PAPER : JUNE 2012

UGC-NET COMPUTER SCIENCE & APPLICATIONS (87)

PAPER-II

Note: This paper contains **(50)** objective type questions of **two (2)** marks each.
All questions are compulsory.

1. The postfix expression AB + CD – * can be evaluated using a
   (a) stack (b) tree (c) queue (d) linked list

2. The post order traversal of a binary tree is DEBFCA. Find out the preorder traversal.
   (a) ABFCDE (b) ADBFEC (c) ABDECF (d) None of the above

3. The branch logic that provides making capabilities in the control unit is know as
   (a) Controlled transfer (b) Conditional transfer
   (c) Unconditional transfer (d) None of the above

4. The number of colours required to properly colour the vertices of every planer graph is
   (a) 2 (b) 3 (c) 4 (d) 5

5. Network that use different technologies can be connected by using
   (a) Packets (b) Switches (c) Bridges (d) Routers

6. Both hosts and routers are TCP/IP protocol software. However, routers do not use protocol from all layers. The layer for which protocol software is not needed by a router is
   (a) Layer–5 (Application) (b) Layer–1 (Physical)
   (c) Layer –3 (Internet) (d) Layer–2 (Network Interface)

7. In multiuser database if two users wish to update the same record at the same time, They are prevented from doing so by
   (a) Jamming (b) Password (c) Documentation (d) Record lock

8. A binary search tree is a binary tree :
   (a) All items in the left subtree are less than root
   (b) All items in the right subtree are greater than or equal to the root
   (c) Each subtree is itself a binary search tree
   (d) All of the above

9. What deletes the entire file except the file structure ?
   (a) ERASE (b) DELETE (c) ZAP (d) PACK

10. Which command is the fastest among the following ?
    (a) COPY TO <NEW FILE> (b) COPY STRUCTURE TO <NEW FILE>
    (c) COPY FILE <FILE 1> < FILE 2> (d) COPY TO MFILE-DAT DELIMITED

11. B+ tree the preferred to binary tree in Database because
    (a) Disk capcacity are greater than memory capacities
    (b) Disk access is much slower than memory access
    (c) Disk data transfer rates are much less than memory data transfer rate
    (d) Disks are more reliable than memory

12. A Transaction Manager is which of the following?
    (a) Maintains a log of transactions
    (b) Maintains before and after database images
    (c) Maintains appropriate concurrency control
    (d) All of the above

13. Leaves of which of the following trees are at the same level ?
(a) Binary tree (b) B-tree (c) AVL-tree (d) Expression tree

14. Which of the following TCP/IP Internet protocol is diskless machine uses to obtain its IP address from a server?
(a) RAP (b) RIP (c) ARP (d) X.25

15. Decryption and encryption of data are the responsibility of which of the following layer ?
(a) Physical layer (b) Data Link layer
(c) Presentation layer (d) Session layer

16. In which circuit switching delivery of data is delayed because data must be stored and retrieved from RAM?
(a) Space division (b) Time division (c) Virtual (d) Packet

17. In which Routing Method do all the routers have a common database ?
(a) Distance Vector (b) Link state (c) Link vector (d) Dijkstra method

18. Phase shift Keying (PSK) Method is used to modulate digital signal at 9600 bps using 16 level. Find the line signals and speed (i.e. modulation rate.)
(a) 2400 bauds (b) 1200 bauds (c) 4800 bauds (d) 9600 bauds

19. The station to hub distance in which it is 2000 meters.
(a) 100 Base–T_x (b) 100 Base–F_x (c) 100 Base–T_4 (d) 100Base–T_1

20. Main aim of software engineering is to produce
(a) Program (b) Software (c) within budget
(d) Software within budget in the given schedule

21. Key process areas of CMM level 4 are also classified by a process which is
(a) CMM level 2 (b) CMM level 3
(c) CMM level 5 (d) All of the above

22. Validation means
(a) are we building the product right (b) are we building the right product
(c) verification of fields (d) None of the above

