Example questions from SP17: Threads

What do threads and processes have in common? How do they differ? (6 points)

Describe what is meant by saying that threads allow for the "separation of concerns" in writing a program. (6 points)

Computers used in hard radiation environments, such as those used in space, are prone to random failure when energetic particles flip random bits in the machine. Describe a situation where threads could be used to make a system more resilient to random failures. (6 points)

Example questions from SP17: Scheduling

Suppose a system has the following jobs in its run queue.

Job	Execution Time
A	3ms
B	2ms
C	3ms
D	5ms
E	2ms

Calculate the *response time* and *completion time* for each job under preemptive round-robin with a quantum of 1ms and non-preemptive shortest-job-first scheduling. Ties are broken in alphabetic order. Context switches take zero time. (10 points)

Does the round-robin scheduler *guarantee* that jobs will have a short response time? If yes, explain why. If no, give a counter-example (5 points).