Nagar Yuwak Shikshan Sannstha's

Yeshwantrao Chavan College of Engineering

(An Autonomous Institution Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

Hingna Road, Wanadongri, Nagpur.

EVEN Term-2022-23 | Mid Semester Exam - I

Semester – III | Date:- 02-12-2022

Subject Code : AIDS2207 | Subject : Operating Systems

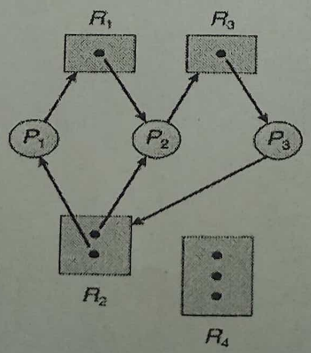
Time :1½ Hours | Max. Marks: 30

Instructions to examinees:

1) No additional answer book will be supplied.
2) Attempt all questions.
3) Figures in bracket to the right indicate the marks for questions.
4) Write equations wherever necessary.
5) Assume suitable data wherever necessary.

Que	Solve the following	Max Marks	CO Mapping & Bloom's Level
Q - 1	A) "A process in New state cannot transform directly into Running state." State whether this statement is True or False with proper justification and neat diagram.	04	CO1 L1

	B) Write output of following code snippets:
	i.
	`#include <stdio.h>`
	`#include <sys/types.h>`
	`int main()`
	`{`
	`fork();`
	`fork();`
	`fork();`
	`printf("hello\n");`
	`return 0;`
	`}`
	
	ii.
	`#include <stdio.h>`
	`#include <sys/types.h>`
	`#include <unistd.h>`
	`void forksyscall()`
	`{`
	`// child process because return value zero`
	`if (fork() == 0)`
	`printf("Hello from Child!\n");`
	
	`// parent process because return value non-z.`
	`else`
	`printf("Hello from Parent!\n");`
	`}`
	`int main()`
	`{`
	`forksyscall();`
	`return 0;`
	`}`
		06	CO1 L3

Q - 2	A) Elaborate various evaluation criteria available for CPU Scheduling algorithms.	04	CO2 L2
	B) Assume that following set of processes whose arrival and burst time is given below. **Process** | **Arrival Time(ms)** | **Burst Time(ms)** P1 | 3 | 1 P2 | 1 | 4 P3 | 4 | 2 P4 | 0 | 6 P5 | 2 | 3 Find Average waiting time(AWT) and Average Turnaround time(ATAT) for the following scheduling policies- 1. FCFS 2. SJF non-preemptive 3. Round Robin (Time Quantum = 10 ms) Which algorithm gives minimum average waiting time?	06	CO2 L4
Q - 3	A) A system has 4 processes and 5 allocatable resource. The current allocation and maximum needs are as follows- **Process** | **Allocated** | **Maximum** A | 1 0 2 1 1 | 1 1 2 1 3 B | 2 0 1 1 0 | 2 2 2 1 0 C | 1 1 0 1 1 | 2 1 3 1 1 D | 1 1 1 1 0 | 1 1 2 2 0 If Available = [0 0 X 1 1], what is the smallest value of X for which this is a safe state? Use Banker's Algorithm.	06	CO3 L3
	B) From the following figure, identify whether system might suffer from deadlock. Justify your answer.  	04	CO3 L5