Question Paper: BEL PE CSE

1.A Classroom has r Rows of desks with d desks in each row. On a particular day when all pupils are present 3 seats are left vacant. The number of pupils in this class.
Ans: dr-3.

2.Sylvia is two years younger than mary. If Mary is m years old, how old was Sylvia two years ago?
Ans: m-4.

3. A box is made in the form of a cube, if a second cubical box has inside dimensions three times those of the ,how many times as much does the second box contain?
Ans : 27.

4. A piece of paper with an area of 60 square inches is divided into 2 pieces so that the area of one is 2/3 the area of the other. What is the area(in sq inches) of one of the pieces?
Ans : 24.

5.which of the following is greater than 1/4?
Ans : square root of ¼.

6. if x+2y = 4/3 and x-y = 1/3,then 3y=
Ans :

7.if A=2/3 B, and C=2/3 D, what part of D is B?
Ans : 4/9.

8.Which of the following represents the area of the rectangle whose length is x+1 and whose width is x-1?
Ans : x*x –1.

9. Which of the following must be added to 2x-4 to produce a sum of 0?
Ans : -2x+4.

10.if a and b are positive integers and a-b/3.5 = 4/7, then
Ans : b<a.

11.10^x means 10 is used as a factor x times and 10^-x means 1/10^x. A very large or very small number ,therefore is frequently written as a decimal multiplied by 10^x, where x is a positive integer.which if any of the following is false?
Ans : 86 hundred – thousands =8.6 * 10^-2.

12.which of the following numbers does not have a reciprocal?
Ans : 0.

20. #include <stdio.h>
main()
{
int x,y ;
x=y=0;
while (y<10) ++y; x+=y;
printf("x=%d y=%d \n", x,y);
}
The above C program prints :
Ans : x=10 , y=10.

21.What does the following program print?

```
Void max(int x,y,m)
{
    if (x>y) m=x;
    else m=y;
}
int main(void)
{
    int i,j,k;
    1=20;j=5;k=0;
    max(i,j,k);
    printf("%d\n", k);
}
```

Ans: a) 5 b)0 c) 20 d)none of the above(correct answer).

22.#include<stdio.h>

```
main()
{
    int x,y,z;
    x=y=z=1;
    ++x || ++y && z
printf( x=%d y=%d z=%d\n", x,y,z);
}
```

what does the program print?
Ans :x=2, y=1, z=1;

23.the following program segment is supposed to find the number of lowercase letters in the input. there is a bug in one of the lines.

```
lower=0;
while(( c =getchar()) != EOF){
    if((c>='a') || (c<='z'))
lower++;}
```

which of the following below is the correct one?

Ans: if ((c>='a') && (c<='z))

24.In the following segment of "C code" which of the following lines has syntax error?
char * a, * b, c[100] d [100];
a=b; (1)
b=d; (2)
c=a; (3)
a=c; (4)
Ans : line (3).

25.consider the following program segment
i: = 6720;
j: = 4;
WHILE((i mod j) = 0) DO
BEGIN
i: =i div j;
j:= j+1;
END;
What will be the value of j on termination of the segment ?
Ans : 9.

26.What will be the o/p of the following program segment? (Given that ASCII Codes are used and that the codes for the lowercase letters are greater than of the uppercase letters?
char c
c='C' + 'a' – 'A'+2 ;
printf("%c", c);
Ans: NA.

27. The following code segment is supposed to print out lettersfrom 'a' to 'z'. What is the smallest piece of code possible to substitute for XXX so that the program dos this?
char c ='a';
while(c++ <= 'z') putchar (XXX);
Ans : c-1;

28. sales persons and other employees of the company who spend much of their time away from their offices but keep in touch with their company's micro-computer or mainframe computers over telephone lines are called?
Ans : telecommuters.

29.Business meetings and conferences can be held by linking distantly located people through a computer network.Not only the participants exchange information but are able to see each other. What is it called?
Ans : Teleconferencing.

30. Communication between computers is almost always
Ans : Serial.

31.Working of the WAN generally involves
Ans : a) telephone lines b) microwaves c) satellites d) all of the above(correct answer).

32.Which data communication method is used for sending data in both directions at the same time?
Ans : Full duplex.

33.A 2400 character text file has to be transmitted by using a 1200 baud modem. Can you tell how long will it take?
Ans : 2 secs.

34.in negative logic, the logic state corresponds to
Ans : lower voltage level.

35.What is the name of the reading device which makes use of photosensors and laser technologies to interpret printed, typed or even hand written data directly from the source documents?
Ans : OCR.

36.Which of the following combination of gates does not allow the implementation of an arbitrary Boolean function ?
Ans : OR gates and NAND gates.

