1   The encoding technique used to transmit the signal in giga ethernet technology over fiber optic medium is
   a   Differential manchester encoding
   b   Non Return to zero
   c   4B/5B encoding
   d   8B/10B encoding

2   Which of the following is an unsupervised neural network
   a   RBS
   b   Hopfield
   c   Back propagation
   d   Kohonen

3   In compiler terminology, reduction in strength means
   a   Replacing run time computation by compile time computation
   b   Removing loop invariant computation
   c   Removing common subexpressions
   d   Replacing a costly operation by a relatively cheaper one

4   The following table shows the processes in the ready queue and time required for each process for completing its job.

| Process	Time (ms)
P_1	10
P_2	5
P_3	20
P_4	8
P_5	15

   If round robin scheduling with 5ms is used what is the average waiting time of the processes in the queue?
   a   27 ms
   b   26.2 ms
   c   27.5 ms
   d   27.2 ms

5   MOV [BX], AL type of data addressing is called
   a   Register addressing
   b   Immediate addressing
   c   Register indirect addressing
   d   Register relative

6   Evaluate (X xor Y) xor Y
   a   All 1's
   b   All 0's
   c   X
   d   Y

7   Which of the following is true about the z-buffer algorithm?
   a   It is a depth sort algorithm
   b   No limitation on total number of objects in the scene
   c   Comparison of objects is done
   d   z-buffer is initialized to background colour at start of algorithm
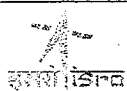
8   What is the decimal value of the floating-point number C1D00000 (hexadecimal notation)? (Assume 32-bit, single precision floating point IEEE representation)
         a   28
         b   -15
         c   -26
         d   -28

9   What is the raw throughput of USB 2.0 technology?
         a   480 Mbps
         b   400 Mbps
         c   200 Mbps
         d   12 Mbps

10   Below is the precedence graph for a set of tasks to be executed on a parallel processing system S.
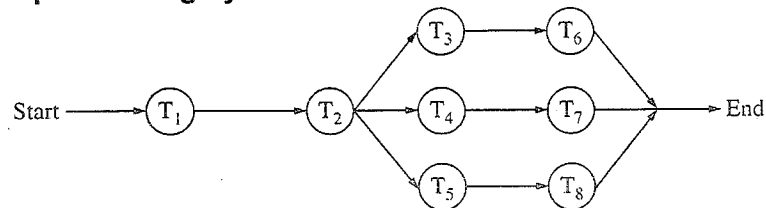
What is the efficiency of this precedence graph on S if each of the tasks $T1, \ldots, T8$ takes the same time and the system S has five processors?
         a   25%
         b   40%
         c   50%
   d   90%

11   How many distinct binary search trees can be created out of 4 distinct keys?
         a   5
         b   14
         c   24
         d   35

12   The network protocol which is used to get MAC address of a node by providing IP address is
         a   SMTP
         b   ARP
         c   RIP
         d   BOOTP

13   Which of the following statements about peephole optimizations is False?
         a   It is applied to a small part of the code
         b   It can be used to optimize intermediate code
         c   To get the best out of this, it has to be applied repeatedly
         d   It can be applied to a portion of the code that is not contiguous

14   Which one of the following in place sorting algorithms needs the minimum number of swaps?
    a   Quick-sort
    b   Insertion sort
   c   Selection sort
    d   Heap sort

15   What is the equivalent serial schedule for the following transactions?

Transaction	T_1	T_2	T_3
			R(Y)
			R(Z)
	R(X)		
	W(X)		
			W(Y)
			W(Z)
		W(Z)	
	R(Y)		
	W(Y)		
		R(Y)	
		W(Y)	
		R(X)	
		W(X)	

    a T_1-T_2-T_3
    b T_3-T_1-T_2
    c T_2-T_1-T_3
    d T_1-T_3-T_2

16   Consider a direct mapped cache with 64 blocks and a block size of 16 bytes. To what block number does the byte address 1206 map to?
    a   Does not map
    b   6
    c   11
    d   54

17   A context model of a software system can be shown by drawing a
    a   LEVEL-0 DFD
    b   LEVEL-1 DFD
    c   LEVEL-2 DFD
    d   LEVEL-3 DFD

18   An example of poly-alphabetic substitution is
    a   P-box
    b   S-box
    c   Caesar cipher
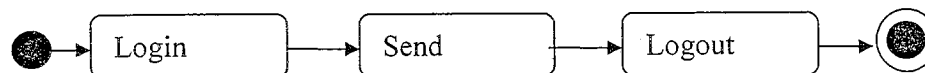   d   Vigenere cipher
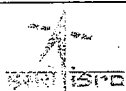
19   If node A has three siblings and B is parent of A, what is the degree of A?