23. If a process is under statistical control, then it is
(a) Maintainable (b) Measurable (c) Predicatable (d) Verifiable

24. In a function oriented design, we
(a) minimize cohesion and maximize coupling
(b) maximize cohesion and minimize coupling
(c) maximize cohesion and maximize coupling
(d) minimize cohesion and minimize coupling

25. Which of the following matric does not depend on the programming language used ?
(a) Line of code (b) Function count
(c) Member of token (d) All of the above

26. A/B^+ tree index is to be built on the name attribute of the relation STUDENT. Assume that all students names are of length 8 bytes, disk block are of size 512 bytes and index pointers are of size 4 bytes. Given this scenario what would be the best choice of the degree (i.e. the number of pointers per node) of the B^+ tree ?
(a) 16 (b) 42 (c) 43 (d) 44

27. The Inorder traversal of the tree will yield a sorted listing of elements of tree in
(a) Binary tree (b) Binary search tree (c) Heaps (d) None of the above

28. Mobile IP provides two basic functions.
(a) Route discovery and registration (b) Agent discovery and registration
(c) IP binding and registration (d) None of the above

29. Pre-emptive scheduling is the strategy of temporarily suspending a running process
(a) before the CPU time slice expires (b) to allow starving processes to run
(c) when it requests I/O (d) to avoid collision

30. In round-robin CPU scheduling as time quantum is increased the average turn around time
(a) increases (b) decreases (c) remains constant (d) varies irregularly

31. Resources are allocated to the process on non-sharable basis is
(a) mutual exclusion (b) hold and wait (c) no pre-emption (d) circular wait

32. Cached and interleaved memories are ways of speeding up memory access between CPU's and solwer RAM. Which memory models are best suited (i.e., improve the performance most) for which programs ?
(i) Cached memory is best suited for small loops.
(ii) Interleaved memory is best suited for small loops
(iii) Interleaved memory is best suited for large sequential code.
(iv) Cached memory is best suited for large sequential code.
(a) (i) and (ii) are true (b) (i) and (iii) are true
(c) (iv) and (ii) are ture (d) (iv) and (iii) are true.

33. Consider the following page trace:
4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5
Percentage of page fault that would occur if FIFO page replacement algorithm is used with number of frames for the JOB m = 4 will be
(a) 8 (b) 9 (c) 10 (d) 12

34. Check sum used along with each packet computes the sum of data, where data is treated as a sequence of
(a) Integer (b) Character (c) Real numbers (d) Bits

35. If an integer needs two bytes of storage, then the maximum value of a signed integer is
(a) $2^{16}-1$ (b) $2^{15}-1$ (c) 2^{16} (d) 2^{15}

36. Which of the following logic families is well suited for high-speed operations ?
(a) TTL (b) ECL (c) MOS (d) CMOS

37. Interrupt which are initiated by an instruction are
(a) Internal (b) External (c) Hardware (d) Software

38. printf("%c", 100);
(a) prints 100 (b) Prints ASCII equivalent of 100
(c) prints garbage (d) none of the above

39. For the transmission of the signal, Bluetooth wireless technology uses
(a) time division multiplexing (b) frequency division multiplexing
(c) time division duplex (d) frequency division duplex

40. Consider the following statements :
(I) Recursive language are closed under complementation,
(II) Recursively enumerable languages are closed under union.
(III) Recursively enumberable languges are closed under complementation.
Which of the above statemensts are ture ?
(a) I only (b) I and II (c) I and III (d) II and III

41. What is the routing algorithm used by RIP and IGRP ?
(a) OSPF (b) Link-state (c) Dynamic (d) Dijkstra vector

42. Identify the incorrect statement :
(a) The overall strategy drives the E-Commerce data warehousing strategy.
(b) Data warehousing in an E-Commerce environment should be done in a classical manner.
(c) E-Commerce opens up an entirely new world of web server.
(d) E-Commerce security threats can be grouped into three major categories.

