Summer Semester Paper

SUBJECTIVE (105 min)

Roll #: _____ **Section:**_____**Name:** _____

Note: Attempt any 4 questions. DO NOT OVER ATTEMPT. (40)

Q2: (A) What is a trap and how is it different from interrupt? (2) (10)
(B) The code below shows Peterson's solution for Critical Section Problem. Prove that this solution is correct. (8)

```
do {
        flag[0] = TRUE;
        turn = 1;
        while ( flag[1] && turn == 1);

            CRITICAL SECTION

        flag[0] = FALSE;

            REMAINDER SECTION

    } while (TRUE);
```

```
do {
        flag[1] = TRUE;
        turn = 0;
        while ( flag[0] && turn == 0);

            CRITICAL SECTION

        flag[1] = FALSE;

            REMAINDER SECTION

    } while (TRUE);
```

Q3 Describe segmentation, internal fragmentation, external fragmentation, Frame, Page. (10)

Q4 (A) How many times does the following program print hello? (5)

```
main()
{
    int i;
    for (i=0; i<3; i++)
        fork();
    printf("hello\n");
}
```

(B) Why would two processes want to use message passing for communication instead of using shared memory? (5)

Q5. (A) Differentiate between multi-level queue and multi-level feedback queue scheduling? (5)

(B) What is a race condition? Give a programming example. (5)

Q6 Using ~~FCFS~~, ~~preemptive SJF~~ and ~~non-preemptive SJF~~, Round Robin (Q=3) find out the individual and average wait time for each process. (10)

Process	Arrival Time	Burst Time
P1	3	5
P2	4	1
P3	5	1
P4	0	4
P5	2	2
P6	7	1
P7	6	5

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