National Institute of Technology, Kurukshetra
B.Tech (Computer Engineering) IV Semester
Mid Sem Exam-I Feb 2023
Operating Systems (CSPC-20)

Time: 50 min MM: 15

Instructions: Attempt all questions.

1. Which scheduler should be used to provide a good mix of CPU and I/O bound processes in the system? (1)
2. Which of the following statements are true regarding CPU scheduling schemes?
   (i) SRTF may cause starvation.
   (ii) RR is better than FCFS in terms of response time. (2)
3. (a) Differentiate between user thread and kernel thread? How to create these two thread types? (1)
   (b) Explain general approaches to thread cancellation. (2)
4. Consider a multilevel feedback queue scheduling with three queues q1, q2 and q3. The queues q1 and q2 use RR algorithm with time quanta = 5, and 4 respectively. The queue q3 uses FCFS algorithm. Find the average waiting time and average turnaround time for executing the following process?

Processes	Burst time
P1	8
P2	22
P3	4
P4	12

(4)

5. (a) Under what circumstances is the rate monotonic scheduling is inferior to earliest deadline first scheduling in meeting the deadlines associated with each process.
   (b) Consider two processes P1 and P2, where p1 = 50, t1 = 25, p2 = 75, andt2 = 30. Illustrate the scheduling of these two processes using earliest deadline-first (EDF) scheduling. (1, 2)
6. Consider the following C snippet:

```
{ fork();
  fork();
  printf("yes");
 }
```

How many times the string yes will be printed? (2)