43. Reliability of software is directly dependent on
(a) quality of the design (b) number of errors present
(c) software engineers experience (c) user requirement

44. _____ is not an E-Commerce application.
(a) House banking (b) Buying stocks
(c) Conducting an auction (d) Evaluating an employee

45. _____ is a statellite based tracking system that enables the detemination of person's position.
(a) Bluetooth (b) WAP
(c) Short Massage Service (d) Global Positioning System

46. A complete microcomputer system consists of
(a) Microprocessor (b) Memory
(c) Peripheral equipment (d) All of the above

47. Where does a computer add and compare data ?
(a) Hard disk (b) Floppy disk (c) CPU chip (d) Memory chip

48. Pipelining strategy is called implement
(a) instruction execution (b) instruction prefetch
(c) instruction decoding (d) instruction manipulation

49. Which of the following data structure is linear type ?
(a) Strings (b) Lists (c) Queues (d) All of the above

50. To represent hierarachical relationship between elements, which data structure is suitable?
(a) Dequeue (b) Priority (c) Tree (d) All of the above

PAPER : JUNE 2012

UGC-NET COMPUTER SCIENCE & APPLICATIONS (87)

PAPER-III

Note: This paper contains **seventy five (75)** objective type questions of **two (2)** marks each. **All** questions are compulsory.

1. Consider the following pseudocode segment :

```
K:=0
        for i1:= l to n
          for i2:= 1 to i1
            :
            :
            :
                for im:= 1 to im–1
                  K:= K+1
```

The value of K after the execution of this code shall be

(a) C(n + m – 1, m) (b) C(n – m + 1, m) (c) C(n + m – 1, n) (d) C(n – m + 1, n)

2. In Delta Rule for error minimization

(a) weights are adjusted w.r.to change in the output

(b) weights are adjusted w.r.to difference between desired output and actual output

(c) weights are adjusted w.r.to difference between input and output

(d) none of the above.

3. The concept of pipelining is most effective in improving performance if the tasks being performed in different stages:

(a) require different amount of time

(b) require about the same amount of time

(c) require different amount of time with time difference between any two tasks being same

(d) require different amount with time difference between any two tasks being different.

4. What is Granularity ?

(a) The size of database (b) The size of data item

(c) The size of record (d) The size of file

5. Suppose that a given application is run on a 64-processor machine and that 70 percent of the application can be parallelized. Then the expected performance improvement using Amdahl's law is

(a) 4.22 (b) 3.22 (c) 3.32 (d) 3.52

6. If two fuzzy sets A and B are given with membership functions

$\mu_A(x)$ = {0.2, 0.4, 0.8, 0.5, 0.1} $\mu_B(x)$ = {0.1, 0.3, 0.6, 0.3, 0.2}

Then the value of $\mu_{\overline{A \cap B}}$ will be

(a) {0.9, 0.7, 0.4, 0.8, 0.9} (b) {0.2, 0.4, 0.8, 0.5, 0.2}

(c) {0.1, 0.3, 0.6, 0.3, 0.1} (d) {0.7, 0.3, 0.4, 0.2, 0.7}

7. Match the following :

(i) OLAP	(A) Regression
(ii) OLTP	(B) Data Warehouse
(iii) Decision Tree	(C) RDBMS
(iv) Neural Network	(D) Classification

	(i)	(ii)	(iii)	(iv)
(a)	(B)	(C)	(A)	(D)
(b)	(B)	(C)	(D)	(A)
(c)	(C)	(B)	(A)	(D)
(d)	(C)	(B)	(D)	(A)

8. Which level of Abstraction describes what data are stored in the Database ?
(a) Physical level (b) View level (c) Abstraction level (d) Logical level

9. The problem that occurs when one transaction updates a database item and then the transaction fails for some reason is _____.
(a) Temporary Select Problem (b) Temporary Modify Problem
(c) Dirty Read Problem (d) None

10. In an image compression system 16384 bits are used to represent 256 × 256 image with 256 gray levels. What is the compression ratio for this system ?
(a) 1 (b) 2 (c) 4 (d) 8

