12-24 marks

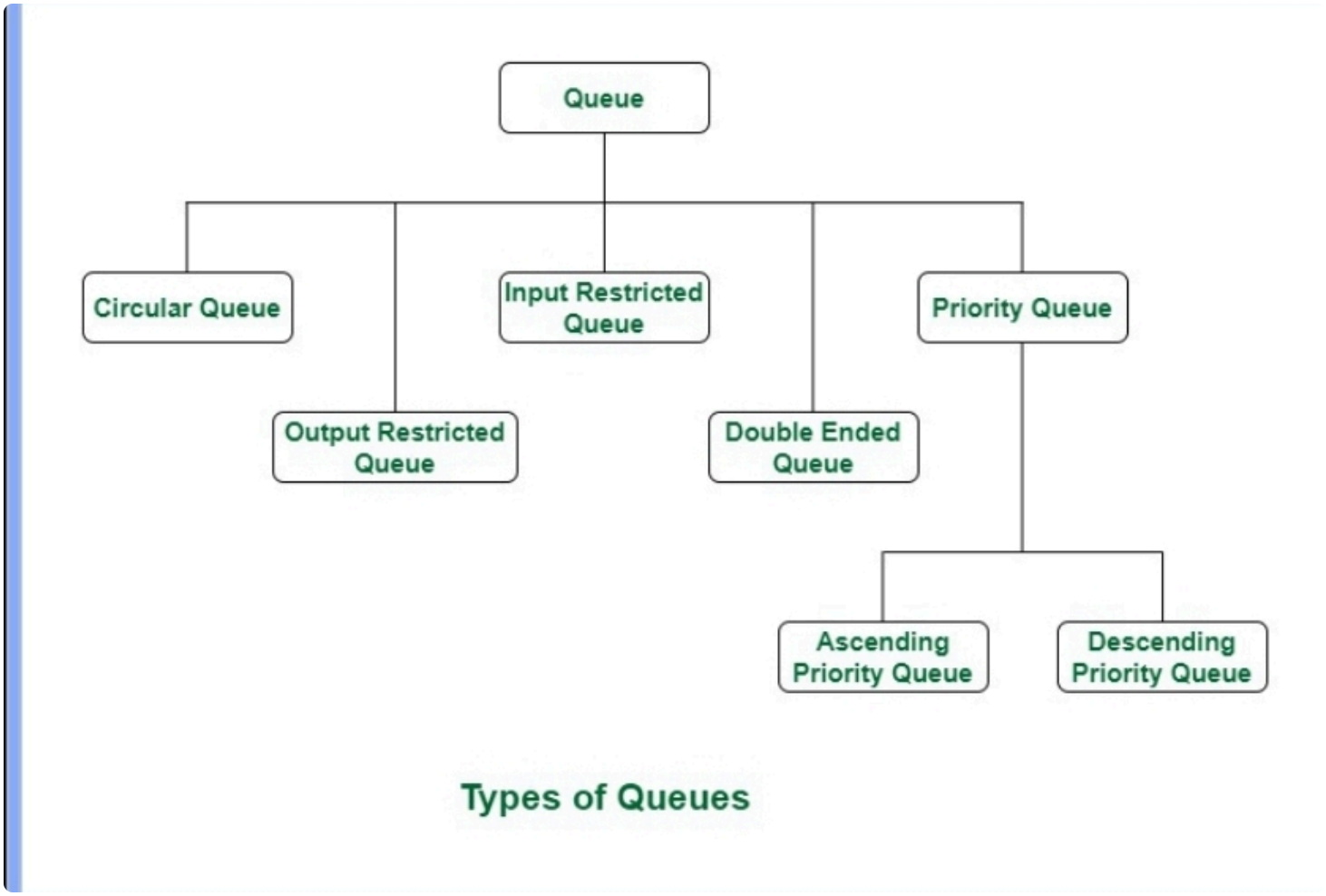
```c
#include <stdio.h>

int factorial(int n) {
    return (n == 0) ? 1 : n * factorial(n - 1);
}

int fibonacci(int n) {
    return (n <= 1) ? n : fibonacci(n - 1) + fibonacci(n - 2);
}

int main() {
    int num = 5;
    printf("Factorial of %d is %d\n", num, factorial(num));
    printf("Fibonacci of %d is %d\n", num, fibonacci(num));
    return 0;
}
```

Symbol Scanned	Postfix Result (P)	Stack
`(`		`(`
`A`	`A`	`(`
`-`	`A`	`( -`
`(`	`A`	`( - (`
`B`	`A B`	`( - (`
`/`	`A B`	`( - ( /`
`C`	`A B C`	`( - ( /`
`)`	`A B C /`	`( -`
`*`	`A B C /`	`( - *`
`D`	`A B C / D`	`( - *`
`+`	`A B C / D *`	`( +`

Symbol Scanned	Postfix Result (P)	Stack
E	A B C / D * E	(+
)	A B C / D * E +	
*	A B C / D * E +	*
F	A B C / D * E + F	*
%	A B C / D * E + F	* %
G	A B C / D * E + F G	* %
	A B C / D * E + F G % *	

Symbol Scanned	Postfix Result (P)	Stack
(		(
A	A	(
+	A	(+
B	A B	(+
)	A B +	
*	A B +	*
C	A B + C	*
+	A B + C *	+
(	A B + C *	+ (
D	A B + C * D	+ (
-	A B + C * D	+ (-
E	A B + C * D E	+ (-
)	A B + C * D E -	+

Symbol Scanned	Postfix Result (P)	Stack
`/`	`A B + C * D E -`	`+ /`
`F`	`A B + C * D E - F`	`+ /`
`+`	`A B + C * D E - F /`	`+`
`G`	`A B + C * D E - F / G`	`+`
	`A B + C * D E - F / G +`	



Types of Queues

Queue Overview

A **queue** is a first-in, first-out (FIFO) data structure where elements are added at the rear and removed from the front. Queues can be implemented using arrays or linked lists.

Types of Queues

1. **Circular Queue**:
    - Connects the last position back to the first, forming a circle.
    - **Uses**: Memory management, traffic systems, CPU scheduling.
    - **Time Complexity**: O(1).
2. **Input Restricted Queue**:
    - Input is allowed only from one side (rear), while deletion can occur from both ends.
3. **Output Restricted Queue**:
    - Input can be from both ends, but deletion occurs only from the front.
4. **Double Ended Queue (Deque)**:
    - Allows insertion and deletion at both ends.
5. **Priority Queue**:
    - Each element has a priority; served based on that priority.
    - **Types**:
        - **Ascending**: Remove the smallest element first.
        - **Descending**: Remove the largest element first.