    a   0

    b   3

    c   4

    d   5

20   The IEEE standard for WiMax technology is

    a   IEEE 802.16

    b   IEEE 802.36

    c   IEEE 812.16

    d   IEEE 806.16

21   Which type of DBMS provides support for maintaining several versions of the same entity?

    a   Relational Data Base Management Systems

    b   Hierarchical

    c   Object Oriented Data Base Management Systems

    d   Network

22   A system is having 8 M bytes of video memory for bit-mapped graphics with 64-bit colour. What is the maximum resolution it can support?

    a   800 x 600

    b   1024 x 768

    c   1280 x 1024

    d   1920 x 1440

23   What is the meaning of $\overline{RD}$ signal in Intel 8151A?

    a   Read (when it is low)

    b   Read (when it is high)

    c   Write (when it is low)

    d   Read and Write (when it is high)

24   If the page size in a 32-bit machine is 4K bytes then the size of page table is

    a   1 M bytes

    b   2 M bytes

    c   4 M bytes

    d   4 K bytes

25   A processor takes 12 cycles to complete an instruction I. The corresponding pipelined processor uses 6 stages with the execution times of 3,2,5,4,6 and 2 cycles respectively. What is the asymptotic speedup assuming that a very large number speedup assuming that a very large number of instructions are to be executed?

    a   1.83

    b   2

    c   3

    d   6
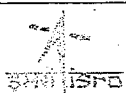
26   The in-order traversal of a tree resulted in FBGADCE. Then the pre-order traversal of that tree would result in
    a   FGBDECA
    b   ABFGCDE
    c   BFGCDEA
    d   AFGBDEC

27   **Which one of the following is 'true'**
    a $R \cap S = (R \cup S) - [(R-S) \cup (S-R)]$
    b $R \cup S = (R \cap S) - [(R-S) \cup (S-R)]$
    c $R \cap S = (R \cup S) - [(R-S) \cap (S-R)]$
    d $R \cap S = (R \cup S) \cup (R-S)$

28

The above figure represents which one of the following UML diagram for a single send session of an online chat system.
    a   Package Diagram
    b   Activity Diagram
    c   Class Diagram
    d   Sequence Diagram

29   **Which 'Normal Form' is based on the concept of 'full functional dependency' is**
    a   First Normal Form
    b   Second Normal Form
    c   Third Normal Form
    d   Fourth Normal Form

30   **In Boolean algebra, rule (X+Y)(X+Z) =**
    a   Y+XZ
    b   X + YZ
    c   XY+Z
    d   XZ + Y

31   **How many 3-to-8 line decoders with a chip having enable pin are needed to construct a 6-to-64 line decoder without using any other logic gates?**
    a   7
    b   8
    c   9
    d   10

32   **In which layer of network architecture, the secured socket layer (SSL) is used?**
    a   physical layer
    b   session layer
   c   application layer
    d   presentation layer

33   What is the bit rate of a video terminal unit with 80 character/line, 8 bits/charcter and horizontal sweep time of 100 µs (including 20 µs of retrace time)?
        a   8 Mbps
        b   6.4 Mbps
        c   0.8 Mbps
        d   0.64 Mbps

34   Black Box software testing method focuses on the
        a   Boundary condition of the software
        b   Control Structure of the Software
        c   Functional Requirement of the Software
        d   Independent paths of the software

35   How many edges are there in a forest with v vertices and k components?
        a   (v+1) - k
        b   (v+1)/2 - k
        c   v - k
        d   v + k

36   If A and B are square matrices of the same order and A is symmetric, then $B^T AB$ is
        a   Skew symmetric
        b   Symmetric
        c   Orthogonal
        d   Idempotent

37   Find the memory address of the next instruction executed by the microprocessor (8086), when operated in real mode for CS = 1000 and IP = E000
        a   10E00
        b   1E000
        c   F000
        d   1000E

38   A fast wide SCSI-II disk drive spins at 7200 RPM, has a sector size of 512 bytes, and holds 160 sectors per track. Estimate the sustained transfer rate of this drive.
        a   576000 Kilobytes / sec
        b   9600 Kilobytes / sec
        c   4800 Kilobytes / sec
        d   19200 Kilobytes / sec

39   Two control signals in microprocessor which are related to Direct Memory Access (DMA) are
        a   INTR & INTA
        b   RD & WR
        c   S0 & S1
        d   HOLD & HLDA

40   Consider the following pseudocode.

        x := 1;
        i := 1;
        while (x ≤ 500)
        begin
                x := 2^x ;
                i := i + 1;
        end;