37. The probability of drawing 2 aces in succession from a pack of 52 cards is .
ans : 2/13.

38.Which of the following testing methods is normally used as the acceptance test for a software system?
Ans : Functional Testing.

39.What will be the value of PASCAL expression : 4+6 DIV 3*2 – 2?
Ans: 6.

40.Consider the following rammar.
S à PQ
P à x
Q à y
S à SQ
S à Ps
To get a string consisting of n terminals how many derivations of this grammar have to be applied.
Ans :

41. Suppose a system has been evolved, called the ternary system, by creatures having only 3 fingers. Numbers in this are written down, using the digits 0,1 , and 2 with 2>1>0.what will be the binary equivalent of 222 in this system?
Ans : 11010.

42.How many 1's are present in the binary representation of : 3*512+7*64+5*8+3?
Ans : 8.
43 . A procedure that calls itself directly or indirectly is called
Ans : recursive procedure.

44.The minimum number of wires necessary to connect two data communications devices by the electrical industry associations (EIA) standard RS232 is :
a)25 b)7 c)3 d)4
Ans-c

45.Satellite data communications present a problem to digital data communications because of :
a)The latencies involved b)The high level of thermal noise c)Satellite reliability problems

d)Excessive bandwidth requirements
Ans - a

46.In ISO reference model ,the term interface refers to :
a)The software dialog between layers on a host b) The electrical connections between machines
c)The dialog at the communication subnet boundary d) Transport protocols
Ans-c

47.In an extended binary tree of n internal nodes , the number of the external nodes is given by :
a)n+1 b)n c)2n d)2n-1
Ans-d

48.Consider the folowing fragments of the code :
i=1;
CASE IX3 OF
i=1;i=2;i=4;
END CASE;
Following its execution i will have the value :
a)1 b)2 c)3 d)4
Ans-d

49.Consider the following fragment of code:
PROCEDURE SUB(A,B,C,D);
REAL A,B,C,D;
B=A+A;
D=A+C;
RETURN ;
END;
.
.
.
X=1;Y=2;Z=7;
CALL SUB(X,X,X=Y,Z);
PRINT Z;
Assuming that the linkage is implemented as call by reference(Sometimes termed call by location or call by address)the value of 'Z' taht will be printed is :
a)4 b)5 c)6 d)7
Ans-d

50.Consider the following fragment of code written in procedural language
.
.
.
A=6;
LOOP : DO INDEX=N TO 10 BY 1;
A=A+1;
END LOOP;
PRINT A;
.
.
.
Assuming that the DO statement is translated in such a way that testing is performed at the

beginning af the loop(that is leading decisions),the value of 'A' that will be printed when the loop is entered with n=12 is :
a)6 b)7 c)8 d)9
Ans-

51.What is the two's complement representation of -5/8:
b)0.1010 c)-0.1010 d)1.0100
Ans-

52.The phenomenon known as "memory interference" or "Cycle stealing" is most accurately discribed by which of the following statements:
a)a processor is used to fetch ,decode,and cycle steal binary numbers stored in read only memory.
b)a processor has to wait for access to main memory because a device controller is using it.
c)a processor is automatically forced to follow each chain of locations in memory to its end in an indirect addressing scheme.
d)a device controller preempts a processor to signal the completion of a task
Ans-d

53.A binary search tree is defined as :
a)a finite set of nodes which either is empty or consists of root node with two disjoint binary trees
b)binary tree used for searching
c)a binary tree such that for each node all keys in the left subtree of the nodes are less than the key in the node and those in the right sub tree are greater tahn the key in the node
d)a binary tree whose nodes contain keys arranged in descending order along every path from the root to a leaf
Ans-c

54.Which of the following is correct :
a)in a binary tree of heigth h,the number of leaves is 2^h
b)in a complete binary tree the number of leaves is one more than the number of non-leaf internal nodes
c)in a full binary tree,the number of leaves is always is one more than the number of non-leaf internal nodes
d)a complete binary tree with height h always has 2^(h+1)-1 nodes
Ans-b

55.Assuming that all keys in a tree are searched for with equal likelihood,minimum average search time in a binary tree is achieved if the binary tree is :
a)full b)complete c)height balanced d)weight balanced
Ans-b

56.Which of the following is correct :
a)a heap is always a binary search tree
b)a binary search tree is always a heap
c)a heap is always a complete binary tree
d)a complete binary tree is always a heap
Ans-b

57.The balanced tree method of maintaining a search tree is :
a)particularly good,in comparison to other search methods,for search trees with only a few hundered enteries
b)good for representing arbitrary linear list of lenght n,because the following operations : find an

item having a given key,find the kth item(given k),insert an item at specified place,and delete a specified item,each can be done with a comparable level of efficiency
c)simply another name for binary tree methods
d)more appropriate in general,the external storage of data than it is for internal storage of data
Ans-

