 Recursion (1) 6
1.6 Storage Classes In C (3) 6
1.7 Structure (3) 7
Answer Keys 8

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1 Programming and DS: Programming (20)

1.1 Array (5) top

1.1.1 Array: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 11 top

Consider the following declaration of a.

```
int a[100][200][30];
```

What will be the integer value of $a[50][300] - a[10][500]$?

goclasses2024_wq18 goclasses programming programming-in-c array numerical-answers 2-marks

Answer key

1.1.2 Array: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 15 top

What will be the output of the following program?

```
int main()
{
   int arr[3][3] = {{1,2,3}, {4,5,6}, {7,8,9}};
   int *p;
   p = (int *)(arr+2);
   printf("%d", *(p-2));
}
```

goclasses2024_wq18 goclasses programming programming-in-c array output numerical-answers 2-marks

Answer key

1.1.3 Array: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 17 top

What will be the output of the following program ?

```
#include<stdio.h>
void fun(int c[2][2]){
   c = c+1;
   *c[1] = 5;
   (*c)[1] = 6;
}
int main()
{
   int a[3][2] = {{1,2}, {10,20}, {40, 50}};
   fun(a);
   printf("%d %d", a[2][0], a[1][0]);
}
```

A. $5\ 10$
B. $10\ 5$
C. $10\ 40$
D. Error since c is a two-dimensional array, and we can not update the value of c using $c = c + 1$.

goclasses2024_wq18 goclasses programming programming-in-c array output 2-marks

Answer key

1.1.4 Array: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 7 top

Which of the following(s) function declarations can be used to pass the following array?

```
char myArray[3][4];
```

A. `void fun(char a[3][]);`

B. `void fun(char a[][4]);`

C. `void fun(char (*a)[4]);`

D. `void fun(char **a);`

goclasses2024_wq18 goclasses programming programming-in-c array multiple-selects 1-mark

Answer key

1.1.5 Array: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 9 top

What will be the output of the following program?

```
main()
{
   int a[2][2] = { {1,2},{3,4} };
   int(*p)[2][2];
   p = &a;
   printf("%d", (*p)[0][0]);
}
```

A. 1 B. 3 C. 4 D. None of these

goclasses2024_wq18 goclasses programming programming-in-c array output 1-mark

Answer key

1.2 Array Of Pointers (3) top

1.2.1 Array Of Pointers: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 14 top

After executing following lines of C code, &arr[1][2] is same as:

```
int (*a)[3];
int arr[2][3];
a = arr+1;
```

A. &a[0][2] B. (*a+2)

C. (int *)(&arr+1)-1 D. *(a+2)

goclasses2024_wq18 goclasses programming programming-in-c array array-of-pointers multiple-selects 2-marks

Answer key

1.2.2 Array Of Pointers: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 16 top

Assume starting addresses of array arrop and twoD are 1000 and 2000 respectively. Also, assume that addresses are of 8 bytes and integers are of 4 bytes.

What will be the value of *pp[1] after the last line (pp++) of the following program?

```
int main()
{
   int **pp;
   int *arrop[3];
   int twoD[3][3] = {{1,2,3}, {7,8,9}, {4,5,6}};
   pp = arrop;
   arrop[0] = (int *)(twoD+2);
   arrop[1] = (int *)(twoD+1);
   arrop[2] = (int *)(twoD);
   pp++;
}
```

goclasses2024_wq18 goclasses programming programming-in-c array-of-pointers numerical-answers 2-marks

Answer key

1.2.3 Array Of Pointers: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 2 top

Assume that an int variable takes 4 bytes and a char variable takes 1 byte. What is the output of the code below?

```
int main()
{
   int arr[]={10,20,30,40,50,60};
   int *ptr1=arr;
   int *ptr2=arr+5;
   printf("Number of elements between two pointer are: %d.",
   (ptr2 - ptr1));
   printf("Number of bytes between two pointer are: %d.",
   (char*)ptr2 - (char*)ptr1);
}
```

A. Number of elements between two pointer are: 5. Number of bytes between two pointers are: 20
B. Number of elements between two pointer are: 20. Number of bytes between two pointers are: 20

C. Number of elements between two pointer are:5. Number of bytes between two pointers are:5
D. Compile time error

goclasses2024_wq18 goclasses programming programming-in-c pointers array-of-pointers 1-mark

Answer key

1.3 Output (3) top

1.3.1 Output: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 1 top

What will be the output of the following C program?

```
#include<stdio.h>
void main()
{
   int i=6;
   for(--i; --i; i--)
   {
     printf("%d",i);
   }
}
```

A. 42 B. 31 C. Infinite loop D. None of these

goclasses2024_wq18 goclasses programming programming-in-c output 1-mark

Answer key

1.3.2 Output: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 20 top

What will be the output of the following C program?

```
#include<stdio.h>
void main()
{
   int b=20, c=30;
   printf("%d%d\n", b<<2>>4, c<<2>>4);
}
```

goclasses2024_wq18 numerical-answers goclasses programming programming-in-c output 2-marks

Answer key

1.3.3 Output: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 3 top

What is the output of the following code?

```
#include<stdio.h>
int main() {
   unsigned int x = 1;
   int y = -2;
   (x + y > 0) ? printf("WRONG ANSWER");
      : printf("CORRECT ANSWER");
}
```

A. WRONG ANSWER
B. CORRECT ANSWER
C. Prints nothing
D. None of these

goclasses2024_wq18 goclasses programming programming-in-c output 1-mark

Answer key

1.4 Pointers (2) top

1.4.1 Pointers: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 18 top

Consider the following declaration of pointer variable p.

```
int (*p)[10];
```

If the initial value of p is 1100, then what will be the value of p+1?
It is given that, system has 8 bytes of address size and 4 bytes of integer size.