11. X.25 is _____ Network.
(a) Connection Oriented Network
(b) Connection Less Network
(c) Either Connection Oriented or Connection Less
(d) Neither Connection Oriented nor Connection Less

12. Which of the following can be used for clustering of data ?
(a) Single layer perception (b) Multilayer perception
(c) Self organizing map (d) Radial basis function

13. Which of the following is scheme to deal with deadlock ?
(a) Time out (b) Time in (c) Both (a) & (b) (d) None of the above

14. If the pixels of an image are shuffled then the parameter that may change is
(a) Histogram (b) Mean (c) Entropy (d) Covariance

15. The common property of functional language and logical programming language :
(a) Both are declarative (b) Both are based on calculus
(c) Both are procedural (d) Both are functional

16. Given the following statements :
(i) The power of deterministic finite state machine and nondeterministic finite state machine are same.
(ii) The power of deterministic pushdown automaton and nondeterministic pushdown automaton are same.
Which of the above is the correct statement(s) ?
(a) Both (i) and (ii) (b) Only (i) (c) Only (ii) (d) Neither (i) nor (ii)

17. Let Q(x, y) denote "x + y = 0" and let there be two quantifications given as
(i) $\exists y \forall x\, Q(x, y)$ (ii) $\forall x \exists y\, Q(x, y)$
where x & y are real numbers. Then which of the following is valid ?
(a) (i) is true & (ii) is false. (b) (i) is false & (ii) is true.
(c) (i) is false & (ii) is also false. (d) both (i) & (ii) are true.

18. Consider a schema R(A, B, C, D) and functional dependencies $A \rightarrow B$ and $C \rightarrow D$. Then the decomposition
R_1(A, B) and R_2(C, D) is
(a) Dependency preserving but not lossless join
(b) Dependency preserving and lossless join
(c) Lossless Join but not dependency preserving
(d) Lossless Join

19. The quantiser in an image-compression system is a
(a) lossy element which exploits the psychovisual redundancy
(b) lossless element which exploits the psychovisual redundancy
(c) lossy element which exploits the statistical redundancy
(d) lossless element which exploits the statistical redundancy

20. Data Warehouse provides
(a) Transaction Responsiveness (b) Storage, Functionality Responsiveness to queries
(c) Demand and Supply Responsiveness (d) None of the above

21. A* algorithm uses $f' = g + h'$ to estimate the cost of getting from the initial state to the goal state, where g is a measure of the cost of getting from initial state to the current node and the function h' is an estimate of the cost of getting from the current node to the goal state.
To find a path involving the fewest number of steps, we should set
(a) g = 1 (b) g = 0 (c) $h' = 0$ (d) $h' = 1$

22. The transform which possesses the highest 'energy compaction' property is
(a) Slant transform (b) Cosine transform
(c) Fourier transform (d) Karhunen-Loeve transform

23. Which one of the following prolog programs correctly implement "if G succeeds then execute goal P else execute goal θ ?"
(a) if-else (G, P, θ) :- !, call(G), call(P).
if-else (G, P, θ) :- call(θ).
(b) if-else (G, P, θ) :- call(G), !, call(P).
if-else (G, P, θ) :- call(θ).
(c) if-else (G, P, θ) :- call(G), call(P), !.
if-else (G, P, θ) :- call(θ).
(d) All of the above

24. The _____ memory allocation function modifies the previous allocated space.
(a) calloc( ) (b) free( ) (c) malloc( ) (d) realloc( )

25. Which is not the correct statement(s) ?
(i) Every context sensitive language is recursive.
(ii) There is a recursive language that is not context sensitive.
(a) (i) is true, (ii) is false. (b) (i) is true and (ii) is true.
(c) (i) is false, (ii) is false. (d) (i) is false and (ii) is true.

