

EDO UNIVERSITY, IYAMHO, EDO STATE
FACULTY OF SCIENCE
DEPARTMENT OF ICT & MATHEMATICS

COURSE TITLE: Operating System I

COURSE CODE: CSC 212

SEMESTER/SESSION: First Semester 2017/2018 EXAM

TIME ALLOWED: 2:30hr

INSTRUCTION: Answer any 4 (Four) questions.

Date: 304/04/2018.

- 1 a) What are the five major activities of an operating system in regard to process management? (7.5marks)
b) Draw and explain the process States diagram (10marks)

- 2 a) Suppose that the processes arrive in the order P_2, P_3, P_1 . Using FCFS Scheduling
i) Draw the Gantt chart (ii) What the waiting time and the Average waiting time (11.5marks)

<u>Process</u>	<u>Burst Time</u>
P_1	24
P_2	3
P_3	3

- b) What are the three main purposes of an operating system? (6marks)

3. a) Discuss the four Computer System Structure (8marks)
b) With the aid of a diagram explain Computer System Organization (9.5marks)
4. (a) list five Common Functions of Interrupts (10 marks)
(b) With the aid of a diagram explain Storage Device Hierarchy (7.5)

5. a) Suppose that the processes arrive in the order P_1, P_2, P_3 Using **Round Robin** with time Quantum=20

- i) Draw the Gantt chart ii) what the waiting time and the Average waiting time (10 marks)

Process	Burst Time
P1	52
P2	17
P3	68
P4	24

- b) Discuss all the Scheduling Criteria (7.5 marks)

6. Consider the following set of processes, with the length of the CPU-burst time given in milliseconds

<u>Process</u>	<u>Burst Time</u>	<u>Priority</u>
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5 , all at time 0.

- a. Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, a non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum = 1) scheduling. (5 marks)
- b. What is the turnaround time of each process for each of the scheduling algorithms in part a? (4marks)
- c. What is the waiting time of each process for each of the scheduling algorithms in part a? (4marks)
- d. Which of the schedules in part a results in the minimal average waiting time (over all processes)? (4.5marks)