

AR-4204**B. C. A. (First Year) Examination, March-April 2018****(Gr.-II)****Paper : BCA-14****OPERATING SYSTEM & SYSTEM SOFTWARE****Time Allowed : Three hours****Maximum Marks : 40**

*Note : Attempt questions of all three sections as directed.
Distribution of marks is given with question.*

Section-'A'**(Objective Type Questions) 5×1=5**

*Note : Attempt all questions. Each question carries
1 mark.*

AR-4204**PTO****1. Choose the correct answer :**

- (i) Which is not the function of the operating system?
 - (a) Memory management
 - (b) Virus detection
 - (c) Disk management
 - (d) Application management
- (ii) A process can be terminated due to :
 - (a) Normal exit
 - (b) Fatal error
 - (c) Killed by another process
 - (d) All of the mentioned
- (iii) Run time mapping from virtual to physical address is done by :
 - (a) CPU
 - (b) PCI
 - (c) Memory management unit
 - (d) None of the mentioned

(iv) Swap space exists in :

- (a) CPU
- (b) Main memory
- (c) Secondary memory
- (d) All of the above

(v) Mapping of file is managed by :

- (a) File metadata
- (b) Page table
- (c) File system
- (d) Virtual memory

Section-'B'

(Short Answer Type Questions) 5×2=10

Note : Attempt all questions. Each question carries 2 marks.

2. What is the purpose of system call and how do the system calls related to operating system?

Or

Explain following scheduling algorithms :

- (i) SRTF
- (ii) RR

3. List the information in process control block and explain it.

Or

What do you understand by semaphores. Explain.

4. What is swapping? Explain how space is allocated in swapping?

Or

Write difference between physical and logical address space.

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5. Describe one approaches to intrusion detection.

Or

What do you understand by demand paging?

6. Explain the concept of file sharing.

Or

Describe any two methods for file protection.

Section-'C'

(Long Answer Type Questions) 5×5=25

Note : Attempt all questions. Each question carries 5 marks.

7. Consider the following processes :

Process	Arrival Time	Burst Time
P ₁	0.0 ms	6 ms
P ₂	0.5 ms	4 ms
P ₃	1.0 ms	2 ms
P ₄	1.2 ms	1 ms

Find the average turnaround time and average waiting time with respect to FCFS, SJF and SRTF.

Or

State in brief key features of each of the following types of operating system :

- Real Time
- Distributed
- Time Sharing
- Multi programming

8. Describe bankers algorithm with pseudo-code.

Or

What is critical region? Explain problem of synchronization?

9. Explain different placement algorithms for dynamic partitioning.

Or

Explain the different memory management requirements. Describe paging with an example.

10. A process reference pages in the following order

2, 3, 2, 1, 5, 3, 2, 4, 5, 3, 1, 2, 5, 2

Use LRU and optimal page replacement algorithms to find out the number of page faults for the above reference string using 4 page frames.

Or

Explain the concepts of segmentation and paging with the help of diagrams.

11. Describe any four types of file organizations. What do you understand by distributed systems?

Or

Explain with example and neat diagram following disk scheduling algorithm :

- (i) SCAN
- (ii) FIFO
- (iii) SSTF
- (iv) C-SCAN

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