

Roll No. 209465.....

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BCA—203

B.C.A. Second Year Examination, 2014

B.C.A.

PAPER—III

(Fundamentals of Operating Systems)

Maximum Marks : 100

SECTION-A

खण्ड-अ

Marks : 50

Time : 1½ Hours

Candidates are required to first answer the Section-A (Multiple Choice Questions) by marking correct choice on OMR Sheet in prescribed time. All questions are compulsory and carry equal marks. There is no negative marking for wrong answers.

सर्वप्रथम खण्ड-अ के सभी वस्तुनिष्ठ प्रश्नों के उत्तर ओ.एम.आर. शीट में परीक्षार्थियों को निश्चित समय में देने हैं। सभी प्रश्न अनिवार्य एवं समान अंक के हैं। गलत उत्तर का ऋणात्मक मूल्यांकन नहीं किया जाएगा।

SECTION-B

खण्ड-ब

Marks : 50

Time : 1½ Hours

After depositing OMR Sheet of Section-A with invigilator, the candidates are required to answer **one** question from each Unit (each question in **250** words) in a separate Answer-book provided to them. All questions carry equal marks.

खण्ड-अ की ओ.एम.आर. शीट पर्यवेक्षक को जमा कराने के पश्चात परीक्षार्थी खण्ड-ब की प्रत्येक इकाई से एक प्रश्न का उत्तर दी गई उत्तर-पुस्तिका में देंगे। प्रत्येक प्रश्न का उत्तर लगभग 250 शब्दों में दिया जाना है एवं सभी प्रश्नों के अंक समान हैं।

BCA—203

P. T. O.

SECTION-A

खण्ड-अ

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UNIT-1

1. Super computer typically employ
 - (A) Real time operating system
 - (B) Multiprocessor operating system
 - (C) Desktop operating system
 - (D) All of the above
2. System call is defined as
 - (A) It provides interface between I/O and memory
 - (B) It provides interface between peripheral and computer system
 - (C) It provides interface between process and O/S
 - (D) None of the above
3. An address generated by a CPU is referred to as a
 - (A) Physical address
 - (B) Logical address
 - (C) Both A and B
 - (D) None of the above
4. An operating system is
 - (A) a system software
 - (B) Application software
 - (C) Utility software
 - (D) All of the above
5. The operating system manages
 - (A) Memory
 - (B) Processor
 - (C) Disks and I/O devices
 - (D) All of the above

16. What is shell?
- (A) It is hardware component
 - (B) It is command interpreter
 - (C) It is part in compiler
 - (D) All of the above
7. A hardware device that is capable of executing a sequence of instructions is known as
- (A) CPU
 - (B) ALU
 - (C) CU
 - (D) Processor
8. Multiprogramming was made possible by
- (A) Input/output units that operate independently of the CPU
 - (B) Operating system
 - (C) Both A and B
 - (D) Neither A or nor B
9. Which file system does DOS typically use?
- (A) FAT 16
 - (B) FAT 32
 - (C) NTFS
 - (D) Both A and B

10. It is not the layer of the operating system
- (A) Kernel
 - (B) Shell
 - (C) Application program
 - (D) Critical section

UNIT-II

11. The purpose of cooperating process is
- (A) Information sharing
 - (B) Convenience
 - (C) Computation speed up
 - (D) All of the above
12. Scheduling is
- (A) Unrelated to performance consideration
 - (B) Allowing jobs to use the processor
 - (C) Both A and B
 - (D) None of the above
13. Response time refers to the amount of time
- (A) that CPU utilization is minimized
 - (B) to execute a particular process
 - (C) a process has been waiting in the ready queue
 - (D) it takes from when a request was submitted until the first action is produced

14. PCB stands for

- (A) Process communication back
- (B) Program control back
- (C) Process control back
- (D) All of the above

15. Round Robin scheduling is essentially the preemptive version of

- (A) Shortest job first
- (B) FIFO
- (C) Longest time first
- (D) Shortest remaining

16. Program in execution is called

- (A) Process
- (B) Instruction
- (C) Procedure
- (D) Function

17. Before proceeding with its execution, each process must acquire all the resources it needs is called

- (A) hold and wait
- (B) starvation
- (C) circular wait
- (D) no pre-emption

18. Interval between the time of submission and completion of the job is called

- (A) Throughput
- (B) Turn around time
- (C) Waiting time
- (D) Response time

19. CPU scheduling is the basis of operating system.

- (A) Batch
- (B) Real time
- (C) Multiprogramming
- (D) Monoprogramming

20. Which is not the state of process?

- (A) Blocked
- (B) Running
- (C) Ready
- (D) Privileged

UNIT-III

21. It is not possible to have a deadlock involving only a single process. Why?

- (A) This holds mutual exclusion, hold and wait and non-preemption
- (B) Because single process not always in safe state
- (C) This follows directly from the hold and wait condition
- (D) None of the above

