Table of Contents

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

Contributors

User	, Answers
shadymademe	37, 8
Aditya	18, 4
Prateek Jha	13, 2
Amar Kumar Sharma	7, 1
Abhishek Verma	7, 2
Shishir Roy	6, 1
Garima_Singh	5, 1
Kiyoshi	4, 1

User	?Added
GO Classes for GATE CSE	20

User	Done
Sachin Mittal	2
Aditya	1
Shishir Roy	1
Abhishek Verma	1
Amar Kumar Sharma	1
GO Classes for GATE CSE	1
shadymademe	1
Kiyoshi	1

1 Programming and DS: Programming (20)

1.1 Array (3) top

1.1.1 Array: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 14 top

```
main()
{
   char s[]= "jjtd\0abc", *p;

   for (p = s; *p; p++)
   {
     --(*p);
   }

   printf("%s", s);
}
```

What will be the output of a given program?

A. iitb abc B. iisc abc C. iisc D. iitb

goclasses2024_wq17 goclasses programming programming-in-c array output 1-mark

Answer key

1.1.2 Array: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 7 top

What will be the output of the given C code?

```
#include<stdio.h>
#include<stdlib.h>
int main(){
   int x, t[4] = {1,3,4,5};
   int *p, **pp;
   p = t;
   pp = &p;
   printf("%d ", *p);
   printf("%d ", **pp+1);
   printf("%d", *(*pp+1));
}
```

A. 1 3 4 B. 1 3 3 C. 1 2 3 D. 1 2 2

goclasses2024_wq17 goclasses programming programming-in-c array 1-mark

Answer key

1.1.3 Array: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 8 top

Which of the following function declaration can be passed to the following array?

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

A.
```
void fun(char a[][], int size);
```

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

C.
```
void fun(char [3][], int size);
```

D.
```
void fun(char [][]a, int size);
```

goclasses2024_wq17 goclasses programming programming-in-c array 1-mark

Answer key

1.2 Array Of Pointers (4) top

1.2.1 Array Of Pointers: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 12 top

```
char *strcollection[3]= {"GOClasses", "GATEOverflow", "IISc"};
```

For the above declaration, consider base addresses of strcollection, "GOClasses", "GATEOverflow" and "IISc" are $1000, 2000, 3000$ and 4000 respectively.

What will be value of strcollection$+1$?

Assume character is of one bytes, integer is of two bytes and address is of four bytes.

goclasses2024_wq17 goclasses programming programming-in-c array array-of-pointers numerical-answers 1-mark

Answer key

1.2.2 Array Of Pointers: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 2 top

Which of the following is/are valid assignment(s) of the pointer for the given declaration? An assignment is valid if both pointers are of the same type (pointers are compatible) and get successfully compiled with no warning or error.

```
int a[5]={1,2};
int (*p)[5];
```

A.	B.	C.	D.
p = a;	p = &a;	p = *a;	p = **a;

goclasses2024_wq17 goclasses programming programming-in-c array pointers array-of-pointers multiple-selects 1-mark

Answer key

1.2.3 Array Of Pointers: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 20 top

Consider the following declarations of variables in a system having 4 bytes for integers.

```
int a[5][4];
int (*p1)[2];
int (*p2)[2];
int (*t1)[4];
int (*t2)[4];
```

Suppose array a has base address of 1000 and initial values of $p1, p2, t1$ and $t2$ are $1000, 1048, 1016$ and 1064 respectively. What will be the value of $p2 - p1$ and $t2 - t1$ respectively?

A. $6\ 3$ B. $48\ 24$ C. $12\ 6$ D. $24\ 12$

goclasses2024_wq17 goclasses programming programming-in-c array array-of-pointers 2-marks

Answer key

1.2.4 Array Of Pointers: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 6 top

Consider the following declaration of pointer variable p.

```
int (*p)[5];
```

If the initial value of p is 1000, then what will be the value of $p + 1$?
It is given that the system has 8 bytes of address size and 4 bytes of integer size.

