

NGA  
CR

**2023**

**INFORMATION TECHNOLOGY**

Paper : INT-VC-4016

**( Operating System )**

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks for the questions*

1. Choose the correct answer of the following :

1×7=7

(a) Which of the following is the extension of Notepad?

(i) .txt

(ii) .xls

(iii) .ppt

(iv) .bmp

(b) In UNIX, which system call creates the new process?

(i) Fork

(ii) Create

(iii) New

(iv) All of the above

(c) Which of the following is not an operating system?

- (i) Windows
- (ii) Linux
- ~~(iii) Oracle~~
- ~~(iv) DOS~~

(d) Banker's algorithm is used

- ~~(i) to prevent deadlock~~
- (ii) to deadlock recovery
- (iii) to solve deadlock
- (iv) None of the above

(e) Which of the following is not an application software?

- ~~(i) Windows 7~~
- (ii) WordPad
- (iii) Photoshop
- (iv) MS-Excel

(f) Which of the following is a condition that causes deadlock?

- (i) Mutual exclusion
- (ii) Hold and wait
- (iii) Circular wait
- ~~(iv) All of the above~~

(g) Which one of the following is a synchronization tool?

(i) Thread

(ii) Pipe

(iii) Semaphore

(iv) Socket

2. Answer the following questions : 2×4=8

(a) What do you mean by a process?

(b) What is the use of paging in operating system?

(c) What do you mean by segmentation?

(d) What is a thread?

3. Answer any *three* of the following questions :

5×3=15

(a) What are the necessary conditions to occur a deadlock?

(b) Describe First Come First Serve (FCFS) scheduling algorithm with example.

(c) Describe system calls and its type.

(d) Describe different functions of operating system.

(e) What are the advantages of multi-processor system?

4. Answer any *three* of the following questions :

10×3=30

- (a) What is synchronization? What are the different types of synchronization mechanism? 2+8=10
- (b) What is the main purpose of an operating system? What are the different types of operating system?
- (c) Describe briefly Banker's algorithm with example.
- (d) What is fragmentation? Explain the differences between internal and external fragmentation.
- (e) Explain non-preemptive priority scheduling algorithm with illustration.
- (f) Consider page reference string :  
1, 7, 0, 2, 6, 5, 2 with three page frames  
Find the number of page faults using the following page replacement algorithms :
- (i) FIFO
- (ii) LRU

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