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A2

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING (SCOPE)

Continuous Assessment Test - I, August 2017-18

B.Tech , Fall Semester, 2017

Course Code : CSE2005 Duration : 90 Minutes.

Course Name : Operating Systems Max. Marks : 50

Faculty : Common to all slots except for Prof. Jasmine T. Jose

Part - A (5 X 4 = 20 Marks)

(Answer all the questions)

1. Enumerate the differences between Multiprogramming, Multitasking, Multiprocessing and Multithreading. [5]

2. (a) Why thread is called as LWP (Light weight Process)? Justify your answer. Also mention their benefits. [3]

(b) List out the goals of CPU scheduling. [2]

3. (a) Deliberate in detail about the Task Control Block (TCB) with diagram. [3]

(b) When would a running process transit to (a) ready state (b) waiting state? [2]

4. (a) "Is it the normal Operating system (like Windows XX, Linux XX and etc.,) became a real-time operating system". Justify your answer [3]

(b)Differentiate soft and hard real-time systems. [2]

Part - B (3 X 10 = 30 Marks)

(Answer all the questions)

5. Consider the following set of processes with the length of the CPU burst time in Milliseconds.

Process	Arrival Time	Priority	Burst Time
A	0	1	5
B	1	2	3
C	2	1	8
D	3	3	6

(i) Draw four Gantt chart illustrating the execution of these processes using FCFS, **preemptive SJF, non-preemptive Priority** (a largest priority number implies a higher priority) and RR (Quantum= 3) scheduling. [6]
(ii) Calculate the average waiting time and average Turnaround time for the above scheduling algorithms. [4]

6. (a) What is meant by system call? List out the various system calls in OS & explain its various functions & features. [5]

(b) (i)Write a C program to a create child process and display the process ID of parent and child processes. [3]

(ii) A process executes the following code [2]

```
fork();
fork();
fork();
```

The total number of child processes created is _____. Justify your answer. [2]
(a) 3 (b) 4 (c) 7 (d) 8

7. (a) (i) What resources are used when a thread is created? How do they differ from those when a process is created? [3]

(ii) Explain about threading models with examples [2]

(b) Represent the Queuing diagram of process scheduling and explain the same. [5]

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