What is the value of i at the end of the pseudocode?
a   4
b   5
c   6
d   7

41   If a microcomputer operates at 5 MHz with an 8-bit bus and a newer version operates at 20 MHz with a 32-bit bus, the maximum speed-up possible approximately will be
a   2
b   4
c   8
d   16

42   The search concept used in associative memory is
a   Parallel search
b   Sequential search
c   Binary search
d   Selection search

43   Which variable does not drive a terminal string in the grammar
        S -> AB
        A -> a
        B -> b
        B -> C
a   A
b   B
c   C
d   S

44   In Java, after executing the following code what are the values of x, y and z?
        int x,y = 10, z = 12;
        x = y++ + z++;
a   x = 22, y=10, z=12
b   x = 24, y=10, z=12
c   x = 24, y=11, z=13
d   x = 22, y=11, z=13
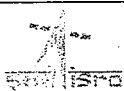
45   The broadcast address for IP network 172.16.0.0 with subnet mask 255.255.0.0 is
    a   172.16.0.255
    b   172.16.255.255
    c   255.255.255.255
    d   172.255.255.255

46   Which RAID level gives block level striping with double distributed parity
    a   RAID 10
    b   RAID 2
    c   RAID 6
    d   RAID 5

47   The output expression of the following gate network is
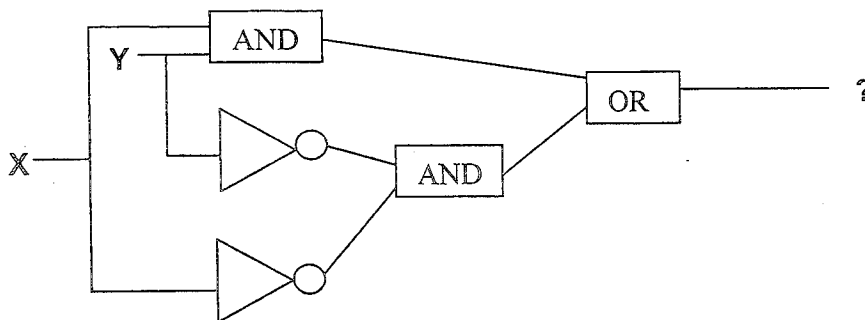
    a $X.Y + \overline{X.Y}$
    b $X.Y + X.Y$
    c $X.Y$
    d $X+Y$

48   The Hamming distance between the octets of 0xAA and 0x55 is
    a   7
    b   5
    c   8
    d   6

49   Consider a 32-bit machine where four-level paging scheme is used. If the hit ratio to TLB is 98%, and it takes 20 nanoseconds to search the TLB and 100 nanoseconds to access the main memory what is effective memory access time in nanoseconds?
    a   126
    b   128
    c   122
    d   120

50   Data is transmitted continuously at 2.048 Mbps rate for 10 hours and received 512 bit errors. What is the bit error rate?
   a   6.9 e-9
   b   6.9 e-6
   c   69 e-9
   d   4 e-9

51   Warnier Diagram enables the analyst to represent
   a   Class Structure
   b   Information Hierarchy
   c   Data Flow
   d   State Transition

52   Given

X :	0	10	16
Y :	6	16	28

The interpolated value at X = 4 using piecewise linear interpolation is
   a   11
   b   4
   c   22
   d   10

53   In functional dependency, Armstrong's inference rules refers to
   a   Reflexive, Augmentation and Decomposition
   b   Transitive, Augmentation and Reflexive
   c   Augmentation, Transitive, Reflexive and Decomposition
   d   Reflexive, Transitive and Decomposition

54   Number of chips (128 x 8 RAM) needed to provide a memory capacity of 2048 bytes
   a   2
   b   4
   c   8
   d   16

55   There are three processes in the ready queue. When the currently running process requests for I/O how many process switches take place?
   a   1
   b   2
   c   3
   d   4

56   Let $T(n)$ be defined by $T(1)= 10$ and $T(n+1) = 2n + T(n)$ for all integers $n \geq 1$. Which of the following represents the order of growth of $T(n)$ as a function of n ?
   a $O(n)$
   b $O(n \log n)$
   c $O(n^2)$
   d $O(n^3)$

57   Which of the following UNIX command allows scheduling a program to be executed at the specified time?
      a   cron
      b   nice
      c   date and time
      d   schedule

58   In DMA transfer scheme, the transfer scheme other than burst mode is
      a   cycle technique
      b   stealing technique
      c   cycle stealing technique
      d   cycle bypass technique

59   n^{th} derivative of x^n is
      a nx^{n-1}
      b $n^n . n!$
      c $nx^n!$
      d $n!$

60   A total of 9 units of a resource type are available, and given the safe state shown below, which of the following sequence will be a safe state?

