

Total No. of Questions—4]

[Total No. of Printed Pages—3

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M.C.A. (Commerce Faculty) (III Semester) EXAMINATION, 2016

306 : OPERATING SYSTEM

(2013 PATTERN)

Time : Three Hours

Maximum Marks : 50

N.B. :— (i) All questions are compulsory.

(ii) Neat diagram must be drawn whenever necessary.

1. Attempt the following (any *seven*) : [7×2=14]

(a) What is the use of fork() and exec() system calls ?

(b) State functions of dispatcher.

(c) Define process Arrival Time.

(d) What is seek time ?

(e) What are the operations on files ?

(f) Define page fault.

(g) Enlist the objective of operating system.

(h) Define critical section.

2. Attempt the following (any *three*) : [3×4=12]

(a) Explain Bounded-Buffer problem.

(b) Calculate Average Turn-around time and average waiting for following by using :

(i) FCFS

P.T.O.

(ii) Pre-emptive SJF.

Process	Burst Time	Arrival Time
P ₁	8	0
P ₂	6	1
P ₃	7	3
P ₄	9	3

(c) Explain Direct Memory Access (DMA).

(d) Write note on Segmentation.

3. Attempt the following (any *three*) : [3×4=12]

(a) Explain multilevel feedback queue.

(b) What is semaphores ? Explain it.

(c) Explain deadlock prevention method in detail.

(d) Consider the following page reference string :

7, 5, 4, 9, 4, 7, 8, 5, 2, 3, 4, 7, 9, 7, 4

Assume there are 3 free frames. Find page fault by using :

(i) FIFO

(ii) LRU.

4. Attempt the following (any *three*) : [3×4=12]

(a) Explain indexed allocation method.

(b) Explain operations on process.

- (c) Write short note on polling.
- (d) Consider the following snapshot of system. A system has 5 processes. A through E and resource types A through D.

Ailocation				
	A	B	C	D
P ₀	0	6	3	2
P ₁	0	0	1	2
P ₂	1	0	0	0
P ₃	1	3	5	4
P ₄	0	0	1	4

Max				
	A	B	C	D
P ₀	0	6	5	2
P ₁	0	0	1	2
P ₂	1	7	5	0
P ₃	2	3	5	6
P ₄	0	6	5	6

Available			
Resources			
A	B	C	D
1	5	2	0

Answer the following questions using Banker's algorithm :

- (i) What are contents of matrix need ?
- (ii) Is the system in a safe stage.