

Summary in Graph

Exam Summary (GO Classes Test Series 2024 |  
Programming | Test 1).

Qs. Attempted:	15 5 + 10	Correct Marks:	7 3 + 4
Correct Attempts:	5 3 + 2	Penalty Marks:	1.67 0.33 + 1.33
Incorrect Attempts:	10 2 + 8	Resultant Marks:	5.33 2.66 + 2.66

Total Questions:	15 5 + 10
Total Marks:	25 5 + 20
Exam Duration:	45 Minutes
Time Taken:	42 Minutes

- EXAM RESPONSE
- EXAM STATS
- FEEDBACK

Technical

Q #1

Multiple Select Type

Award: 1

Penalty: 0

Programming in C

Consider the  $k$  bit binary pattern.  $T_{\max}$  and  $T_{\min}$  are maximum and minimum signed numbers we can represent using  $k$  bits.  $U_{\max}$  and  $U_{\min}$  are maximum and minimum unsigned numbers we can represent using  $k$  bits. Numbers are represented using 2's complement system.

Which of the following(s) is/are true for  $k = 16$ ?

Here  $|\cdot|$  represents absolute value of a number i.e.  $|r| = -r$  if  $r < 0$  otherwise  $|r| = r$ .

- A.  $|T_{\min}| = T_{\max} + 1$
- B.  $U_{\max} = 2 * T_{\max} + 1$
- C.  $U_{\max} = |T_{\min}| + T_{\max} + 1$
- D.  $U_{\min} = |T_{\min}|$

Your Answer: A;B

Correct Answer: A;B

Correct

Discuss

Q #2

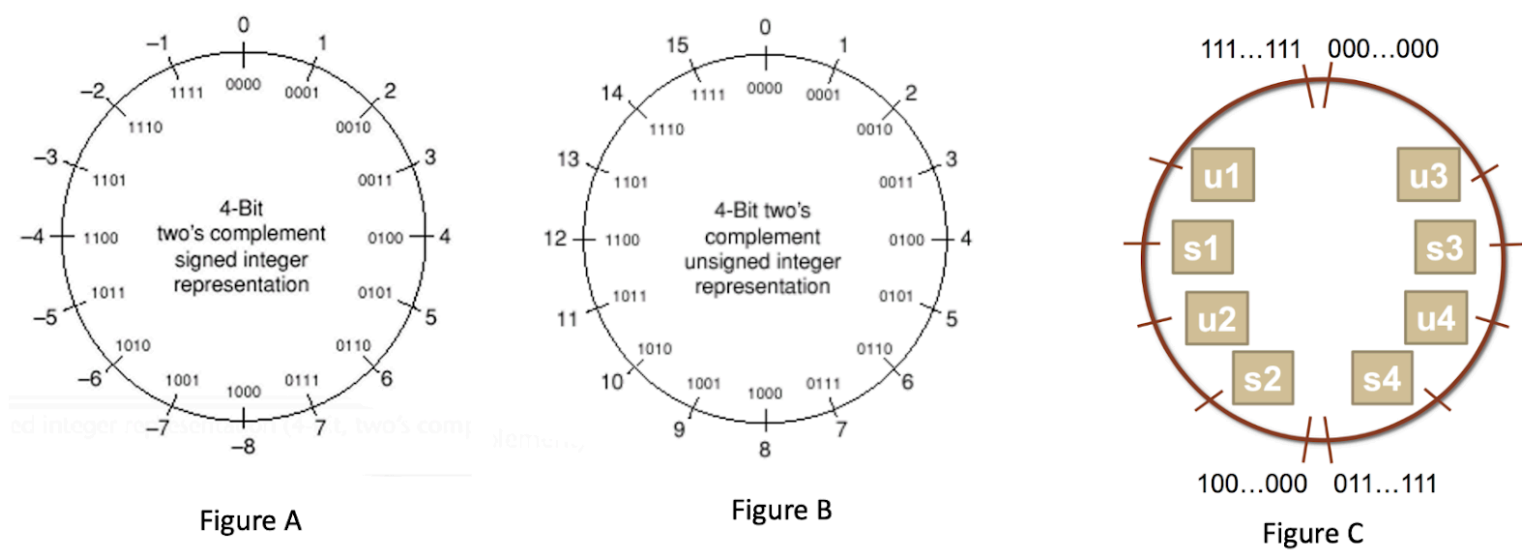
Multiple Select Type

Award: 1

Penalty: 0

Programming in C

Consider Figure A and Figure B, which represent 4 bit signed and unsigned numbers, respectively, in the 2's complement system.



