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BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – Dip.CSE-2024
Course Name – Operating Systems
Course Code - DCS30102
(Semester III)

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Brainware University
398, Ramkrishnapur Road, Barasat
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Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select the option that best describes an Operating System.
- a) System Software
- b) Malware
- c) Application Software
- d) Hardware

(ii) Choose the option that matches with Interpreter.
- a) Application Software
- b) Process Manager
- c) Malware
- d) System Software

(iii) Identify the option that matches with the property of a Thread.
- a) Light Weight Process(LWP)
- b) Software
- c) Heavy Weight Process(HWP)
- d) Hardware

(iv) Select from the following choices related to the concept of Context Switching.
- a) share the memory and resources of the process to which the threads belong
- b) an application have several different threads of activity all within the same address space
- c) reduce the address space that a process could potentially use
- d) Swap In and Swap Out of the Process

(v) Identify the Central Component of the Operating System.
- a) Process
- b) Thread
- c) Hardware
- d) Kernel

(vi) Choose the term that describes a situation in multiple processes access the same data simultaneously, and the final result is affected by the specific sequence of their access.
- a) Dynamic condition
- b) Essential condition
- c) race condition
- d) Critical condition

(vii) Select the FIFO scheduling can be identified as
- a) Non-Preemptive
- b) Preemptive
- c) Primitive
- d) Non-Primitive

(viii) Identify the type of Operating System in which the events must be accepted and processed in a short time or within certain deadlines.

a) Real time OS | b) Batch OS
c) Quick sharing OS | d) Time sharing OS

(ix) Identify the option that represents Output per unit time.

a) Turn-Around Time | b) Waiting Time
c) Throughput. | d) Response Time

(x) Choose the number of necessary condition for deadlock to Occur.

a) 1 | b) 2
c) 5 | d) 4

(xi) Identify the specific table that an operating system maintains to keep a record of allocated, total, and available memory frames.

a) Mapping | b) Page
c) Frame | d) Memory

(xii) Identify the correct option that completes the following sentence- "Timer is used to prevent a single________".

a) Job | b) Timer
c) Computer | d) Information

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(xiii) Choose the name of the scheduling algorithm that allocates the CPU first to the process that requests the CPU first.

a) first-come, first-served scheduling | b) shortest job scheduling
c) priority scheduling | d) none of the mentioned

(xiv) Select the time interval that indicates the time from the submission of a process to its completion.

a) turnaround time | b) waiting time
c) response time | d) throughput

(xv) Select the correct option: The processes that are residing in main memory and are ready and waiting for execution are kept on a list named.

a) job queue | b) ready queue
c) execution queue | d) process queue

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define Operating System, User Space and Kernel Space. (3)
3. Explain the advantages of using threads in an operating system. (3)
4. Compare between Preemptive and Non-Preemptive Scheduling. (3)
5. Explain the concept of mutual exclusion in deadlock. (3)
6. Compare between logical address space and physical address space in an operating system. (3)

OR

Illustrate fragmentation,external fragmentation,internal fragmentation. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain the different types of Operating System. (5)
8. Describe the management process of system resources such as CPU, memory, and I/O devices by the Operating System. (5)
9. Describe the benefits of multithreaded programming. (5)
10. Explain Message Passing concept in Inter-Process Communication. (5)
11. Explain the concept of Fragmentation along with its types. (5)

12. Explain Preemptive Priority Scheduling algorithm. (5)

OR

Compare First Fit, Best Fit and Worst Fit Algorithm. (5)

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