UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2013/2014

COURSE NAME	:	BASIC OPERATING SYSTEM
COURSE CODE	:	DAT 10303
PROGRAMME	:	1 DAT
EXAMINATION DATE	:	DECEMBER 2013/JANUARY 2014
DURATION	:	2 ½ HOUR
INSTRUCTION	:	ANSWER **FOUR (4)** QUESTIONS ONLY

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1   (a)   Define inter process communications (IPC).

(5 marks)

(b)   Explain advantages of micro kernel designs.

(5 marks)

(c)   Describe the following scheduling approaches:

(i)   Short term scheduling
(ii)   Medium term scheduling
(iii)   Long term scheduling

(15 marks)

Q2   (a)   Explain symmetric communications.

(5 marks)

(b)   Define memory protection.

(5 marks)

(c)   Illustrate memory page replacement for a sequence of process in queue in table Q2 below, let number of frame in physical memory is 3.

Table Q2: 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	3
12	0
13	4
14	2
15	7

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

(15 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.

(5 marks)

(d)   Explain the differences between message passing and shared memory techniques.

(5 marks)

(e)   Describ the purpose of *error detection and control*.

(5 marks)

Q4   (a)   Explain the purpose of process control block (PCB).

(5 marks)

(b)   List **FIVE**(5) PCB contents.

(5 marks)

(c)   Illustrate the process interaction and queue using PCB.

(5 marks)

(d)   Explain the operating system booting process.

(5 marks)

(e)   Explain the meaning of threads.

(5 marks)

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

Table Q5: Process queue

Process Id	Burst time (second)	Priority
P1	15	3
P2	5	5
P3	8	4
P4	6	2
P5	4	1

(a)   FCFS

(5 marks)

(b)   SJF

(5 marks)

(c)   Pre-emptive SJF

(5 marks)

(d)   RR. Let quantum time as 5 ms.

(10 marks)

-End of questions -