Assume that a few variables are defined below and initialized in such a way that places them in the spot shown in Figure C.

```
int s1, s2, s3, s4;
unsigned int u1, u2, u3, u4;
```

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

- A.  $s2 > s4$
- B.  $s1 > s2$
- C.  $s1 > u3$
- D.  $s3 > u3$

Your Answer: B;D

Correct Answer: A

Incorrect

Discuss

Q #3

Multiple Choice Type

Award: 1

Penalty: 0.33

Programming in C

Assume that  $x$  is a two's complement binary integer whose absolute value is not large (so no overflow problems). At right are four C expressions that use the  $<<$  (shift left) and  $\sim$  (bitwise complement: flip each 0 to 1 and each 1 to 0 in the binary representation) operators. For example,  $7 << 1$  is 14 and  $\sim 0$  is  $-1$ .

Match each expression to one of the mathematical functions at left.

a.	$4x$	I.	$(\sim x) + 1$
b.	$-x$	II.	$(x << 1) + x$
c.	$3x$	III.	$\sim x$
d.	$-x - 1$	IV.	$x << 2$

- A.
- a - IV
  - b - I
  - c - II
  - d - III
- B.
- a - IV
  - b - III
  - c - II
  - d - I
- C.
- a - II
  - b - I
  - c - IV
  - d - III
- D. None of these

Your Answer: A

Correct Answer: A

Correct

Discuss

Q #4

Multiple Choice Type

Award: 1

Penalty: 0.33

Programming in C

What will be the output of the following program?

```
#include<stdio.h>
main()
{
    char grade='A';
5.    int result=0;
    switch(grade)
    {
        case 'A':
            result+=4;
10.    case 'B':
            result+=3;
        case 'C':
            result+=2;
        default:
15.    result+=1;
    }
    printf("%d", result);
}
```

- A. 10
- B. 4
- C. 9
- D. 0

Your Answer: B

Correct Answer: A

Incorrect

Discuss

Q #5

Multiple Choice Type

Award: 1

Penalty: 0.33

Programming in C

What is the logical condition under which the following while loop will terminate?

```
int Beta = 5;
while (Beta > 0 && Beta < 10)
{
    printf("%d", Beta);
5.    scanf("%d", &Beta);
}
```

- A.  $\text{Beta} < 0 \ \&\& \ \text{Beta} \geq 10$
- B.  $\text{Beta} < 0 \ || \ \text{Beta} > 10$
- C.  $\text{Beta} \leq 0 \ || \ \text{Beta} \geq 10$
- D.  $\text{Beta} < 0 \ || \ \text{Beta} \geq 10$

Your Answer: C

Correct Answer: C

Correct

Discuss

Q #6

Multiple Choice Type

Award: 2

Penalty: 0.67

Programming in C

What will be output on the execution of the following code segment?

```
#include<stdio.h>
main()
{
    unsigned num1 = 1;
5.    signed num2 = -1;
    if (num1 < num2)
        printf("less");
    else if (num1 > num2)
        printf("greater");
10.   else if (num1 == num2)
        printf("equal");
}
```

- A. greater
- B. less
- C. equal
- D. Error

Your Answer: B

Correct Answer: B

Correct

Discuss

Q #7

Multiple Select Type

Award: 2

Penalty: 0

Programming in C

Imagine that our system uses a 5-bit integer representation and does addition and subtraction using the rules for 5-bit, two’s complement arithmetic.

Which of the following is/are TRUE?

When converting to decimal, you should treat the value as either signed or unsigned according to the rules of C, where  $T_{min}$  and  $T_{max}$  are signed, as are plain constants, but a constant ending in U is unsigned.

- A.  $-T_{max} - 1U$  is 16 in decimal
- B.  $-T_{max} - T_{min}$  is 00001 in binary
- C.  $T_{max} + T_{max}$  is  $-2$  in decimal
- D.  $T_{min} - 1U$  is 15 in decimal

Your Answer: B;C

Correct Answer: A;B;C;D

Incorrect

Discuss

Q #8

Multiple Choice Type

Award: 2

Penalty: 0.67

Programming in C

What will be the output of the given program?

```
#include<stdio.h>
void main()
{
    int sum =1;
5.    for ( unsigned int i=3; i>=0; --i)
        {
            if(i==0) sum = sum+1;
            else sum = sum *i;
        }
10.   printf("%d", sum);
}
```

- A. 1
- B. 7
- C. 0
- D. None of these

Your Answer: B

Correct Answer: D

Incorrect

Discuss

Q #9

Multiple Select Type

Award: 2

Penalty: 0

Programming in C

Which of the following condition(s) is/are evaluated to true for a given declaration of integer  $i$ .

```
int i = -7;
```

- A.  $-10 < i < -1$
- B.  $i \& 0 \mid 0 \& 1$
- C.  $0 \& 0 \& 0 \mid i$
- D.  $!(1 > 0 > i \& !i)$