Process	Used	Max
P_1	2	7
P_2	1	6
P_3	2	5
P_4	1	4

      a $<P_4, P_1, P_3, P_2>$
      b $<P_4, P_2, P_1, P_3>$
      c $<P_4, P_2, P_3, P_1>$
      d $<P_3, P_1, P_2, P_4>$

61   Three coins are tossed simultaneously. The probability that they will fall two heads and one tail is
      a   5/8
      b   1/8
      c   2/3
      d   3/8

62   The average depth of a binary search tree is
      a $O(n^{0.5})$
      b $O(n)$
      c $O(\log n)$
      d $O(n \log n)$
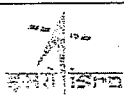
63 What is the output of the following C code?

```
#include <stdio.h>
#include <conio.h>

void main()
{
        int index;

        for(index=1; index<=5;i++)
        {
                printf("%d",index);
                if(i == 3)
                        continue;
        }
}
```

    a   1245
    b   12345
    c   12245
    d   12354

64 When n-type semiconductor is heated ?
    a   number of electrons increases while that of holes decreases
    b   number of holes increases while that of electrons decreases
    c   number of electrons and holes remain same
    d   number of electron and holes increases equally.

65 The Cyclomatic Complexity metric V(G) of the following control flow graph is
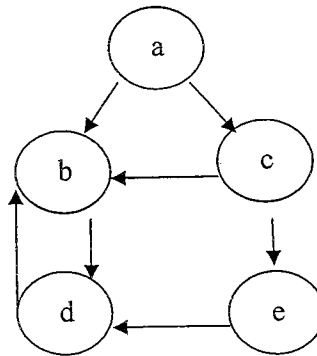
    a   3
    b   4
    c   5
    d   6

66   Which of the following algorithm design techniques is used in merge sort?
    a   Greedy method
    b   Backtracking
    c   Dynamic programming
    d   Divide and Conquer

67   The arithmetic mean of attendance of 49 students of class A is 40% and that of 53 students of class B is 35%. Then the % of arithmetic mean of attendance of class A and B is
    a   27.2%
    b   50.25%
    c   51.13%
    d   37.4%

68   Which of the following sentences can be generated by
        S -> aS | bA
        A -> d | cA
    a   bccdd
    b   abbcca
    c   abcabc
    d   abcd

69   Lightweight Directory Access Protocol is used for
    a   Routing the packets
    b   Authentication
    c   obtaining IP address
    d   domain name resolving

70   Number of comparisons required for an unsuccessful search of an element in a sequential search organized, fixed length, symbol table of length L is
    a   L
    b   L/2
    c   (L+1)/2
    d   2L

71   One SAN switch has 24 ports. All 24 port supports 8 Gbps Fiber Channel technology. What is the aggregate bandwidth of that SAN switch ?
    a   96 Gbps
    b   192 Mbps
    c   512 Gbps
    d   192 Gbps

72   Find the output of the following Java code line
        System.out.println(math.floor(-7.4))
    a   -7
    b   -8
    c   -7.4
    d   -7.0

73   Belady's anomaly means

  a Page fault rate is constant even on increasing the number of allocated frames

  b Pages fault rate may increase on increasing the number of allocated frames

  c Pages fault rate may increase on decreasing the number of allocated frames

  d Pages fault rate may decrease on increasing the number of allocated frames

74   In an RS flip-flop, if the S line (Set line) is set high (1) and the R line (Reset line) is set low (0), then the state of the flip flop is

  a Set to 1

  b Set to 0

  c No change in state

  d Forbidden

75   In HTML, which of the following can be considered a container?

  a <SELECT>

  b <Value>

  c <INPUT>

  d <BODY>

76   What is the matrix that represents rotation of an object by θ^0 about the origin in 2D?

  a $\begin{array}{ll} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{array}$

  b $\begin{array}{ll} \sin\theta & -\cos\theta \\ \cos\theta & \sin\theta \end{array}$

  c $\begin{array}{ll} \cos\theta & -\sin\theta \\ \cos\theta & \sin\theta \end{array}$

  d $\begin{array}{ll} \sin\theta & -\cos\theta \\ \cos\theta & \sin\theta \end{array}$

77   In a system having a single processor, a new process arrives at the rate of six processes per minute and each such process requires seven seconds of service time. What is the CPU utilization?

  a 70%

  b 30%

  c 60%

  d 64%

78   A symbol table of length 152 is possessing 25 entries at any instant. What is occupation density?

  a 0.164

  b 127

  c 8.06

  d 6.08
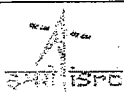
79   A problem whose language is recursion is called ?
    a   Unified problem
    b   Boolean function
    c   Recufsive problem
    d   Decidable

80   Logic family popular for low power dissipation
    a   CMOS
    b   ECL
    c   TTL
    d   DTL