Paper Code: A

Course Code:CSE316
Course Title:OPERATING SYSTEMS

Time Allowed: 01:30hrs. **Max Marks: 30**

Read the following instructions carefully before attempting the question paper.
1. Match the Paper Code shaded on the OMR Sheet with the Paper code mentioned on the question paper and ensure that both are the same.
2. This question paper contains 30 questions of 1 mark each. 0.25 marks will be deducted for each wrong answer.
3. All questions are compulsory.
4. Do not write or mark anything on the question paper and/or on rough sheet(s) which could be helpful to any student in copying, except your registration number on the designated space.
5. Submit the question paper and the rough sheet(s) along with the OMR sheet to the invigilator before leaving the examination hall.

Q(1) In which type of OS User do not interact directly with the computer
(a) Real time OS (b) Batch OS (c) Distributed OS (d) Multiprogramming OS
CO1,L2

Q(2) Determine what is the objective of multiprogramming operating systems
(a) Maximize CPU utilization (b) Switch the CPU among processes
(c) Achieve multitasking (d) None of the above
CO1,L2

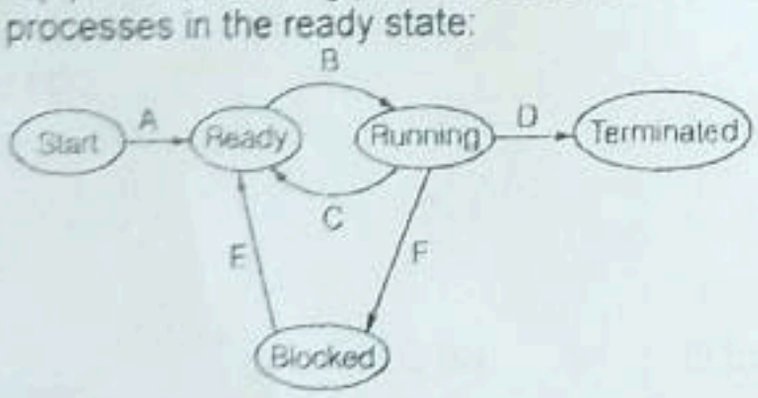
Q(3) UNIX is written in which language?
(a) c# (b) c++ (c) java (d) c
CO1,L2

Q(4) A process executes the following segment of code: for(i = 1; i < = n; i++)
fork ( );
The number of new processes created is
(a) n (b) ((n (n + 1)) /2) (c) 2^n -1 (d) 3^n -1

Q(5) Determine what else is a command interpreter called?
(a) prompt (b) Kernel (c) Command (d) Shell
CO1,L2

Q(6) Identify In Unix, Which system call creates the new process
(a) System call (b) Fork (c) Create (d) New
CO1,L2

Q(7) In the following process state transition diagram for a uniprocessor system, assume that there are always some processes in the ready state:



Now consider the following statements:
I. If a process makes a transition D, it would result in another process making transition A immediately
II. A process P2 in blocked state can make transition E while another process Pj is in running state
III. The OS uses preemptive scheduling
IV. The OS uses non-preemptive scheduling
Which of the above statements are TRUE?
(a) I and II (b) I and III (c) II and III (d) II and IV

Q(8) Consider the 3 processes, P1, P2 and P3 shown in the table.

Process	Arrival time	Time Units Required
P1	0	5
P2	1	7
P3	3	4

The completion order of the 3 processes under the policies FCFS and RR2 (round robin scheduling with CPU quantum of 2 time units) are
(a)FCFS: P1, P2, P3;RR2: P1, P2, P3
(b) FCFS: P1, P3, P2;RR2: P1, P3, P2
(c) FCFS: P1, P2, P3;RR2: P1, P3, P2
(d) FCFS: P1, P3, P2 ;RR2: P1, P2, P3

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Q(9) An operating system uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider the arrival times and execution times for the following processes:

Process	Execution time	Arrival time
P1	20	0
P2	25	15
P3	10	30
P4	15	45

What is the total waiting time for process P2?
(a) 5 (b) 15 (c) 40 (d) 55

Q(10) To access the services of operating system, the interface is provided by
(a) System Call (b) Application programs (c) Library files (d) None of these
CO2,L3

