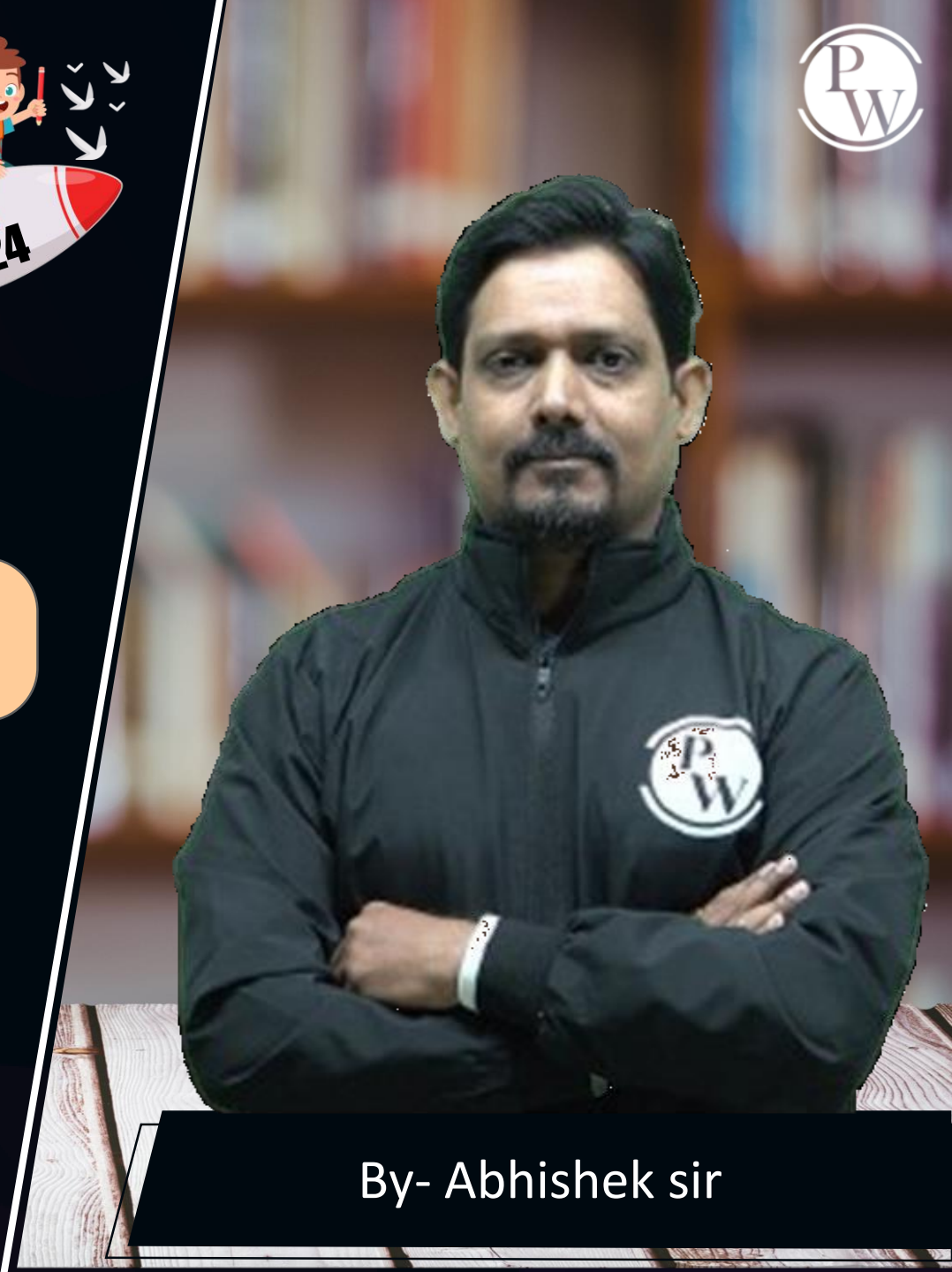
CS & IT ENGINEERING

C-Programming

Data type and Operators Discussion Notes

DPP No.- 2



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Question

#Q. What will be the output of the following code?

```
#include <stdio.h>
int main() {
int x = 10, y=10, z=20;
y = x++ + ++y + --z;
printf("%d\n", y);
return 0;
}
```

11 11 19
x = 10 , y = 10, z = 20

y = x++ + ++y

10 + 11 + 19

= 40

A 40 ✓ [A]

B 31

C 32

D 33

Question

#Q.
```
#include <stdio.h>
int main(){
    int x =12, y, b=24;
     y  = x++;
    y = ++x;
    y = x++*b;
    y  = x--;
    y = --x;
    y = x--*b;
    y = --x*b;
    printf("%d",x+y);
    return 0;
}
```

