

## UNIVERSITI TUN HUSSEIN ONN MALAYSIA

## FINAL EXAMINATION SEMESTER I SESSION 2016/2017

**COURSE NAME** 

: BASIC OPERATING SYSTEM

COURSE CODE

: DAT 10303

PROGRAMME

: 1 DAT

**EXAMINATION DATE** 

: DECEMBER 2016/

JANUARY 2017

**DURATION** 

: 2 HOURS 30 MINUTES

INSTRUCTIONS

ANSWER FOUR (4)
QUESTIONS ONLY.

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THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

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Q1 (a) List FIVE (5) services of operating system.

(5 marks)

(b) Describe each services of operating system in Q1(a) above.

(10 marks)

(c) Differentiate the techniques used in memory management between message passing and shared memory.

(8 marks)

(d) Explain the demand paging virtual memory techniques.

(2 marks)

Q2 (a) Illustrate memory page replacement for a sequence of process of queue in Table 1(a) below, number of frame in physical memory is set to 4.

## TABLE 1(a)

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

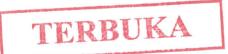
- (i) FIFO page replacement
- (ii) Optimum page replacement
- (iii) LRU page replacement

(15 marks)

(b) Which of the algorithm are best suited to be used based on the diagram that you have obtained from **Q2(a)** above.

(5 marks)

(c) Illustrate a hardware memory address protection using based and limit register. (5 marks)



Q3Explain how scheduling strategies decision between CPU bound and (a) I/O bound approaches. (5 marks) (b) Illustrate the process of interrupt. (5 marks) Illustrate how a system calls works when user application calling an open() (c) Operation calls. (5 marks) (d) Explain how a system calls works from your illustration in Q3(c) above. (5 marks) (e) Illustrate the common operating layered design approach. (5 marks) Q4 (a) Explain demand paging memory techniques. (5 marks) (b) Define the term multitasking in operating system. MIS PERMAN (5 marks) (c) List FIVE (5) common process states. (5 marks) (d) Illustrate a process state diagram. (5 marks) (e) Describe the process state diagram in Q4(d) above. (5 marks)

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

Table Q5

Process	Burst time	Priority
Id	(millisecond)	
P1	10	3
P2	15	4
P3	3	5
P4	8	1
P5	4	2

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

- END OF QUESTIONS -