A. 1140 B. 1180 C. 1104 D. 1108

goclasses2024_wq18 goclasses programming programming-in-c pointers 2-marks

Answer key

1.4.2 Pointers: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 19 top

What will be the output of the following C code?

```
#include<stdio.h>
void fun (char *p){
   p++[1]= 'E';
   ++*p++;
   printf("%c",*p);
}
int main(){
   char c[]= "IISc";
   fun(c);
}
```

A. I B. S C. E D. c

goclasses2024_wq18 goclasses programming programming-in-c functions pointers 2-marks

Answer key

1.5 Recursion (1) top

1.5.1 Recursion: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 10 top

```
void mystery(int n) {
  if (n <= 1) {
    printf("%d", n);
  }
   else {
    printf("%d, ", n);

    mystery(n/2);
    printf(", %d", n);
  }
}
```

What will be the output printed by $\text{mystery}(12)$?

A. $12, 6, 3, 1, 3, 6, 12$
B. $12, 6, 3, 1, 3, 6,$
C. $12, 6, 3, 1, 3, 6, 12,$
D. None of these

goclasses2024_wq18 goclasses programming programming-in-c recursion output 1-mark

Answer key

1.6 Storage Classes In C (3) top

1.6.1 Storage Classes In C: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 4 top

What will be the output if we compile and execute the following C code?

```
#include<stdio.h>
void main(){
int i=10;
static int x=i;
if(x==i)
   printf("Equal");
else if(x>i)
   printf("Greater than");
else
   printf("Less than");
}
```

A. Equal B. Greater than C. Less than D. Compiler error

goclasses2024_wq18 goclasses programming programming-in-c storage-classes-in-c output 1-mark

Answer key

1.6.2 Storage Classes In C: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 5 top

What will be the output if you compile and execute the following C code?

```
int extern x;
void main()
{
```

```
    printf("%d",x);
    x=2;
}
int x=23;
```

A. 0 B. 2 C. 23 D. Compiler error

goclasses2024_wq18 goclasses programming programming-in-c storage-classes-in-c output 1-mark

Answer key

1.6.3 Storage Classes In C: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 6 top

Consider below two files p1.c and p2.c

C program file 1 (p1.c):

```
extern int a;

void f1()
{
    a = 1;      //  (1)

    int a;      //  (2)
    a = 1;
}

void f2(int a)
{
   {
    int a;      //  (3)
    a = 1;
   }
}


void f3(int a)
{

   a = 1;     // (4)
}

int a;
static int b;
```

C program file 2 (p2.c):

```
void f4()
{
    extern int a;

    a = 1;      //   (5)
}

void f5()
{
    extern int b;

    b = 1;      //   (6)
}

int main( )
{
   a = 1;       //   (7)

   f1();
   f2(1);
   f3(1);
   f4();
   f5();
}
```

We compile both files independently and link them in case the compilation is successful.

Which of the following(s) is/are TRUE?

A. p1.c can not be compiled as there is no main function in the file.
B. Line 3 in p1.c will produce a compilation error because of the redefinition of variable a.
C. Line 6 in p2.c will produce a compilation error since the extern does not allocate memory to variables.
D. Line 7 in p2.c will produce a compilation error.

goclasses2024_wq18 goclasses programming programming-in-c storage-classes-in-c output multiple-selects 1-mark

Answer key

1.7 Structure (3) top

1.7.1 Structure: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 12 top

What will be the output of the following program?

```
#include<stdio.h>
struct _myst{
   char b[20];
   char *a;
   struct _myst *c;
}x[2] = {"GATE", "Overflow", x+1, "GO", "Classes", x}, *p = x;
typedef struct _myst myst;

myst* mystry(myst *p, int n){
   if (n<=0) return p++;
   if(n%2) return mystry(p->c, n-2);
   else return mystry(p->c, n-1);
}
int main()
{
   printf("%s",mystry(p,2023)->a);
}
```

A. GATE B. Overflow C. Run time error D. Compile-time error

goclasses2024_wq18 goclasses programming programming-in-c structure 2-marks

Answer key

1.7.2 Structure: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 13 top

What will be the output of the following program?

```
struct s{
   int i;
   struct s *p;
};

struct s arr[4] = { 7, arr+3,
   8, arr+2,
   9, arr,
   10, arr+1,
};

struct s *ap[] = {arr+3, arr+2, arr+1, arr};
struct s **pp =ap;
int main()
{
   printf("%d", ap[pp[0]->p->i%2]->i++);
}
```

A. 7 B. 10 C. 9 D. 8

goclasses2024_wq18 goclasses programming programming-in-c structure output 2-marks

Answer key

1.7.3 Structure: GO Classes 2024 | Weekly Quiz 18 | Programming | Question: 8 top

What will be printed by the following program?

```
#include<stdio.h>
struct card
{
   int face ;
};
typedef struct card Card ;
Card c ;
void pass(Card c);
int main()
{
   c.face = 1;
   printf("%d ", c.face);
   pass(c);
   printf("%d",c.face);
}

void pass(Card c)
{
   c.face = 5;
   printf("%d ",c.face);
}
```

A. 1 1 1 B. 1 5 1 C. 1 5 5 D. None of these

goclasses2024_wq18 goclasses programming programming-in-c functions structure parameter-passing 1-mark

Answer key

Answer Keys

1.1.1	234000	1.1.2	5	1.1.3	A	1.1.4	B;C	1.1.5	A
1.2.1	A;B;C	1.2.2	1	1.2.3	A	1.3.1	A	1.3.2	57
1.3.3	A	1.4.1	A	1.4.2	B	1.5.1	A	1.6.1	D
1.6.2	C	1.6.3	D	1.7.1	B	1.7.2	B	1.7.3	B