22. Race conditions are prevented by requiring that critical regions be protected by
- (A) Clocks
 - (B) Semaphores
 - (C) Locks
 - (D) Monitors
23. Interprocess communication can be done through
- (A) Mails
 - (B) Messages
 - (C) System call
 - (D) All of the above
24. A Binary Semaphore
- (A) has the value one or zero
 - (B) is essential to Binary computer
 - (C) is used for synchronization
 - (D) is used for mutual exclusion
25. Several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which the access take place, is called a
- (A) Shared memory segments
 - (B) Race condition
 - (C) Entry section
 - (D) Process synchronization
26. A process said to be in state if it was waiting for an event that will never occure.
- (A) Safe
 - (B) Unsafe
 - (C) Starvation
 - (D) Deadlock
27. A program at the time of executing is called
- (A) Dynamic program
 - (B) Static program
 - (C) A process
 - (D) All of the above
28. The section of code which access shared variable is called as
- (A) Critical section
 - (B) Safe
 - (C) Block
 - (D) Procedure
29. Semaphore can be used for solving
- (A) Wait and signal
 - (B) Deadlock
 - (C) Synchronization
 - (D) Priority

30. Banker's algorithm is used
- (A) to prevent deadlock in operating system
 - (B) to detect deadlock in operating system
 - (C) to rectify a deadlock state
 - (D) None of the above

UNIT-IV

31. The memory allocation scheme subject to external fragmentation is
- (A) Segmentation
 - (B) Swapping
 - (C) Pure demand paging
 - (D) All of the above
32. In virtual memory systems, dynamic address translation
- (A) stores pages at a specific location on disk
 - (B) is useless when swapping is used
 - (C) is always small and simple
 - (D) is the hardware necessary to implement paging
33. Swapping
- (A) does not work with overlaying
 - (B) allow each program in turn to use the memory
 - (C) Both A and B
 - (D) None of the above

34. Memory

- (A) is a sequence of instructions
- (B) is a device that performs a sequence of operations specified by instructions in memory
- (C) is the device where information is stored
- (D) All of the above

35. Paging

- (A) solve memory fragmentation problem
- (B) Used for monitoring events as they occur
- (C) Allows structured programming
- (D) Avoid deadlocks

36. The high paging activity is called

- (A) process control back
- (B) thrashing
- (C) system call
- (D) None of the above

37. Fragmentation of the file system

- (A) occurs only if the file system is used improperly
- (B) can always be prevented
- (C) can be temporarily removed by compaction
- (D) All of the above

38. LRU page replacement policy is
- (A) last replaced unit
 - (B) last restored unit
 - (C) least recently used
 - (D) least required unit
39. The time taken to bring the desired track/cylinder under the head is
- (A) Seek time
 - (B) Latency time
 - (C) Transferred time
 - (D) Read time
40. In memory management, a technique called as paging, physical memory is broken into fixed size blocks called
- (A) pages
 - (B) frames
 - (C) blocks
 - (D) segments

UNIT-V

41. Which of the following software types is used to simplify using systems software?
- (A) Spreadsheet
 - (B) Multitasking
 - (C) Time sharing
 - (D) Operating environment

42. A sequence of instructions, in a computer language, to get the desired result, is known as
- (A) Algorithm
 - (B) Flowchart
 - (C) Decision table
 - (D) Program
43. Which of the following is a type of system software used on micro-computers?
- (A) MS-DOS
 - (B) PC-DOS
 - (C) Unix
 - (D) All of above
44. Information in a memory that is no longer valid or wanted is known as
- (A) Non-volatile
 - (B) Volatile
 - (C) Garbage
 - (D) Surplus
45. Unix operating system is an
- (A) Time sharing operating system
 - (B) Multiuser operating system
 - (C) Multitasking operating system
 - (D) All of the above

46. Shell is exclusive feature of

- (A) UNIX
- (B) DOS
- (C) Utility software
- (D) Application software

47. The main reason to encrypt a file is to

- (A) Reduce its size
- (B) Secure it for transmission
- (C) Prepare it for backup
- (D) None of the above

48. Cryptography technique is used in

- (A) Polling
- (B) Job scheduling
- (C) Protection
- (D) File management

49. What is the name of the software which can be legally compiled and often used for free?

- (A) Public domain program
- (B) Firmware programme
- (C) Shareware program
- (D) All of the above

50. The program is known as which interacts with the inner part of called kernal

- (A) compiler
- (B) device driver
- (C) protocol
- (D) shell

SECTION-B

खण्ड-ब

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Time : 1½ Hours

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UNIT-I

1. ✓ What are the main purposes of an operating system? Write advantage of multiprogramming. 10
2. Write down different system calls for performing different kinds of tasks. 10

UNIT-II

3. Write the definition of process. Explain the different states of process with example. 10
4. ✓ What are the different types of scheduling queues? Write about the different types of schedulers. 10

UNIT-III

5. What do you mean by cooperating processes? Write about semaphores and its usages. 10
6. ✓ Write the methods to prevent a deadlock situation. How can a deadlock situation be avoided? 10

UNIT-IV

7. ✓ What is virtual memory? Discuss the two key techniques of virtual memory implementation paging and segmentation? 10

8. List the steps to perform page replacement. Explain LRU page replacement algorithm? 10

UNIT-V

9. Discuss in detail "Memory management" in Linux operating system. 10
10. Write short notes on the following : 5+5=10
- (a) Process management in Linux system
 - (b) File system in Linux operating system.