Your Answer: A;C;D

Correct Answer: C;D

Incorrect

Discuss

Q #10

Multiple Select Type

Award: 2

Penalty: 0

Programming in C

The statement

```
while ( --counter >= 1 )
    counter % 2 ? printf("A") : printf("B");
```

can NOT be rewritten as

- A.

```
while ( --counter >= 1 )
    if ( counter % 2 )
        printf("A");
    else
5.        printf("B");
```
- B.

```
while ( counter >= 1 )
    if (counter % 2)
        printf("A");
    else
5.        printf("B");
        --counter;
```
- C.

```
while ( counter > 1 )
{
    --counter;
    if ( counter % 2 )
5.        printf("A");
    else
        printf("B");
}
```
- D.

```
do
{
    --counter;
    printf( counter % 2 ? "A" : "B" );
5. } while ( counter >= 2 );
```

Your Answer: B;C

Correct Answer: B;D

Incorrect

Discuss

Q #11

Multiple Select Type

Award: 2

Penalty: 0

Programming in C

Consider the following program fragment. Which of the following if condition(s) prints GO Classes?

```
int b = 1, c = 1, d = 0;
if (0 && 0 == 0) //first if
    printf("GO Classes");
if (b || --b == 0) //Second if
5.    printf("GO Classes");
if (c || c-- == 0) //Third if
    printf("GO Classes");
if (d || ++d == 0) //Fourth if
    printf("GO Classes");
```

- A. First if condition
- B. Second if condition
- C. Third if condition
- D. Fourth if condition

Your Answer: B;D

Correct Answer: B;C

Incorrect

Discuss

Q #12

Multiple Choice Type

Award: 2

Penalty: 0.67

Programming in C

Let A and B be two unknown 8-bit 2's complement numbers. We know the results of  $A \wedge B$  and  $A \& B$  as shown below:

$A \wedge B$	00110100
$A \& B$	11001001

What is the sum  $A + B$  expressed in the 8-bit two's complement notation?

- A. 11000110
- B. 11000010
- C. 01000010
- D. 11010110

Your Answer: A

Correct Answer: A

Correct

Discuss

Q #13

Multiple Select Type

Award: 2

Penalty: 0

Programming in C

Which of the following if statement(s) below is/are equivalent to the given switch statement (that is, produces the same output under the same conditions)? Assume the **answer** is a previously declared int.

```
switch (answer)
{
    case 0: printf("0 entered"); break;
    case 1: printf("1 entered"); break;
5.    case 3: printf("3 entered"); break;
    case 5: printf("5 entered"); break;
    default: printf("Other value entered");
}
```

A.

```
if (answer == 0 || 1 || 3 || 5)
    printf("%d entered", answer);
else
    printf("Other value entered");
```

B.

```

    if ((answer >= 1 && answer <= 5 &&
        answer % 2 == 1) || (answer == 0))
        printf("%d entered", answer);
    else
5.     printf("Other value entered");

```

C.

```

    if (answer == 0)
        printf("0 entered");
    if (answer == 1)
        printf("1 entered");
5. if (answer == 3)
        printf("3 entered");
    if (answer == 5)
        printf("5 entered");
    if (answer != 0 && answer != 1
10.     && answer != 3 && answer != 5)
        printf("Other value entered");

```

D.

```

    if (answer == 0)
        printf("0 entered");
    else if (answer == 1)
        printf("1 entered");
5. else if (answer == 3)
        printf("3 entered");
    else if (answer == 5)
        printf("5 entered");
    else if (answer != 0 & 1 & 3 & 5)
10.     printf("Other value entered");

```

Your Answer: B;C

Correct Answer: B;C;D

Incorrect

Discuss

Q #14

Multiple Select Type

Award: 2

Penalty: 0

Programming in C

Consider two given C programs. Which of the following is/are true? It is also known that in C programming, && has higher precedence than ||.

```

Program 1
#include<stdio.h>
void main()
{
5.   int i = 0;
    if (++i && (i==0))
        printf("GO Classes\n");
    else
        printf("GATEOverflow\n");
10. }

```

```

Program 2
#include<stdio.h>
void main()
{
5.   int x, y, z;
    x = 1;
    y = z = 0;
    ++x || ++y && ++z;
    if (y || z)
10.     printf("GO Classes\n");
    else
        printf("GATEOverflow\n");
}

```

- A. Program 1 prints GO Classes
- B. Program 1 prints GATEOverflow
- C. Program 2 prints GO Classes

D. Program 2 prints GATEOverflow

Your Answer: A;C    Correct Answer: B;D    Incorrect    Discuss

Q #15    Multiple Choice Type    Award: 2    Penalty: 0.67    Programming in C

What will be the output of the following C program?

```
#include<stdio.h>
int main(){
int x=3;
int y;
5. switch(x++){
    x++;
    case 3:
        printf("Three %d",x);
        break;
10. case 4:
        printf("Four %d",x);
        break;
    case 5:
        printf("Five %d",x);
15. break;
    default: printf("Default %d",x);
    }
}
```

- A. Three 3
- B. Four 4
- C. Three 4
- D. Four 5

Your Answer: D    Correct Answer: C    Incorrect    Discuss

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