26. The mechanism that binds code and data together and keeps them secure from outside world is known as
(a) Abstraction (b) Inheritance (c) Encapsulation (d) Polymorphism

27. Identify the addressing modes of below instructions and match them :

(A) ADI	(1) Immediate addressing
(B) STA	(2) Direct addressing
(C) CMA	(3) Implied addressing
(D) SUB	(4) Register addressing

(a) (A) – 1, (B) – 2, (C) – 3, (D) – 4 (b) (A) – 2, (B) – 1, (C) – 4, (D) – 3
(c) (A) – 3, (B) – 2, (C) – 1, (D) – 4 (d) (A) – 4, (B) – 3, (C) – 2, (D) – 1

28. Which one of the following is not a Greibach Normal form grammar ?
(i) $S \to a \mid bA \mid aA \mid bB$ $A \to a$ $B \to b$
(ii) $S \to a \mid aA \mid AB$ $A \to a$ $B \to b$
(iii) $S \to a \mid A \mid aA$ $A \to a$
(a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (i), (ii) and (iii)

29. Which of the following IP address class is a multicast address ?
(a) Class A (b) Class B (c) Class C (d) Class D

30. While unit testing a module, it is found that for a set of test data, maximum 90% of the code alone were tested with a probability of success 0.9. The reliability of the module is
(a) atleast greater than 0.9 (b) equal to 0.9
(c) atmost 0.81 (d) atleast 1/0.81

31. The upper bound of computing time of m coloring decision problem is
(a) O(nm) (b) $O(n^m)$ (c) $O(nm^n)$ (d) $O(n^m m^n)$

32. The equivalent grammar corresponding to the grammar $G : S \to aA, A \to BB, B \to aBb \mid \in$ is :
(a) $S \to aA, A \to BB, B \to aBb$ (b) $S \to a \mid aA, A \to BB, B \to aBb \mid ab$
(c) $S \to a \mid aA, A \to BB \mid B, B \to aBb$ (d) $S \to a \mid aA, A \to BB \mid B, B \to aBb \mid ab$

33. Which one of the following statements is incorrect ?
(a) The number of regions corresponds to the cyclomatic complexity.
(b) Cyclometric complexity for a flow graph G is V(G) = N – E + 2, where E is the number of edges and N is the number of nodes in the flow graph.
(c) Cyclometric complexity for a flow graph G is V(G) = E – N + 2, where E is the number of edges & N is the number of nodes in the flow graph.
(d) Cyclometric complexity for a flow graph G is V(G) = P + 1, where P is the number of predicate nodes contained in the flow graph G.

34. Consider a weighted undirected graph with positive edge weights and let (u, v) be an edge in the graph. It is known that the shortest path from source vertex s to u has weight 53 and shortest path from s to v has weight 65. Which statement is always true ?
(a) Weight (u, v) $\leq$ 12 (b) Weight (u, v) = 12
(c) Weight (u, v) $\geq$ 12 (d) Weight (u, v) > 12

35. Consider the regular expression (a + b) (a + b) … (a + b) (n-times). The minimum number of states in finite automaton that recognizes the language represented by this regular expression contains
(a) n states (b) n + 1 states (c) n + 2 states (d) 2^n states

36. Number of binary trees formed with 5 nodes are
(a) 32 (b) 36 (c) 120 (d) 42

37. Are we building the right product? This statement refers to
(a) Verification (b) Validation (c) Testing (d) Software quality assurance

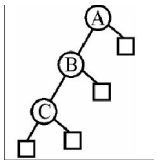
38. The following postfix expression is evaluated using a stack 823^/23* + 51* –
The top two elements of the stack after first * is evaluated
(a) 6, 1 (b) 5, 7 (c) 3, 2 (d) 1, 5

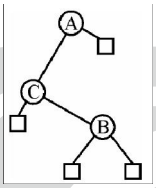
39. The following CFG,
$S \to aB \mid bA, A \to a \mid aS \mid bAA, B \to b \mid bS \mid aBB$
generates strings of terminals that have
(a) odd number of a's and odd number of b's (b) even number of a's and even number of b's
(c) equal number of a's and b's (d) not equal number of a's and b's

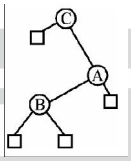
40. Consider the following pseudo-code :
If (A > B) and (C > D) then
A = A + 1
B = B + 1
Endif
The cyclomatic complexity of the pseudo-code is
(a) 2 (b) 3 (c) 4 (d) 5

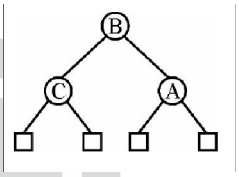
41. Which layer of OSI reference model uses the ICMP (Internet Control Message Protocol) ?
(a) Transport layer (b) Data link layer
(c) Network layer (d) Application layer

42. Which one of the following binary search tree is optimal, if probabilities of successful search and unsuccessful search are same?

