Full Student Name:

Grau en Enginyeria Informàtica de Gestió i Sistemes d'Informació
Operating Systems
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You will be marked as written at each question. You have to write your answers on the reserved blank space. No answers written out of place will be taken into account. You could not use a pencil for your answers.

1. **Explain the Shortest Remaining Time First (SJF) Scheduling technique (1 POINT)**

2. **Explain which is the purpose of command *WHICH* in a Linux Operating System (this command should be executed on command line) (1 POINT)**

3. **Done file *"TABLE.TXT"* with the attached content (1 POINT)**

   1 2 3
   4 5 6
   7 8 9

   Write which will be the result if we execute the attached script:
   gawk 'BEGIN{suma=10};{sum+=$1*$2};END{print suma}' ./TABLE.TXT

4. **If you want to share information between a pair of processes using SOCKETS. Write the minimum number of SOCKETS you need for a bidirectional communication. Write a justification for your answer. (1 POINT)**

5. **Which is the result of the command "ls [!lL]*.*"**

6. **Write the list of states in which a process can be. Write all the transitions you can have (from one state to another) (1 POINT)**

7. **When you have to move a process from ready to running, could you explain the steps involved in. It is important to write the sequence in the right order (1 POINT)**

8. **Explain how the MINIMIZING TURNAROUND TIME scheduling criteria works. With this criteria what are you trying to improve on your system (1 POINT)**

9. **When you are configuring a server, which are the functions you have to execute on the server to be ready for any new message from a client. You have to write and justify the functions mandatory always (on TCP and also on UDP communications)**

10. **From the list of function calls written below with function *SOCKET()* tell which ones are correct and why: (1 POINT)**

A. **SOCK=SOCKET(PF_INET, SOCK_DGRAM, IPPROTO_UDP)**
B. **SOCK=SOCKET(PF_INET, SOCK_DGRAM, IPPROTO_TCP)**
C. **SOCK=SOCKET(PF_INET, SOCK_STREAM, IPPROTO_UDP)**
D. **SOCK=SOCKET(PF_INET, SOCK_STREAM, IPPROTO_TCP)**

11. **Which is the purpose of the system call LISTEN working with sockets? When it is necessary to use the function on connection oriented communications? ON non-connection oriented? On both? It is never mandatory?(1 POINT)**

12. **If we use a file (standard binary file) to share information between two processes. Which is going to be the result if the try to read from the file, before the pair process has written on file? Which must be a mandatory relationship/characteristic of both processes? (1 POINT)**