58.Consider a file with 1024 records arranged in order according to key.Assuming that each key is equally likely to be referenced and that the time to compare a search key with a record key is 100micro sec,which one of the following is approximate reduction in average search time in microsecond for an arbitrary record in the file that would result from using a binary search algorithm instead of sequential search algorithm?
a)50,000
b)10,000
c)30,000
d)1000
Ans-

59.Consider a disk that has pre-divided each track into 12 sectors of 120 characters each.Assuming that file containing 90 character logical records is to be stored,which one of the following blocking factors will result in the optimal usage of the disk storage space?
a)1 b)2 c)3 d)4
Ans-

60.Heap files are useful for :
a)direct access applictaions b)transaction logs c)sorting the data records for inverted files
d)applications requiring " Get Next" operations in key sequence.
Ans-c

61.For which of the following applications a sequential file appropriate
a)airline reservation system b)online inventory systems c)monthly billing systems d)batch pay roll systems
Ans-c
62.A notable chracteristic of modern communication character sets is that
1.function nodes are included in the alphabet
2.tehy are all atleast 7-bit codes
3.provisions have been made in each for parity checking
4.they are all derivatives of the five -level Baudot Code

63. What is the correct logitudal parity check character for the message 1110011001100111000, which also contains vertical parity bit?
1.1101
2.0001
3.00110
4.001011

64. Which of the follwing factors is most limiting in terms of data transmission rate?
1.Attenution Distortion
2.Phase delay
3.signal Distortion
4.Bandwidth

65.Attenution Distortion alters the

1.Shape of waveform
2.the amplitude of a waveform
3.the phase modulous of the amplitude
4.the phase angle and the shape of the waveform

66.

67.Consider a communication network with a 30db gain.If this network were presented with a signal of 1Watt(W) what would the ouput be?
1.1mW
2.100W
3.3W
4.1,000W

68.Transmission of Data at Rates of 9600bps and up generally invoves which one of the following modulation techniques?
1.Phase and amplitude
2.phase and frequency
3.phase
4.phase frequency and amplitude

69.which of the following would not be found in a data message in a bit stuffed protocol?
1.1010101010
2.01111110101
3.000000111
4.111000011110000

70.Polling is a method of achieving
1.facilites utilization
2.maximum number of active users
3.line discipline
4.consistent transmission rates

71.In abyte stuffed Protocol,control character might be prefixed with an ASCII
1.ESC 2.DLE 3.NUL 4.DCE

72.If encryption techniques were employed in an ISO type Protocol ,they would occuar at which layer?
1.Application 2.Network 3.Session 4.Presentation

73.A virtual network service may be
1.never deliver packets out of order
2.occasionally deliver a packet out of order
3.only deliver certain packets out of order
4.not lose a packet.

74.The following program fragment was written in assembly language for a single address computer
with one accumulator register?
LOAD B
MULT C

```
STORE T1
ADD A
STORE T2
MULT T2
ADD T1
STORE Z
```

Which arithmetic expression is implemented by the fragment?

1.z:=t1(bc+a)+t2 2.z:=((a+bc)*(a+bc)) + bc
3.z:=2bc+(a*a) 3.z:=(a+bc)+bc

75.In a language in which operations are associated right to left instead of left to right(ie.a+b+c=a+(b+c)),
the value of expression 7-(16/(3+1)*2)-4 is

1.-1 2.3 3.7 4.9

76. Of the follwing, which best approximates the ratio of the number of noterminal nodes to the total number
of nodes in a complete K-ary tree of depth N?

1.1/N 2.N-1/N 3.1/K 4.K-1/K

77.In the following function,X is passed by reference and Y is passed by value

```
function P(var X:integer;Y:integer):integer;
        begin
                K:=3;
                L:=5;
                P:=X+Y;
        end;
```

If the function P were invoked by the following program fragment
K:=1; L:=1; Z:=P(K,L);
then the value of Z would be equal to

1.2 2.3 3.4 4.6

78.Assume that a data file has an index consisting of N items,where N is large.If a binary search of the index
is used to find an item,then, of the following, which best approximates the mean number of comparisions
required to locate a specific index entry?

1.(N+1)/2 2.N(N-1)/2 3.(log base2 N)-1 4.N log base2 N

79.If f is defined by

```
function f(x:integer):integer;
begin
        if x=1 then
         f:=0
        else
        f:=x*f(x-1)+x*x
end;
```

then the value of f(4) is

1.29 2.48 3.50 4.100

80.Assuming that the table is the sequence of pages referenced by a program to be run in a 2-page memory.
Assume demand paging is used.