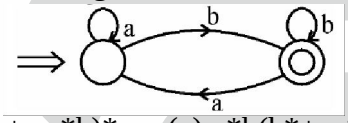
(a) 

(b) 

(c) 

(d) 

43. The regular expression for the following DFA



(a) ab*(b + aa*b)* (b) a*b(b + aa*b)* (c) a*b(b*+aa*b) (d) a*b(b* + aa*b)*

44. Which diagram provides a formal graphic notation for modelling objects, classes and their relationships to one another ?
(a) Object diagram (b) Class diagram (c) Instance diagram (d) Analysis diagram

45. A computer system supports 32 bit virtual address as well as 32 bit physical addresses. Since the virtual address space is of same size as that of physical address space, if we want to get rid of virtual memory, which one of the following is true ?
(a) Efficient implementation of multiuser support is no longer possible.
(b) The processor cache can be made more efficient.
(c) Hardware support for memory management is not needed.
(d) CPU scheduling can be made more efficient.

46. The feasible region represented by the constraints $x_1 - x_2 \le 1, x_1 + x_2 \ge 3, x_1 \ge 0, x_2 \ge 0$ of the objective function $\text{Max } Z = 3x_1 + 2x_2$ is :
(a) A polygon (b) Unbounded feasible region
(c) A point (d) None of these

47. The colour of an object is largely determined by its diffuse reflection coefficient. If $K_d = (0.8, 0.4, 0)$, then what shall be the colour of the object, if the light used is blue and magenta ?
(a) White and Red (b) Red and Blue (c) Black and White (d) Black and Red

48. If an instruction takes 'i' microseconds and a page fault takes an additional 'j' microseconds. The effective instruction time, if on the average a page fault occurs every k instructions, is
(a) i + j/k (b) i + j * k (c) (i + j)/k (d) (i + j) * k

49. In any simplex table, if corresponding to any negative Δj, all elements of the column are negative or zero, the solution under the test is
(a) degenerate solution (b) unbounded solution
(c) alternative solution (d) non-existing solution

50. How many relations are there on a set with n elements that are symmetric and a set with n elements that are reflexive and symmetric ?
(a) $2^{n(n+1)/2}$ and $2^n.3^{n(n-1)/2}$ (b) $3^{n(n-1)/2}$ and $2^{n(n-1)}$
(c) $2^{n(n+1)/2}$ and $3^{n(n-1)/2}$ (d) $2^{n(n+1)/2}$ and $2^{n(n-1)/2}$

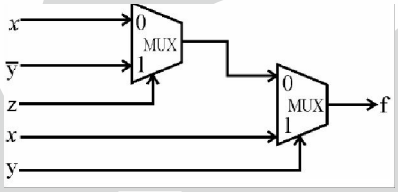
51. The strategy used to reduce the number of tree branches and the number of static evaluations applied in case of a game tree is
(a) Minmax strategy (b) Alpha-beta pruning strategy
(c) Constraint satisfaction strategy (d) Static max strategy

52. Match the following :

(i) Regular Grammar	(A) Pushdown automaton
(ii) Context free Grammar	(B) Linear bounded automaton
(iii) Unrestricted Grammar	(C) Deterministic finite automaton
(iv) Context Sensitive Grammar	(D) Turing machine

	(i)	(ii)	(iii)	(iv)
(a)	(C)	(A)	(B)	(D)
(b)	(C)	(A)	(D)	(B)
(c)	(C)	(B)	(A)	(D)
(d)	(C)	(B)	(D)	(A)

