

**Part-C**

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*Note* :- Attempt any *one* question.

4. What is Scheduling ? Differentiate between Preemptive and Non-preemptive scheduling strategies.

*Or*

5. Explain the basic Thread Models in detail.

**Part-D**

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*Note* :- Attempt any *one* question.

6. Explain the concept of Fragmentation in detail.

*Or*

7. What is Memory Allocation ? Explain its strategies.

**Part-E**

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*Note* :- Attempt any *one* question.

8. What is vi editor ? Explain its modes and 5 basic commands.

*Or*

9. What is Shell ? Explain various types of Shell.

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Roll No. ....

Total No. of Questions : 9]  
(2032)

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**UG (CBCS) IIIrd Year (Annual)  
Examination**

**3256**

**B.A. COMPUTER APPLICATION**

(Operating System)

(DSE-1A)

(Common with B.Sc. Physical Science)

(DSE-2A)

Paper : COMP301 TH

**Time : 3 Hours]**

**[Maximum Marks : 70**

**Part-A**

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**(Compulsory Question)**

1. (A) State whether the statements are *True* or *False* :
- (i) Most PC operating systems do not support multi-programming. *F*
  - (ii) An operating system is defined as hardware that converts software into a useful form for applications. *F*
  - (iii) Memory Mapped I/O devices are accessed with special instructions not used for normal computation. *T*

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Turn Over

- (iv) The scheduler is the part of an Operating System that determines the priority of each process. ✓
- (v) Shell is a program which reads a command line from the standard input and interprets it according to a fixed set of rules.
- (B) Choose the right option(s) : ✓
- (vi) Logical extension of multiprogramming operating system is :
- (a) Time Sharing
  - (b) Multi-Tasking
  - (c) Single Programming
  - ✓(d) Both (a) and (b)
- (vii) Main memory of computer system is also called :
- (a) Non-volatile
  - ✓(b) Volatile
  - (c) Reserved
  - (d) Large
- (viii) Scheduling of threads are done by :
- (a) Input
  - (b) Output
  - ✓(c) Operating System
  - (d) Memory

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- (ix) Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called :
- (a) Fragmentation
  - ✓(b) Paging
  - (c) Mapping
  - (d) None of these
- (x) Owner of an address space can grant a number of its :
- (a) Modules
  - (b) Pages
  - ✓(c) Devices
  - (d) Computer

Part-B

15

Note :- Attempt any *one* question.

2. What are the two primary objectives of having an operating system in a computer ? Explain how an operating system helps to meet these objectives.

Or

3. What is Operating System ? Explain the types of operating system in detail.

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Turn Over

- (i) CPU scheduling is the basis of :
- (a) Multiprogramming operating systems
  - (b) Larger memory sized systems
  - (c) Multiprocessor systems
  - (d) None of these
- (ii) In real time operating system :
- (a) Process scheduling can be done only once
  - (b) All processes have the same priority
  - (c) Kernel is not required
  - (d) A task must be serviced by its deadline period
- (iii) Operating System maintains the page table for :
- (a) Each process
  - (b) Each thread
  - (c) Each instruction
  - (d) Each address

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- (iv) Which one of the following is the deadlock avoidance algorithm ?
- (a) Banker's algorithm
  - (b) Round-robin algorithm
  - (c) Elevator algorithm
  - (d) Karn's algorithm
- (v) Which is true with regards to the shell prompt ?
- (a) It can be accidentally erased with backspace
  - (b) The prompt cannot be modified
  - (c) The prompt can be customized (modified)
  - (d) None of these
- (vi) Which vi editor command copies the current line of the file ?
- (a) yy
  - (b) yw
  - (c) yc
  - (d) None of these

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(vii) Which of the following is not the state of a process ?

- (a) New
- (b) Old
- (c) Waiting
- (d) Running

Fill in the blank spaces :

(viii) The only state transition that is initiated by the user process itself is waiting.

(ix) The number of processes completed per unit time is known as throughput.

(x) The circular wait condition can be prevented by

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**Part-B**

**(Unit-I)**

2. What is a System Software ? Discuss in detail the functions performed by an operating system in the computer. 15
3. What do you mean by Multi-Programming, Multi-User and Multi-Processing operating systems ? Highlight their advantages and disadvantages. 15

**Part-C**

**(Unit-II)**

4. (a) What is a process in Operating System ? Explain various stages of the process.
- (b) What is a deadlock ? Why does it occur ? What are the necessary conditions that lead to a deadlock ? 7.8
5. Discuss the following Scheduling methods :
- (i) FCFS
  - (ii) Priority Scheduling
  - (iii) Round Robin Scheduling 5.5,5

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**Part-D**

**(Unit-III)**

6. What are the three major activities of an operating system in regard of secondary storage management ?

Discuss in detail.

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7. Explain the following :

(i) Swapping

(ii) Internal Fragmentation and External Fragmentation

(iii) Virtual Memory

5,5,5

**Part-E**

**(Unit-IV)**

8. Discuss various editors present in Linux. Explain different modes of operation in vi editor.

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9. Explain the following :

(i) User Mode v/s Kernel Mode

(ii) Shell variables

(iii) System calls

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