A. 1001 B. 1004 C. 1020 D. 1008

goclasses2024_wq17 goclasses programming programming-in-c array-of-pointers 1-mark

Answer key

1.3 Programming In C (1) top

1.3.1 Programming In C: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 16 top

Mark all options which are likely to create problems with memory, i.e., run time error or has a memory leak.
Assume that malloc is successful in all cases.

```
Program 1:
int *p = malloc(sizeof(int));
*p = 0;
free(p);
*p = 0;
```

```
Program2:
int *p = malloc(sizeof(int));
*p = 0;
free(p);
p = 0;
```

```
Program 3:
int *p = malloc(3*sizeof(int));
*p = 0;
p++;
free(p);
```

```
Program 4:
int *p = malloc(sizeof(char));
*p = 0;
```

A. Program 1 B. Program 2 C. Program 3 D. Program 4

goclasses2024_wq17 goclasses programming programming-in-c multiple-selects 2-marks

Answer key

1.4 Recursion (5) top

1.4.1 Recursion: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 1 top

```
char my_text[]= "2023 GATE";
void fun(int position)
{
   if (my_text[position] !=' ')
   {
      fun(position+1);
      printf("%c", my_text[position]);
   }
}
int main() {
   fun(0);
}
```

What will be the output of a given program ?

A. 2023 B. 3202 C. ETAG3202 D. ETAG

goclasses2024_wq17 goclasses programming programming-in-c recursion output 1-mark

Answer key

1.4.2 Recursion: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 10 top

What will be output of following program?

```
void xyz(int i)
{
   if(--i)
   {
      xyz(i++);
      printf("%d",i);
   }
}
main()
{
   xyz(5);
}
```

A. It is an infinite recursion since no base case B. 2345
C. 54321 D. 1234

goclasses2024_wq17 goclasses programming programming-in-c recursion 1-mark

Answer key

1.4.3 Recursion: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 11 top

What will be the output printed by $\text{mystery1}(0, 6)$?

```
void mystery1(int a, int b) {
   if (a <= b) {
      int m = (a + b) / 2;
      printf("%d", m);
      mystery1(a, m-1);
      mystery1(m+1, b);
   }
}
```

goclasses2024_wq17 goclasses programming programming-in-c recursion numerical-answers 1-mark

Answer key

1.4.4 Recursion: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 19 top

```
int mystry (char* str) {
   if (*str == 0) {
      return 0;
   }
   return mystry (str+1) +1;
}
```

What will be the output of mystry("hello")?

goclasses2024_wq17 goclasses programming programming-in-c recursion numerical-answers 2-marks

Answer key

1.4.5 Recursion: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 9 top

Which of the following(s) are true for following function

```
int mystery(int a) {
if(a == 256) return 3;
   return 1 + 2 * mystery(a*4); //line 3
}
```

A. $\text{mystery}(255)$ is an example of infinite recursion
B. if we replace line 3 by following line return $1 +$ $\text{mystery}(a*4)+$ $\text{mystery}(a*4)$; then also output is same
C. Only possible outputs are $3, 7, 15, 31$
D. $\text{mystery}(i)$ gives output if and only if i is 1 or multiple of 4

goclasses2024_wq17 goclasses programming programming-in-c recursion multiple-selects 1-mark

Answer key

1.5 Storage Classes In C (4) top

1.5.1 Storage Classes In C: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 15 top

The default storage class for global variables in the C language is –

A. Static B. Auto C. Extern D. None of these

goclasses2024_wq17 goclasses programming programming-in-c storage-classes-in-c 1-mark