53. Consider the below circuit and find the output function f(*x*, y, z).



(a) $x\bar{z} + xy + \bar{y}z$ (b) $x\bar{z} + xy + \overline{yz}$ (c) $xz + xy + \overline{yz}$ (d) $xz + x\bar{y} + \bar{y}z$

54. What is the size (in terms of bits) of Header length field in IPV4 header ?
(a) 2 (b) 4 (c) 8 (d) 16

55. Match the following with respect to java.util.* class methods :

(A) Bit Set	(i) Time zone getTimezone( )
(B) Calendar	(ii) int hashcode( )
(C) Time zone	(iii) int nextInt( )
(D) Random	(iv) Void setID (StringtzName)

	(A)	(B)	(C)	(D)
(a)	(ii)	(i)	(iv)	(iii)
(b)	(iii)	(iv)	(i)	(ii)
(c)	(iv)	(iii)	(ii)	(i)
(d)	(ii)	(i)	(iii)	(iv)

56. _____ is sometimes said to be object oriented, because the only way to manipulate kernel objects is by invoking methods on their handles.
(a) Windows NT (b) Windows XP (c) Windows VISTA (d) Windows 95/98

57. A user level process in Unix traps the signal sent on a Ctrl + C input and has a signal handling routine that saves appropriate files before terminating the process. When a Ctrl + C input is given to this process, what is the mode in which the signal handling routine executes ?
(a) User mode (b) Kernel mode (c) Superuser mode (d) Privileged mode

58. A CPU generally handles an interrupt by executing an interrupt service routine
(a) as soon as an interrupt is raised
(b) by checking the interrupt register at the end of fetch cycle
(c) by checking the interrupt register after finishing the executing the current instruction
(d) by checking the interrupt register at fixed time intervals

59. The perspective projection matrix, on the view plane z = d where the centre of projection is the origin (0, 0, 0) shall be

(a) $\begin{bmatrix} 0 & 0 & 0 & d \\ 0 & 0 & d & 0 \\ 0 & d & 0 & 0 \\ d & 0 & 0 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} d & 0 & 0 & 0 \\ 0 & d & 0 & 0 \\ 0 & 0 & d & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ (c) $\begin{bmatrix} 0 & 0 & 0 & d \\ 0 & 0 & d & 0 \\ 0 & d & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ (d) $\begin{bmatrix} d & 0 & 0 & 0 \\ 0 & d & 0 & 0 \\ 0 & 0 & d & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

60. Radio signals generally propagate according to the following mechanisms:
(a) Modulation, Amplification, Scattering (b) Reflection, Diffraction, Scattering
(c) Amplification, Diffraction, Modulation (d) Reflection, Amplification, Diffraction

61. Identify the devices given below with their IC numbers :
(i) USART (A) 8251
(ii) Micro controller (B) 8051
(iii) Interrupt controller (C) 8259
(iv) DMA controller (D) 8257

	(i)	(ii)	(iii)	(iv)
(a)	(A)	(B)	(C)	(D)
(b)	(B)	(A)	(D)	(C)
(c)	(C)	(D)	(A)	(B)
(d)	(D)	(A)	(B)	(C)

62. The optimal solution of the following assignment problem using Hungarian method is

	I	II	III	IV
A	8	26	17	11
B	13	28	4	26
C	38	19	18	15
D	19	26	24	10

	(A)	(B)	(C)	(D)
(a)	(I)	(II)	(III)	(IV)
(b)	(I)	(III)	(II)	(IV)
(c)	(I)	(III)	(IV)	(II)
(d)	(I)	(IV)	(II)	(III)

63. If a and b are the end points of a line, then which one of the following is true ?
(a) If both end points are left, right, above or below the window, the line is invisible.
(b) If both end points are left, right, above or below the window, the line is completely visible.
(c) If both end points are left, right, above or below the window, the line is trivially visible.
(d) If both end points are left, right, above or below the window, the line is trivially invisible.