Time PageReferenced

1	1
2	2
3	1
4	3
5	
6	

Which pages are in memory at time 6 if the program is run under the replecement rule LFU(the least
frequentlu used Page should be replaced)?
1. 1 and 3 2. 1 and 4 3. 2 and 3 4.2 and 4

81.Consider the function below:

```
function calc(x,y:integer):integer;
begin
        if  y=1
        then calc:=x
        else calc:=calc(x,y-1)+x
end;
```

Assuming that the invocation call "calc(a,b)" and that "a" and "b" are positive integers,what result does this
function return?
1.a*(b-1) 2.a*b 3.a+b 4.a pow b

82 a fully connected point to point network comprising five nodes reqiures the provision of
1.10 duplex channels 2.100 duplex channels
3.5 duplex channels 4.45 duplex channels

83. Which of the following expression is correct?
(where "'" denotes the complement)
1.(a+b)(a+b')=a 2.ab+a'c+bc=ab+a'c 3.(a+b)'=a'b' 4.a+a'b=a'=b

84.The portion of the process scheduler in an operating system that dispatches process is connected with
1.assigning ready process to the CPU
2.activating suspended I/O bound process
3.temporarilly suspending processes when the CPU load is too great
4.all of the above

85.The program fragment that follows is written in a block-structured language.Assume that it is syntactically
correct determine output.

```
begin
 integer x,y;
 x:=3;y:=7;
 begin
        integer x;
        begin
                integer y;
                y:=9;  x:=2*y;
        end;
        x:=x+y;
        print(x);
```

```
    end;
  printf(x);
    end;
```

1.25 27 2.27 27 3.27 3 4.25 3

86.Consider the following macro definition

```
MACRO MULT2 X,y
    LOAD Y
    MUL X
    STORE Y
END MACRO
```

X and Y are

1.variables 2.identifiers 3.actual parameters 4.formal parameters

87.A sliding window protocol is used in a computer communications network; three bits are used for the packet sequnce number.What is the maximum window size?

1.8 2.7 3.4 4.3

88.A computer system stores floating point numbers with a 16-bit mantassa and an 8-bit exponent, each in two's\
complement.The smallest and largest positive values which can be stored are

1.1*(10 pow -128) and (2 pow 15)* (10 pow 128)
2.1*(10 pow -256) and (2 pow 15) * (10 pow 255)
3.1*(10 pow -128) and (2 pow 15) * (10 pow 127)
4.1*(10 pow 128) and ((2 pow 15) -1) * (10 pow 127)

89.Which of the following class of statements usually produces no executable code when compiled?

1.assignment statements 2.sequence statements
3.structural statements 4.declaration statements

90.How many bits are needed to encode all twnety-six letters, ten symbols and ten numerals?

1.5 2.6 3.7 4.46

91.Increasing the precisiom of the REAL data type requires using at least one addition bit in

1.the maintassa 2.the exponent3.both maintassa and the exponent 4.either maintassa or exponent

92. The accuracy associatd with the data types and their use is most closely related to

1.the number of bits used to represent the maintassa
2.the number of bits used to represent the exponent
3.the use of two's complement as opposed to one's complement arithmetic
4.the sequnce of operations performed in evaluating an arithmetic expressions

93.which is not characteristic of a daisy chaining prority control scheme?

1.It is relatively easy to to add more devices to the chain.
2.teh feature of ione device may affect other devices on the chain
3.Priority is programmable
4.the number of control lines is independent of the number **********

94.Which of the following can cause an error due to finite precision arithmaetic?

1.the product of tow INTEGERs with the result represented by a LONGINTEGER
2.the product of two REALs with the result represented by DOUBLE PRECISION REAL
3.the sum of tewo CHARACTERs with the result represented by an INTEGER
4.the sum of two REALs with the result represented by a DOUBLE_PRECISION REAL

95.A node in a network forwards incoming packets by placing them on its shortest output queue. What routing algorithm is in operation?

1.hot potato routing 2.flododing 3.static routing 4.delta routing

96.If n and p are both odd numbers , which of the follwing numbers must be an even number?

1.n+p 2.np 3.np+2 4.n+p+1

97. If the length of a rectangle is increased by 20%, and the width of the same rectangle is decreased by 20%, then the area of the rectangle

1.decreases by 20% 2.decreases by 4%
3.is unchanged 4.increased by 20%

98. given that x and y are real numbers ,let S(x,y)=(x pow 2)-(y pow 2).then S(3,S(3,4))=

1.-40 2.-7 3.40 4.49

99.given that a and b are real numbers ,let f(a,b)=ab let g(a)=(a*a)+2.then f[3,g(3)]=

1.(3 *a *a) +2 2.(3*a*a)+6 3.29 4.33

100.For the integer n , if (n*n*n) is odd. which of the follwing statements is (are0 true?

I odd II (n*n) is odd III (n*n) is even

1. I only 2.III only 3.II only 4.I and II only

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