The output of the program is 275 Ans

output of program

13 14 15 14 13 12 11

x = 12 , y, 6 = 24

y = 12

y = 14

y = 14 * 24 = 336 5

y = 15

y = 13

y = 13 * 24 = 312 5

y = 11 * 24 = 264 4

264 + 11

275

Question

#Q. What will the following code print?

```
#include<stdio.h>
 int main () {
    int m=90, k=30;
    int n, n1;
    n=++m + ++k;
    n1=m-- + --k ;
    n--;
    --n1;
    n-=n1;
    printf("%d", n+k);
    return 0;
 }
```

m = ~~90~~ 91 . k = ~~30~~ ~~31~~ 30

n = 91 + 31 = ~~122~~ 121

n_1 = 91 + 30 = ~~121~~ 120

n -= n_1

: n = n - n_1 = ~~1211~~ 121 - 120

= 1

1 + 30 = 31

[D] Answer

A 90

B 30

C 91

D 31

Question

#Q. What will be the output of the following code?

```
#include <stdio.h>
int main()
{
    unsigned int a = 45, b = 35;
    int result = (a & b) | (a ^ b);
    printf("%d\n", result);
    return 0;
}
```

bitwise

a = 45 , b = 35

0 1 0 1 1 0 1 — a

0 1 0 0 0 1 1 — b

0 1 0 0 0 0 1 a & b = 33

0 1 0 0 0 0 1

0 0 0 1 1 1 0

0 1 0 1 1 1 1

32 + 15 = 47

(A) 43

(B) 45

0 1 0 1 1 0 1

0 1 0 0 0 1 1

0 0 0 1 1 1 0 = 14

(C) 47

(D) 49

Ans. C

Question

$a \times 2^k$ left shift

$\left\lfloor \frac{a}{2^k} \right\rfloor$: Right shift

$\sim x = -(x+1)$

bit wise operator

#Q. Consider the following code snippet:

```
#include <stdio.h>
int main()
{
    unsigned int x = 7, y = 25;
    int result = ~(x << 2) & (y >> 2);
    printf("%d\n", result);
    return 0;
}
```

What is the output?

$x = 7 \rightarrow 00\,0\,1\,1\,1$

$y = 25 \rightarrow 0\,1\,1\,0\,0\,1$

each Right shift multiply by 2

$7 \times 2^2 = 28$

$\left\lfloor \frac{25}{2^2} \right\rfloor = \left\lfloor \frac{25}{4} \right\rfloor = 6$

$\sim (28)$

$-(x+1)$

-29

(A) 2

(B) 6

(C) 7

(D) 8

[A]

Ans

-29

$\&$ $\begin{array}{ll} 1 & 00011 \\ 0 & 00110 \end{array}$

$0\ 0\ 0\ 1\ 0$

Question

#Q. What will be the result of the following code?

```
#include <stdio.h>
int main()
{
    int a = 100, b = 45;
    int result = (a ^ b) << 3;
    printf("%d\n", result);
    return 0;
}
```

a = 100

b = 45

```
  01100100   ---- a
XOR
  00101101   ---- b
-----------
  01001001   (64+8+1)
```

73

Right shift 3 position

$73 \times 2^3 = 73 \times 8$

584 2

A 440

B 360

C 584 ✓ [c]

D 784

Question

#Q. Consider the following code:

```
#include <stdio.h>
int main()
{
    unsigned int x = 34, y = 15;
    int result = (x & y) ^ (x | y);
    printf("%d\n", result);
    return 0;
}
```

What will be the output of the program?

A. 15

B. 30

C. 45 ✓

D. 60

[C]

X = 34, y = 15

```
  01000010  — x
& 00011111  — y
------------
  00000010  — 2
```

```
  01000010 — x
  00011111 — y
------------
  01011111
```

```
  00000010 (x & y)
^ 01011111 (x | y)
------------
  01011101
```

32 + 13 = 45

Question

#Q. What will be the output of the following code ?

```
#include <stdio.h>
int main()
{
    int a = 10, b = 0, c = – 5;
    int result = a && b || c;
    printf("%d\n", result);
    return 0;
}
```

1 0 && 0 || c

0 || 1 = 1

Ans is 1

Question

#Q. Consider the following code snippet:

```
#include <stdio.h>
int main()
{
    int x = 5, y = 10;
    int result = (x > 3 && y < 20) || (x++ > 5);
    printf("%d %d\n", result, x);
    return 0;
}
```

What is the output of the program?

x = 5, y = 10

(5 > 3 && 10 < 20) || (x++ > 5)

(1 && 1) || (x++ > 5)

1 || (Anything)

= 1

Not execute

Short circuit logic

A 15

B 05

C 16

D 06

[A] Ans

Question

#Q. What will the following code output?

```
#include <stdio.h>
int main()
{
    int a = 4, b = -3, c = 0;
    int result = a || b && c;
    printf("%d\n", result);
    return 0;
}
```

1

Ans - 1

Relational operator

4 || -3 && 0

AND is higher

4 || 0 = 1

1

Non zero

THANK YOU