Total number of printed pages: **5** **Programme(D)/IV/DCSE404**

2021

OPERATING SYSTEM

Full Marks: 60

Time: Two hours

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

A. Multiple Choice Questions 1 x 20=20

1. The address of the next instruction to be executed by the current process is provided by the
   a. CPU Registrar
   b. Program Counter
   c. Process Stack
   d. Pipe
2. When a process issues an I/O requests
   a. It is placed in an I/O queue
   b. It is placed in a waiting queue
   c. It is placed in a ready queue
   d. It is placed in a job queue
3. A set of processes is deadlock if
   a. A process is blocked and will remain so forever
   b. Each process is terminated
   c. All processes are trying to kill each other
   d. None of the above
4. What is a long term scheduler?
   a. It selects which process has to be brought to be into the ready state
   b. It selects which process has to be executed next and allocates the CPU
   c. It selects which process has to be swapped out from the main memory

d. None of the above

5. Inter-process communication means

   a. Communication within the process

   b. Communication between two processes

   c. Communication between two threads of the same process

   d. None of the above

6. Which of the following is a synchronization tool?

   a. Thread

   b. Socket

   c. Pipe

   d. Semaphore

7. If a process is in critical section, no other process is allowed to execute in this section. This condition is called

   a. Critical condition

   b. Race condition

   c. Mutual exclusion

   d. Synchronous exclusion

8. Which of the following transition is not possible?

   a. Blocked to running

   b. Ready to running

   c. Blocked to ready

   d. Running to blocked

9. Swap space exists in

   a. Primary memory

   b. Secondary memory

   c. CPU

   d. None of the above

10. Operating system page table is for

    a. Each thread

    b. Each process

c. Each address

d. Each instruction

11. When does page fault occur?

a. The page is present in memory.

b. The deadlock occurs.

c. The page does not present in memory.

d. The buffering occurs.

12. What type of scheduling is round-robin scheduling?

a. Linear data scheduling

b. Non-linear data scheduling

c. Preemptive scheduling

d. Non-preemptive scheduling

13. Which of the following statement is correct about fragmentation?

a. It is software that connects the OS.

b. It is part of the software.

c. Loss the memory

d. All of the these

14. The PCB is identified by _____.

a. Real-Number

b. Binary Number

c. Store block

d. Integer Process ID

15. _____ has the lowest fault rate of all the page replacement algorithms.

a. Optimal page replacement algorithm

b. LRU replacement algorithm

c. FIFO

d. Counting based

16. In an optimal page replacement algorithm, when a page is to be replaced, which of the following pages is chosen?

a. Oldest page

b. Newest page

c. Frequently occurred page in the future

d. Not frequently occurred page in the future

17. Banker's algorithm for resource allocation deals with

a. deadlock prevention

b. deadlock avoidance

c. deadlock recovery

d. mutual exclusion

18. FIFO scheduling is

a. Fair-share scheduling

b. Deadline scheduling

c. Non-preemptive scheduling

d. Preemptive scheduling

19. The LRU algorithm

a. pages out pages that have been used recently

b. pages out pages that have not been used recently

c. pages out pages that have been least used recently

d. None of the above

20 After the completion of the DMA transfer, the processor is notified by _____

a. Acknowledge signal

b. Interrupt signal

c. WMFC signal

d. None of the mentioned

B. Very Short Question 2*6=12

1. Differentiate between paging and segmentation.
2. What is a time sharing system?
3. What is a medium term scheduler?
4. What is demand paging?
5. What is page fault?
6. What is a device controller?

C. Short Question 4*7=28

1. Why a process control block is essential? Give your justification.
2. Consider a reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1 of frame size 3. Calculate the number of page faults using optimal page replacement algorithm.
3. How Shortest job scheduling differs from priority scheduling? Which one of these scheduling average waiting time is more?
4. What is the function of DMA? Explain properly.
5. What is a processor pool model? Explain clearly.
6. When a deadlock will occur? Justify your answer.
7. What is a critical section? How a critical section problem can be solved?

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