



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : BASIC OPERATING SYSTEM

COURSE CODE : DAT 10303

PROGRAMME : 1 DAT

EXAMINATION DATE : DECEMBER 2015/JANUARY 2016

DURATION : 2 HOURS 30 MINUTES

INSTRUCTIONS : ANSWER FOUR (4) QUESTIONS ONLY.

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

- Q1**
- (a) Explain how the interaction between user to system. (5 marks)
- (b) Discuss the importance of system calls. (5 marks)
- (c) Explain the purpose of Command Line Interface. (5 marks)
- (d) Differentiate how scheduling strategies decision between CPU bound and I/O bound approaches. (10 marks)

- Q2** (a) Illustrate memory page replacement for a sequence of process of queue in **TABLE 1** below, number of frame in physical memory is set to 3.

TABLE 1: Process in queue

Process in queue	Process Id
1	7
2	0
3	2
4	3
5	4
6	0
7	3
8	2
9	7
10	4
11	0
12	2
13	3
14	7
15	4

- (i) FIFO page replacement
- (ii) Optimum page replacement
- (iii) LRU page replacement

(15 marks)

- (b) Illustrate a hardware memory address protection using based and limit register.
(5 marks)
- (c) Explain how memory address protection using based and limit register prevents an authorised process from using the memory address block that does not belong to it.
(5 marks)
- Q3** (a) Define the term *process* in operating system.
(5 marks)
- (b) List **FIVE (5)** common process states.
(5 marks)
- (c) Illustrate the diagram of process state conversion.
(5 marks)
- (d) Describe the process state diagram in (c) above.
(5 marks)
- (e) Explain page faults memory techniques.
(5 marks)
- Q4** (a) List **FIVE (5)** services of operating system.
(5 marks)
- (b) Explain the services of operating system in **Q4(a)** above.
(10 marks)
- (c) Differentiate between message passing and shared memory techniques in process communication.
(10 marks)

Q5 Calculate the average waiting for the following process queue in table Q1.

Table Q5: Process queue

Process Id	Burst time (second)	Priority
P1	50	5
P2	10	3
P3	8	4
P4	6	2
P5	10	1

- (a) FCFS (5 marks)
- (b) SJF (5 marks)
- (c) Priority scheduling (5 marks)
- (d) Round robin. Let quantum time as 10 ms (10 marks)

- END OF QUESTIONS -