Answer key

1.5.2 Storage Classes In C: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 3 top

Which of the following is NOT a valid C program? A valid program is a program having no compile-time errors.

```
Program 1
auto int a;
main ()
{
  auto int b;
  for (b = 0; b < 10; b++)
  {
    auto int a = b;
  }
}
```

```
Program 2
static int a;
main ()
{
  static int b;
  for (b = 0; b < 10; b++)
  {
    static int a = 1;
  }
}
```

```
Program 3
int a;
main ()
{
```

```
  static int b;
  for (b = 0; b < 10; b++)
  {
    static int a = 1;
  }
}
```

```
Program 4
extern int a;
main ()
{
  static int b;
  for (b = 0; b < 10; b++)
  {
    static int a = 1;
  }
}
```

A. Program 1 B. Program 2 C. Program 3 D. Program 4

goclasses2024_wq17 goclasses programming programming-in-c storage-classes-in-c loop 1-mark

Answer key

1.5.3 Storage Classes In C: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 4 top

Which of the following is/are TRUE about storage classes in C programming

A. static local variables are NOT available to the linker.
B. static global variables are available to the linker.
C. extern local variables are available to the linker.
D. extern global variables are NOT available to the linker.

goclasses2024_wq17 goclasses programming programming-in-c storage-classes-in-c multiple-selects 1-mark

Answer key

1.5.4 Storage Classes In C: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 5 top

The default storage class for functions in C language is –

A. Static B. Auto C. Extern D. None of these

goclasses2024_wq17 goclasses programming programming-in-c storage-classes-in-c 1-mark

Answer key

1.6 Structure (3) top

1.6.1 Structure: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 13 top

Consider the following declaration of struct.

```
struct myst{
   char a[20];
   char *b;
   struct myst *p;
}x[2] = {"GATE", "Overflow", x+1, "GO", "Classes", x}, *p = x;
```

What will be the output of the following print statement?

```
printf("%s", p++->p->b++);
```

A. Overflow B. Classes C. verflow D. lasses

goclasses2024_wq17 goclasses programming programming-in-c structure 1-mark

Answer key

1.6.2 Structure: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 17 top

Based on the struct alignment discussed in class,

What are the sizes of foo1, foo2, foo3 and foo4 respectively?

Sizes of primitive data types are given below.

```
sizeof(int) = 4 bytes
sizeof(short) = 2 bytes
```

```
sizeof(char) = 1 byte
```

```
struct foo1 {
   int d1;
   char c1;
   int d2;
};

struct foo2 {
   int d1;
   char c1;
   int d2;
   char c2;
   short s;
};

struct foo3 {
   int d1;
   int d2;
   char c1;
   char c2;
   short s;
};

struct foo4 {
   char c1;
   int d1;
   short s;
   int d2;
   char c2;
};
```

A. 9, 12, 12, 12
B. 9, 12, 16, 20
C. 12, 16, 12, 20
D. 12, 20, 20, 20

goclasses2024_wq17 goclasses programming programming-in-c structure 2-marks

Answer key

1.6.3 Structure: GO Classes 2024 | Weekly Quiz 17 | Programming | Question: 18 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,
   8, arr+1,
};
struct s *ap[] = {arr+3, arr+2, arr+1, arr};
struct s **pp =ap;
int main()
{
   printf("%d ", ap[++pp[2]->i-6]->i++);
   printf("%d ", pp[1]++->p++->i);
   printf("%d", ++arr[2].p->i);
}
```

A. 9 10 9
B. 7 8 10
C. 7 8 9
D. None of these

goclasses2024_wq17 goclasses programming programming-in-c structure 2-marks

Answer key

Answer Keys

1.1.1	C	1.1.2	C	1.1.3	B	1.2.1	1004	1.2.2	B
1.2.3	A	1.2.4	C	1.3.1	A;C;D	1.4.1	B	1.4.2	B
1.4.3	3102546	1.4.4	5	1.4.5	A;B	1.5.1	D	1.5.2	A
1.5.3	A;C	1.5.4	C	1.6.1	B	1.6.2	C	1.6.3	B