265054

BCA-203

B.C.A. Second Year Examination, 2013

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 परीक्षार्थी को निश्चित समय में देने हैं। सभी प्रश्न अनिवार्य एवं समान अंक के हैं गलत उत्तर का ऋणात्मक मूल्यांकन नहीं किया जायेगा।

SECTION-B

खण्ड-ब

Marks : 50

Time : 1½ Hours

After depositing O.M.R. Sheet of Section-A with invigilator, the candidate 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. Attempt one question from each unit.

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

P.T.O.

SECTION-A

UNIT-I

1. Multi programming system :
   (A) Execute each job faster
   (B) Execute more jobs in the sametime
   (C) Are used only on large mainframe computers
   (D) None of the above
2. The operating system manages :
   (A) Memory (B) Processor
   (C) Disks and I/O devices (D) All of the above
3. When a computer is first turned on or restarted a special type of absolute loader is excecuted called a :
   (A) Boot loader (B) Boot strap loader
   (C) Relating loader (D) None of the above
4. Which of the following software types is used to simplify using systems software ?
   (A) Spreadsheet (B) Word processor
   (C) Time sharing (D) None of the above
5. A computer cannot "boot" if it does not have the :
   (A) Compiler (B) Interpreter
   (C) Operating system (D) None of the above
6. Multiprogramming :
   (A) Are easier to develop than single programming
   (B) Consists of those addresses that may be generated by a processor during execution of a computation
   (C) Allows multiple programs to reside in separate areas of core at the time
   (D) None of the above
7. Which of the following capabilities is required for a system program to execute more than one program at a time :
   (A) Word processing (B) Compiling
   (C) Virtual memory (D) Multitasking

8. The operating system of a computer serves as a software interface between the user and :

(A) Hardware (B) Memory

(C) Screen (D) None of the above

9. A characteristic of an on-line real time system is :

(A) No delay in processing (B) More than one CPU

(C) Off time batch processing (D) None of the above

10. 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

UNIT-II

11. Round robin scheduling is essentially the premptive version of .....

(A) FIFO (B) Shortest jobs first

(C) Shortest remaining (D) Longest time first

12. In the blocked state :

(A) The processes waiting for I/O are found

(B) The process which is running is found

(C) The processes waiting for the processor are found

(D) None of the above

13. Which is not the state of the process :

(A) Blocked (B) Running

(C) Ready (D) Pvivileged

14. The state of a process after it encounters an I/O instruction is :

(A) Ready (B) Idle

(C) Blocked (D) Running

15. PCB stands for :

(A) Program control back (B) Process control back

(C) Process communication block (D) None o the above

16. FIFO scheduling is .....

(A) Preemptive scheduling (B) Non preemptive scheduling

(C) Dead line scheduling (D) Fair share scheduling

17. Scheduling is .....

(A) Allowing jobs to use the processor (B) Unrelated to performance consideratio

(C) Both (A) and (B) (D) None of the above

18. Process is :

(A) Program in high level language kept on disk

(B) Contents of main memory

(C) A program in execution (D) None of the above

19. Which of the following program is not a utility :

(A) Debugger (B) Editor

(C) Spooler (D) All of the above

20. Scheduling is :

(A) Allowing jobs to use the processor

(B) Unrelated to performance consideration

(C) Not required in uniprocessor systems

(D) The same regard-less of the purpose of the system

UNIT-III

21. Semaphores :

(A) Synchronize critical resources to prevent dead lock

(B) Synchronize critical resources to prevent contention

(C) Are used to do I/O

(D) Are used for memory management

22. Interprocess communication :

(A) is required for all processes (B) is usually done via disk drives

(C) is never necessary (D) allows processes to synchronize activity

23. Bankers algorithm for resource allocation deals with :

(A) dead lock recovery (B) dead lock avoidance

(C) mutual exclusion (D) all of the above

24. One necessary condition for dead lock is ..... which states that at least one resource must be held in a non-shareable mode :

(A) hold and wait (B) Mutual exclusion

(C) circular wait (D) ready state

25. Which of the following is most often used by operating systems to handle deadlocks :

(A) Assume that deadlocks never occur (B) use protocols to prevent or avoid deadlocks

