SUBJECTIVE QUESTION PAPER

EXAMINATION FINAL: Spring 2016 **SEMESTER:** 6
SUBJECT: BSCS (Hons)
COURSE CODE: CS-2205 **TITLE:** Operating System
Time: Allowed: 120 minutes **Max Marks:** 48

Note: Attempt any 4 questions. All Questions carry equal Marks.

Q.2
(a): What is micro-kernel and how is different form layered operating system? (5)
(b): Briefly describe following terms : cascading termination, starvation, convoy affect, system call, context switch, Paging, batch processing. (7)

Q.3
(a): Briefly describe the different type of schedulers along with the differences between them. (4)
(b): What are the different models of Inter-Process Communication? (4)
(c): Why does Peterson's solution for critical section problem may not work correctly on modern architectures? (4)

Q.4
(a): How does swapping result in better memory management? (3)
(b): What is the function of the ready queue? (3)
(c): What is a race condition? Give an example. (3)
(d): What is the purpose of direct memory access structure? (3)

Q.5:
Draw a Gantt chart and calculate the average waiting time for the following processes by using FCFS, SJF (Preemptive and non-preemptive), SRTF and Round Robin (time quantum = 2) algorithm. (12)

Process Name	Arrival time	Burst Time
P_0	1	7
P_1	2	3
P_2	3	5
P_3	5	1

Q.6
(a): What are the different types of address bindings? (5)
(b): Consider the following resource allocation graph:
P = {P1,P2,P3,P4}
R = {R1,R2,R3}
E = {R1 --> P1, P1 --> R2, R2 --> P2, P2 --> R3, R3 --> P3, P3 --> R1, R1 --> P4}
- resource type R1 has two instances
- resource type R2 has one instance
- resource type R3 has one instance
Draw a resource allocation graph and explain the possibility for a deadlock. (7)