64. Match the following with link quality measurement and handoff initiation :
(A) Networked-Controlled Handoff (NCHO) (i) MS connect to BS
(B) Mobile-Assisted Handoff (MAHO) (ii) Process via channel the target BS
(C) Forward Handoff (iii) First Generation Analog Cellular System
(D) Hard Handoff (iv) Second Generation Digital Cellular System

	(A)	(B)	(C)	(D)
(a)	(iii)	(iv)	(ii)	(i)
(b)	(ii)	(iii)	(i)	(iv)
(c)	(ii)	(i)	(iv)	(iii)
(d)	(iv)	(iii)	(i)	(ii)

65. Consider the methods used by processes P1 and P2 for accessing their critical sections. The initial values of shared Boolean variables S1 and S2 are randomly assigned,

P1	P2
while (S1 = = S2);	while (S1 = = S2);
critical section	critical section
S1 = S2;	S1 = S2;

Which one of the following statements describes the properties achieved ?
(a) Mutual exclusion but not progress (b) Progress but not mutual exclusion
(c) Neither mutual exclusion nor progress (d) Both mutual exclusion and progress

66. If the period of a signal is 1000 ms, then what is its frequency in kilohertz ?
(a) 10^{-3} KHz (b) 10^{-2} KHz (c) 10^{-1} KHz (d) 1 KHz

67. Let a * H and b * H be two cosets of H.
(i) Either a * H and b * H are disjoint (ii) a * H and b * H are identical
Then,
(a) only (i) is true (b) only (ii) is true (c) (i) or (ii) is true (d) (i) and (ii) is false

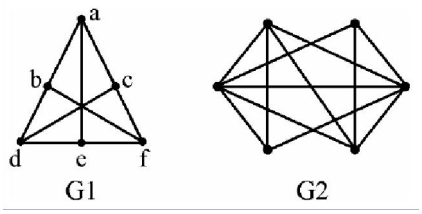
68. HTML is defined using SGML – an _____ standard, information processing-text and office systems (SGML) for text information processing.
(a) ISO – 8878 (b) ISO – 8879 (c) ISO – 8880 (d) ISO – 8881

69. What is the meaning of 'Hibernate' in Windows XP/Windows 7 ?
(a) Restart the computers in safe mode.
(b) Restart the computers in normal mode.
(c) Shutdown the computer terminating all the running applications.
(d) Shutdown the computer without closing the running applications.

70. Assume that we have constructor functions for both base class and derived class. Now consider the declaration in main( ). Base * P = New Derived; in what sequence will the constructor be called ?
(a) Derived class constructor followed by Base class constructor.
(b) Base class constructor followed by derived class constructor.
(c) Base class constructor will not be called.
(d) Derived class constructor will not be called.

71. Which one of the following options is not a shell in UNIX system ?
(a) Bourne Shell (b) C Shell (c) Net Shell (d) Korn Shell

72. G1 and G2 are two graphs as shown :



(a) Both G1 and G2 are planar graphs. (b) Both G1 and G2 are not planar graphs.
(c) G1 is planar and G2 is not planar graph. (d) G1 is not planar and G2 is planar graph.

73. In which file the compiler manage the various objects, which are used in windows programming ?
(a) Control File (b) Binary File (c) Text File (d) Obj File

74. On a disk with 1000 cylinders (0 to 999) find the number of tracks, the disk arm must move to satisfy all the requests in the disk queue. Assume the last request service was at track 345 and the head is moving toward track 0. The queue in FIFO order contains requests for the following tracks:
123, 874, 692, 475, 105, 376
(Assume SCAN algorithm)
(a) 2013 (b) 1219 (c) 1967 (d) 1507

75. Halftoning is defined as
(a) a technique to obtain increased visual resolution using multiple intensity levels.
(b) a technique for using minimum number of intensity levels to obtain increased visual resolution.
(c) a technique to obtain increased visual resolution using maximum number of intensity levels.
(d) a technique for using appropriate number intensity levels to obtain increased visual resolution.