1.What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int i = -3;
    int k = i % 2;
    printf("%d\n", k);
}
```

a) Compile time error

b) -1

c) 1

d) Implementation defined

2. What will be the output of the following C code?

```c
#include <stdio.h>
void main()
{
    int k = 8;
    int x = 0 == 1 && k++;
    printf("%d %d\n", x, k);
}
```

a) 0 9

b) 0 8

c) 1 8

d) 1 9

3. What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int x = 1, y = 0;
    x &&= y;
    printf("%d\n", x);
}
```

a) Compile time error

b) 1

c) 0

d) Undefined behaviour

4. What will be the output of the following C code?

```c
#include <stdio.h>
void main()
{
    int a = 5, b = -7, c = 0, d;
    d = ++a && ++b || ++c;
    printf("\n%d %d %d %d", a, b, c, d);
}
```

a) 6 -6 0 0

b) 6 -5 0 1

c) -6 -6 0 1

d) 6 -6 0 1

5. What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    if (~0 == 1)
        printf("yes\n");
    else
        printf("no\n");
}
```

a) yes

b) no

c) compile time error

d) undefined

6. What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int x = -2;
    if (!0 == 1)
        printf("yes\n");
    else
        printf("no\n");
}
```

a) yes

b) no

c) run time error

d) undefined

7.What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int y = 1;
    if (y & (y = 2))
        printf("true %d\n", y);
    else
        printf("false %d\n", y);

}
```

a) true 2

b) false 2

c) either true 2 or false 2

d) true 1

8.What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int y = 0;
    if (1 |(y = 1))
        printf("y is %d\n", y);
    else
        printf("%d\n", y);

}
```

a) y is 1

b) 1

c) run time error

d) undefined

9. What will be the output of the following C code?

```
#include<stdio.h>
int main()
{
    int a = 1, b = 2, c = 3, d = 4, e;
    e = c + d = b * a;
    printf("%d, %d\n", e, d);
}
```

a) 7, 4

b) 7, 2

c) 5, 2

d) Syntax error

10.What will be the final value of d in the following C code?

```
#include <stdio.h>
int main()
{
    int a = 10, b = 5, c = 5;
    int d;
    d = b + c == a;
    printf("%d", d);
}
```

a) Syntax error

b) 1

c) 5

d) 10

11. What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int a = 10, b = 5, c = 3;
    b != !a;
    c = !!a;
    printf("%d\t%d", b, c);
}
```

a) 5   1
b) 0   3
c) 5   3
d) 1   1

12. What will be the output of the following C code?

```c
#include <stdio.h>
int main()
{
    int a = 10;
    if (a == a--)
        printf("TRUE 1\t");
    a = 10;
    if (a == --a)
        printf("TRUE 2\t");
}
```

a) TRUE 1
b) TRUE 2
c) TRUE 1   TRUE 2

d) Compiler Dependent

13.What will be the output of the following C code?

```c
#include <stdio.h>
void main()
{
    int x = 1, y = 0, z = 5;
    int a = x && y || z++;
    printf("%d", z);
}
```

a) 6

b) 5

c) 0

d) Varies

13.What will be the output of the following C code?

```c
#include <stdio.h>
void main()
{
    int x = 1, y = 0, z = 5;
    int a = x && y && z++;
    printf("%d", z);
}
```

a) 6

b) 5

c) 0

d) Varies

15.What will be the output of the following C code?

```
#include <stdio.h>
int main()
{
    int x = 1, y = 0, z = 3;
    x > y ? printf("%d", z) : return z;
}
```

a) 3

b) 1

c) Compile time error

d) Run time error

16. What will be the output of the following C code?

```
#include <stdio.h>
void main()
{
    int k = 8;
    int x = 0 == 1 && k++;
    printf("%d %d\n", x, k);
}
```

a) 0 9

b) 0 8

c) 1 8

d) 1 9

17. What will be the output of the following C code snippet?

```
#include <stdio.h>
void main()
{
    1 < 2 ? return 1: return 2;
}
```

a) returns 1

b) returns 2

c) Varies

d) Compile time error

18.What will be the output of the following C code?

```
#include <stdio.h>
int main()
{
    int i = 1;
    if (i++ && (i == 1))
        printf("Yes\n");
    else
        printf("No\n");
}
```

a) Yes

b) No

c) Depends on the compiler

d) Depends on the standard

19.What will be the output of the following C code?

```
#include <stdio.h>
int main()
{
    int i = 3;
    int l = i / -2;
    int k = i % -2;
    printf("%d %d\n", l, k);
    return 0;
}
```

a) Compile time error

b) -1 1

c) 1 -1

d) Implementation defined

20.What will be the output of the following C code?

```
#include <stdio.h>
void main()
{
    int y = 3;
    int x = 5 % 2 * 3 / 2;
    printf("Value of x is %d", x);
}
```

a) Value of x is 1

b) Value of x is 2

c) Value of x is 3

d) Compile time error

1) What is C programming?

C is a **general-purpose, procedural programming language** developed by **Dennis Ritchie** in 1972. It is used to develop system software, applications, and embedded systems because it is fast and efficient.

2) What are the features of C programming?

- Simple and efficient language
- Structured (uses functions)
- Portable (machine independent)
- Supports low-level memory access (pointers)
- Rich set of operators and libraries
- Fast execution
- Supports modular programming

3) Applications of C programming

- Operating systems (e.g., UNIX, Linux)
- Embedded systems
- Device drivers
- Compilers and interpreters
- Database systems
- Game development
- System utilities

4) Difference between Compiler and Interpreter

Compiler	Interpreter
Translates entire program at once	Translates line by line
Faster execution	Slower execution
Errors shown after compilation	Errors shown line by line
Example: C, C++	Example: Python, JavaScript