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1. Uniprogramming systems can only execute one program at a time. A new program can only start if no other programs are active. Multiprogramming systems can execute multiple programs at a time by regularly switching between the different programs during their execution. Time sharing systems allow multiple users to gain access to a specific resource at the same time through the use of multiprogramming.
2. In a uniprogramming system, the total runtime will be 48msec. This is because each program will take 16msec in total to complete and the programs will execute one after the other. In a multiprogramming system the total runtime will be 22msec. The programs will execute as follows: A will run for 2msec, B will run for 2msec then C will run for 2msec. After another 6msec, A will complete it’s waiting phase and run for 4msec, then B will run for 4msec (B has been waiting longer than 10msec) and then C will run for 4msec (C has been waiting longer than 10msec). Thus the total time will be 2+2+2+6+4+4+4 = 24msec.

