CSCI320 Operating System

Fall 2021

Mid Exam

Instruction:

(1) In BB, click "Write Submission" to enter plain text as answers. Don't use attachment.

(2) Write your answer to one question in one line starting with the line number.

(3) Answer question concisely. Use a word or a phrase instead of a long sentence.

(4) To answer the true of false questions, spell out "true" or "false" instead of using T or F.

1. State a definition of program

2. State a definition of system

3. State a definition of process

4. State a definition of processor

5. A computer with a single processor that can do multiple jobs simultaneously is \_\_\_\_\_\_\_\_\_\_\_\_\_ computer

6. List the states of a process in the 6-state model.

7. (True or false) When a process is at the suspended state, it can continue to print out.

8. (True or false) It is possible for a blocked process to print out.

9. Which is the only state switching to running state?

10. Running state means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Blocked state means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Ready state means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. In addition to the ending of program, what is the cause of switching to terminated?

14. A process waiting in the ready queue suddenly switches to the suspended state because the \_\_\_\_\_\_\_\_\_\_ process asks it to do so.

15. Virtual CPU is a \_\_\_\_\_\_\_\_\_\_\_ of a physical CPU

16. During a context switching, the values in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of processors will be save to the memory of computer.

17. If 20 students are sharing a single PC in turn to write long programs and perform context switching in every 20 minutes, these students have to save their unfinished work to \_\_\_\_\_\_\_\_\_\_\_\_\_ of PC before logout

18. (True or false) Because every process and its child processes are entitle to get a timeshare of CPU from OS, facing user’s choice, Chrome and Edge creates a lot of processes in order to speed up processing and gain competition advantages.

19. What is preemption?

20. (True or false) From windows tasklist or Macbook activity monitor, we can see many pids. A pid many change during the process life span.

21. According to the lecture, a thread is a \_\_\_\_\_\_\_\_\_\_ process

22. Compared with multi-process applications, what are the advantages of using multi-threading to speed up processing?

23. (True or false) In the context of OS, "atomic" has a close meaning to "indivisible" and "Transaction".

24. If someone gives you a Java application packaged as a jar file in which the main class has already been specified, write a line of command for terminal/CMD to invoke the application

25.

Complete, compile and execute the following Java program to produce two lines of output. Submit the Java codes you write and the printout

class MyChild implements Thread

{

int id;

public MyChild(int id){this.id = id;}

public void run()

{

long s=0;for(int i=0;i < 1000000;i++) s+=i\*2+id;

System.out.println(id + " at " + System.nanoTime() + ",sum=" + s);

}

}

public TryThread

{

public static void main(String [] args)

{

MyChild eldson = new MyChild(0);

MyChild youngson = new MyChild(1);

}

}

Submit the Java codes you write and the printout