(C) detect and recover from dead locks (D) none of the above

26. Response time refers to the amoung 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

27. Synchronization of message passing between processes is assured by using ..... .

(A) Buffering (B) Queuing

(C) Blocking (D) All of the above

28. A rare condition are prevented by requiring that critical regions be protected by ..... .

(A) Clocks (B) Semaphores

(C) Locks (D) Monitors

29. Which of the following statement is true :

(A) A safe state is a deadlock state

(B) An unsafe state may lead to a dead lock state

(C) An unsafe state is always a dead lock state

(D) A safe state may lead to a dead lock state

30. A solution to the critical section problem must satisfy which requirements :

(A) Bounded waiting, monitor and relative speed

(B) Semaphores, monitors and prevention of deadlock

(C) Signal, wait and continue

(D) Mutual exclusion, process and bounded waiting

UNIT-IV

31. A page fault occures :

(A) When the phage is not in the memory (B) When the page is in the memory

(C) When the process enters the blocked state (D) When the process is in the ready state

32. The mechanism that bring a page into memory only when it is needed is called .....

(A) Segmentation
(B) Fragmentation
(C) Demand paging
(D) Page replacement

33. Which of the following is a page replacement algorithm :

(A) FIFO
(B) LRV
(C) Optional
(D) All of the above

34. Virtual memory is :

(A) Simple to implement
(B) Used in all major commercial O.S.
(C) Less efficient in utilization of memory
(D) None of the above

35. Memory management is :

(A) Not used in modern operating system
(B) Replaced with virtual memory on current systems
(C) Not used on multiprogramming systems
(D) None of the above

36. Page stealing :

(A) Is a sign of an efficient system
(B) Is taking page frames from other working sets
(C) Should be the tunning goal
(D) Is taking larger disk spaces for pages paged out

37. Swapping :

(A) Works best with many small partitions
(B) Allows many programs to use memory simultaneously
(C) Allow each program in turn to use the memory
(D) None of the above

38. The memory allocation scheme subject to external fragmentation is :

(A) Segmentation
(B) Swapping
(C) Pure demand paging
(D) All of the above

39. The purpose of memory management is to :

(A) Perform run time mapping from virtual to physical address
(B) Ensure protection of the memory space allocated to every process
(C) Both (A) and (B)
(D) None of above

40. An address generalised by CPU is reffered to as a :

(A) Physical address
(B) Logical address
(C) Post relocation register address
(D) None of the above

UNIT-V

41. What is shell ?

(A) It is hardware component
(B) It is command interpreter
(C) It is a part in compiler
(D) It is a tool in CPU scheduling

42. In memory systems boundary registers :

(A) are used for temporary program variable storage
(B) are only necessary with fixed partitions
(C) track page boundaries
(D) track the beginning and ending of programs

43. A translator is best described as :

(A) an applications software
(B) a system software
(C) a hardware component
(D) none of the above

44. Which of the following are (is) language processors :

(A) Assembler
(B) Compiler
(C) Interpreter
(D) All of the above

45. What is the name given to the software, which can be legally compiled and often used for free :

(A) Shareware program
(B) Public domain program
(C) Fireware program
(D) Midware

46. The most common systems security method is :

(A) Passwords
(B) Encryption
(C) Firewall
(D) None of the above

47. Which of the following is not application software :

(A) Word processing
(B) Spread sheet
(C) Unix
(D) Desktop publishing

48. Information in a memory that is no longer valid or wanted is known as :

(A) Non-volatile
(B) Volatile
(C) Surplus
(D) Garbage

49. The most common security failure is :
(A) Carelessnes by users
(B) Depending upon password
(C) Insufficient technology used to prevent breaches
(D) None of the above

50. Fork is :
(A) The dispatching of a task
(B) The creation of a new job
(C) The creation of a new process
(D) Increasing the priority of a task

SECTION-B

UNIT-I

1. What do you mean by operating system ? Write in brief about the evolution of operating system? 10

OR

2. What are system calls ? How does it differ from system program. 10

UNIT-II

3. What is a "process". Describe about the life cycle of a process. 10

OR

4. What is the requirement of CPU scheduling ? Explain round Robin scheduling mechanism. 10

UNIT-III

5. Explain the concept of synchronization ? Write briefly about semaphores and its usages. 10

OR

6. What is the Deadlock situation ? What are the necessary conditions to produce a dead lock ? 10

UNIT-IV

7. What is address binding ? Differentate between logical and physical addresses. 10

OR

8. What is fragmentation ? Describe various types of fragmentation. 10

UNIT-V

9. What is Linux Kernal ? Explain the three main components of a Linux system. 10

OR

10. Write short notes on :
(a) Security mechanism in Linux
(b) Process management in Linux 10