BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.TECH (MINOR)   SEMESTER: VII
BRANCH: CSE   SESSION: MO/2022

SUBJECT: CS211 OPERATING SYSTEM

TIME: 2 HOURS   FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

				CO	BL
Q1	(a)	Explain the major functionalities of operating system.	[2]	1	1
Q1	(b)	Describe Spooling with proper figure.	[3]	1	2
Q2	(a)	State the differences between user level thread and kernel level thread.	[2]	2	2
Q2	(b)	Calculate the number of times "hello" is printed and the number of child processes created in the following code.	[3]	2	3

```
    #include <stdio.h>
    #include <sys/types.h>
    int main()
{
    fork();
    fork();
    fork();
    printf("hello\n");
    return 0;
}
```

Q3   Explain process life cycle in operating system with proper figure where processes   [5]   2   2
        may pre-empt depending on timer or priority.

Q4   Assume that, there are six jobs, P1, P2, P3, P4, P5 and P6. The arrival time and   [5]   2   6
        burst time are given in the following table. Calculate the turn around time of
        each job and the average waiting time for *Shortest Remaining Time First* CPU
        scheduling algorithm.

Processes	Arrival Time	Burst Time
P1	0	8
P2	1	4
P3	2	2
P4	3	1
P5	4	3
P6	5	2

Q5   Consider the set of 6 processes whose arrival time and burst time are given below-   [5]   2   6

Processes	Arrival Time	Burst Time
P1	5	5
P2	4	6
P3	3	7
P4	1	9
P5	2	2
P6	6	3

        If the CPU scheduling policy is *Round Robin with time quantum = 3*, calculate the
        average waiting time and average turn around time.

::::::: 15/10/2022 ::::::M