Q(11) The problem of indefinite blockage of low-priority jobs in the general priority scheduling algorithm can be solved using:
(a) Dirty Bit (b) Compaction (c) Aging (d) Swapping
CO3,L4

Q(12) Point Out FIFO scheduling: falls under which of the following category ?
(a) Deadline Scheduling (b) Preemptive Scheduling
(c) Non-preemptive Scheduling (d) None of these
CO3,L4

Q(13) The interval from the time of submission of a process to the time of completion is termed as
(a) Response time (b) Waiting time (c) Throughput (d) Turnaround time
CO3,L4

Q(14) Point Out which module gives control of the CPU to the process selected by the short-term scheduler
(a) Interrupt (b) Dispatcher (c) Scheduler (d) None of these
CO3,L4

Q(15) In the priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of
(a) currently running process (b) all processes (c) parent process (d) init process
CO3,L4

Q(16) The outline of multilevel feedback scheduling algorithm is
(a) processes are not classified into groups
(b) classification of the ready queue is permanent
(c) none of the mentioned
(d) a process can move to a different classified ready queue
CO3,L4

Q(17) Point Out Which of the following statements is true?
I. Shortest remaining time first scheduling may cause starvation
II. Preemptive scheduling may cause starvation
III. Round robin is better than FCFS in terms of response time

(a) I only (b) I, II only (c) I, II, and III (d) Only II
CO3,L4

Q(18) There are 10 different processes running on a workstation. Idle processes are waiting for an input event in the input queue. Busy processes are scheduled with the Round-Robin time-sharing method. Which of the following quantum times (tQ) is the best value for small response times, if the processes have a short runtime, e.g. less than 10ms?
(a) tQ = 45ms (b) tQ = 15ms (c) tQ = 40ms (d) tQ = 50ms
CO3,L4

Q(19) A process executes the code
fork ();
fork () ;
fork ();
The total number of child processes created is
(a) 3 (b) 4 (c) 7 (d) 8

Q(20) Point Out, round-robin scheduling do in a time-shared system
(a) using very small time slices converts it into the First come First served scheduling algorithm
(b) using very large time slices converts it into the First come First served scheduling algorithm
(c) using extremely small time slices increases performance
(d) using very small time slices converts it into the Shortest Job First algorithm
CO3,L4

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Q(21) Analyze Which process can be affected by other processes executing in the system?
(a) cooperating process (b) child process (c) parent process (d) init process
CO3,L4

Q(22) Classify, If a process is executing in its critical section, then no other processes can be executing in their critical section. What is this condition called?
(a) mutual exclusion (b) critical exclusion
(c) synchronous exclusion (d) asynchronous exclusion
CO3,L4

Q(23) Analyze Which one of the following is a synchronization tool?
(a) semaphore (b) thread (c) pipe (d) socket
CO3,L4

Q(24) Analyze wich one the following is true about semaphore _____
(a) can not drop below zero (b) can not be more than zero
(c) can not drop below one (d) can not be more than one
CO3,L4

Q(25) Analyze, which one of the following can provide Mutual exclusion
(a) mutex locks (b) binary semaphores (c) both a and b (d) none of the mentioned
CO3,L4

Q(26) Analyze, When high priority task is indirectly preempted by medium priority task effectively inverting the relative priority of the two tasks, the scenario is called _____
(a) priority inversion (b) priority removal (c) priority exchange (d) priority modification
CO3,L4

Q(27) Analyze, which one of the following is true about Process synchronization
(a) it can be done on hardware level (b) it can be done on software level
(c) it can be done on both hardware and software level (d) none of the mentioned
CO3,L4

Q(28) Analyze the condition in which access takes place when different processes try to access the same data concurrently and the outcome of the execution depends on the specific order
(a) dynamic condition (b) race condition (c) essential condition (d) critical condition
CO3,L4

Q(29) Analyze Which of the following facility or capacities are required to provide support for the mutual exclusion?
i) A process that halts in its noncritical section must do so without interfering with other processes.
ii) The assumption should be made about relative process speeds or the number of processors.
iii) A process remains inside its critical section for a finite time only
(a) i and iii only (b) i and ii only (c) ii and iii only (d) All i, ii and iii
CO3,L4

Q(30) The address of the next instruction to be executed by the current process is provided by the _____
A) CPU registers B) Program counter C) Process stack D) Pipe
CO3,L4

--End of Question paper--