

CS & IT ENGINEERING

Programming in C
Data Types and Operators
DPP 02 Discussion Notes



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TOPICS TO BE COVERED

01 Question

02 Discussion

Q.1

```
include <stdio.h>
int main(void){
```

```
    int a;
```

```
    a = 2 * 6/5 + 3.0/2 + 1;
```

```
    printf("%d", a);
```

```
    return 0;
```

```
}
```

The value of a is ____

A.

4.9

B.

4.0

C.

4.5

D.

4

$\downarrow \times, / \}$ L to R
 $\downarrow +$
 $=$

$$a = 2 \times 6/5 + 3.0/2 + 1$$

$$a = \overset{\text{int}}{12}/\overset{\text{int}}{5} + 3.0/2 + 1$$

$$a = \cancel{24} + \overset{\text{float}}{3.0}/\overset{\text{int}}{2} + 1$$

$$a = \overset{\text{int}}{2} + \overset{\text{float}}{1.5} + 1$$

$$a = \overset{\text{float}}{3.5} + \overset{\text{int}}{1}$$

$$a = 4.5$$

D

Q.2

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int a;
```

```
    a = 16.0 / 4 * 5 % 3;
```

```
    printf("%d", a);
```

```
    return 0;
```

```
}
```

The value of a printed is ____

☒ A.

Compiler error

☐ B.

8.0

☐ C.

2

☐ D.

8

$$a = \overset{\text{float}}{16.0} / \overset{\text{int}}{4} \times 5 \% 3$$

$$a = \overset{\text{float}}{4.0} \times \overset{\text{int}}{5} \% 3$$

$$a = \overset{\text{float}}{20.0} \% 3$$

(A)

Error

$\{ /, \times, \% \}$ L to R



% :
Both operands
must be int
type.

Q.3

Consider the following program.

```
#include<stdio.h>
```

```
void main()
```

```
{
```

```
    int a;
```

```
    a=32>24>13>10>8>-1>0;
```

```
    printf("%d",a);
```

```
}
```

The output is

1

↓ > L to R
True =

$a = 32 > 24 > 13 > 10 > 8 > -1 > 0;$

$a = 1 > 13 > 10 > 8 > -1 > 0;$

$a = 0 > 10 > 8 > -1 > 0;$

$a = 0 > 8 > -1 > 0;$

$a = 0 > -1 > 0$

$a = 1 > 0$

$a = 1$

Q.4

```
#include<stdio.h>
```

```
void main()
```

```
{
```

```
    int a;
```

```
    a=25>15>0!=12<45>42!=65;
```

```
    printf("%d",a);
```

```
}
```

The output is 1.

1. $<, >, <=, >=$ } L to R
2. $==, !=$ }
3. $=$ } R to L

$a = \overset{\text{True}}{25 > 15} > 0 != 12 < 45 > 42 != 65$

$a = 1 > 0 != 12 < 45 > 42 != 65$

$a = 1 != \overset{\text{True}}{12 < 45} > 42 != 65$

$a = 1 != \overset{\text{False}}{1 > 42} != 65$

$a = 1 != 0 != 65$

$a = 1 != 65 \overset{\text{True}}$

$a = 1$

Q.5



Consider the following program:

```
#include<stdio.h>
```

```
void main()
```

```
{
```

```
    int a=0, b=1;
```

```
    a=(a=5)&&(b=0);
```

```
    printf("%d", a); ✓
```

```
    printf("%d", b); ✓
```

```
}
```

The output is:

A.

50

C.

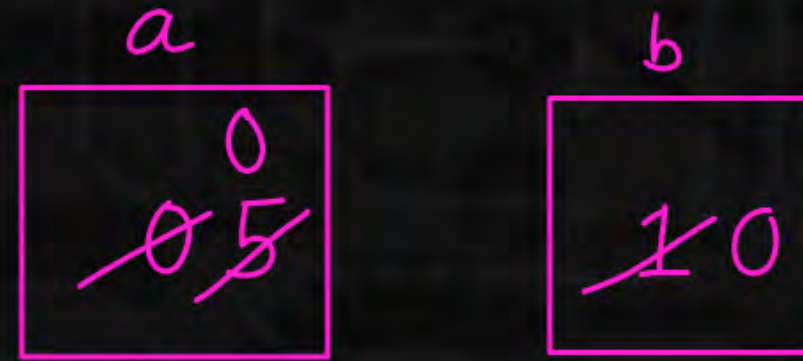
10

☒ B.

00

D.

Compiler error



$$a = \left(\underbrace{(a=5)}_{\textcircled{1}} \ \&\& \underbrace{(b=0)}_{\textcircled{2}} \right)$$

$$a = \left(5 \ \&\& \underbrace{(b=0)}_{\textcircled{2}} \right)$$

$$a = (5 \ \&\& \ 0)$$

$$a = 0$$

Q.6



Consider the following statements:

P: The precedence of the modulus operator is higher than multiplication or division operator.

$\cdot, \times, /$

False/INCORRECT

Q: The result of the modulus operator contains the sign of the second operand.

INCORRECT

Which of the following statements is/are INCORRECT?

C

A.

Only P

B.

Only Q

C.

Both P and Q

D.

Neither P nor Q

Q.7



Consider the following program:

```
#include<stdio.h>
```

```
void main()
```

```
{
```

```
    int a=2022;
```

```
    printf("%d%d%d", a!=2024, a=2023, a==2021);
```

```
}
```

The output is-

a
~~2022~~
2023

1 2023 0 ①
←
2023 != 2024 0 D

2022 == 2021

1 2023 0

A.

020220

B.

020231

C.

002021

☒ D.

120230

Q.8

Consider the following program:

```
#include<stdio.h>
```

```
void main()
```

```
{
```

```
    int x=-2023;
```

```
    printf("%d", ~(x=x+5));
```

```
}
```

The output is 2017.

x
-2018
~~-2023~~

$$\sim a = -(a+1) \quad \sim(x=x+5)$$

$$\begin{aligned} & -2023+5 \\ x &= -2018 \end{aligned}$$

$$\sim(-2018)$$

$$= -(-2018+1)$$

$$= -(-2017) = 2017$$

