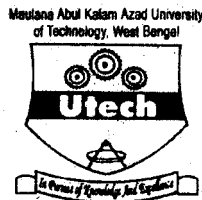


**CS/BCA/ODD SEM/SEM-3/BCA-301/2016-17**



**MAULANA ABUL KALAM AZAD UNIVERSITY OF  
TECHNOLOGY, WEST BENGAL**

**Paper Code : BCA-301**

**OPERATING SYSTEM**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP – A  
( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following :

10 × 1 = 10

- i) Fork() is
- a) Creation of a new process
  - b) Dispatching of a task
  - c) Increment of task priority
  - d) None of these.
- ii) A null process has a process identifier
- a) - 1
  - b) 0
  - c) 1
  - d) Null.

3/30012

[ Turn over

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- iii) Computer Virus is
  - a) a software
  - b) a code attached to software
  - c) intruders
  - d) none of these.
- iv) Which is not a layer of operating system ?
  - a) Kernel
  - b) Shell
  - c) Application program
  - d) Critical section.
- v) TLB stands for
  - a) Transition Look-Aside Buffer
  - b) Translation Look-Aside Buffer
  - c) Translation Local Buffer
  - d) Translating Look-Aside Buffer.
- vi) Thrashing
  - a) reduces page I/O
  - b) improves the system information
  - c) implies excessive page I/O
  - d) decreases the degree of multiprogramming.
- vii) Context Switching is
  - a) Part of Spooling
  - b) Part of Poling
  - c) Part of Interrupt Handling
  - d) Part of Interrupt Servicing.
- viii) The number of processes completed per unit time is known as
  - a) output
  - b) capacity
  - c) efficiency
  - d) throughput.

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- ix) In priority scheduling algorithm
- a) CPU is allocated to the process with highest priority
  - b) CPU is allocated to the process with lowest priority
  - c) equal priority processes cannot be scheduled
  - d) none of these.
- x) Round Robin scheduling falls under the category of
- a) non pre-emptive scheduling
  - b) pre-emptive scheduling
  - c) both (a) and (b)
  - d) none of these.

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. Explain PCB.
3. Define thread and its life cycle.
4. What do you mean by Critical Section Problem ? Explain with example.
5. Explain Demand Paging in memory management scheme. What is Multilevel Feedback Queue ?
6. What is page fault ? When does it occur ?

3/30012

3

[ Turn over

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**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Name some criteria to evaluate a processor management scheme.  
b) What do you mean by long term, short term, and medium term scheduler ?  
c) What is multilevel feedback queue scheduling ?  
 $5 + 5 + 5$
8. a) What do you mean by race condition ?  
b) Explain in detail the operations of semaphore.  
c) Explain the classical problems of synchronization in detail.  
 $5 + 5 + 5$
9. What are the necessary conditions for deadlock ? Describe a system model for deadlock. Explain the resource allocation graph for deadlock avoidance. Discuss different deadlock recovery techniques.  
 $2 + 5 + 5 + 3$
10. a) Consider the following page reference string :  
0 1 3 6 2 4 5 2 5 0 3 1 2 5 4 1 0  
Calculate the page fault rate for the following algorithm :  
i) FIFO  
ii) LRU  
iii) Optimal ( Memory size is 3 Frames ).  
b) Explain Belady's anomaly for page replacement algorithm.  
 $4 + 4 + 4 + 3$
11. Write short notes on any *three* of the following :  $3 \times 5$   
a) Distributed OS  
b) Thrashing  
c) File access methods  
d) Virtual memory  
e) Segmentation.
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