1. Which of the following options states the correct storage - device hierarchy in terms of decreasing access time ?

(1) magnetic tape, magnetic disk, cache, main memory
(2) magnetic disk, optical disk, main memory, register
(3) magnetic tape, magnetic disk, main memory, register
(4) register, main memory, magnetic disk, magnetic tape

2. Interrupts are sent by _____ and received by _____.

(1) CPU, I/O Devices
(2) I/O Devices, CPU
(3) Timer, I/O Devices
(4) CPU, ALU

3. Zero address instructions are necessarily used in _____ architecture.

(1) Stack
(2) CISC
(3) RISC
(4) Parallel

4. Consider the memory reference string given below, for a memory with 3 frames per process.

7, 0, 1, 2, 0, 3, 0, 4, 2, 3

The number of page faults for FIFO page replacement policy are _____.

(1) ten
(2) seven
(3) nine
(4) eight

5. Which of the following statements is not correct ?

(1) Linked allocation of disk space allows only sequential access of data.
(2) Indexed allocation of disk space allows direct access to disk blocks.
(3) There is no internal fragmentation in contiguous allocation of disk space.
(4) There is no external fragmentation in linked allocation of disk space.

6. Consider the following statements about deadlock :

(a) Existence of a cycle in resource-allocation graph indicates deadlock.
(b) Existence of a cycle in wait-for graph indicates deadlock.
(c) Mutual-exclusion, hold and wait, no preemption and circular wait conditions, if occur simultaneously, may lead to deadlock.

Mark the **correct** option :

(1) Only (b) is correct
(2) Only (c) is correct
(3) Only (a) and (c) are correct
(4) Only (b) and (c) are correct

7. Consider three processes P1, P2, P3, which require 24, 3, 3 units of CPU time respectively. For time quantum of 4 units and Round - Robin scheduling policy, the sequence in which the processes be executed for each time quantum is _____.
(1) P1, P2, P3, P1, P1, P1, P1, P1
(2) P1, P2, P3, P1, P1, P1, P1
(3) P1, P2, P3, P1, P1, P1
(4) P2, P3, P1, P1, P1

8. _____ systems have well defined fixed time constraints on processing of special events.
(1) Multiprocessor
(2) Time sharing
(3) Interactive
(4) Real time

9. Identify the Hexadecimal equivalent of the decimal number :
$(3564)_{10} = (?)_{16}$
(1) DAD
(2) DEF
(3) DEC
(4) DAC

10. Binary equivalent of the octal number $(173)_8$ is :
(1) $(1110111)_2$
(2) $(1111011)_2$
(3) $(1101111)_2$
(4) $(1101011)_2$

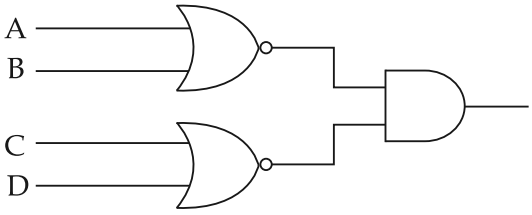
11. The Boolean expression :
$a' \cdot b + a \cdot b'$
Where a, b are Boolean operands, can equivalently represented by :
(1) NAND
(2) NOR
(3) XOR
(4) OR

12. Identify the simplified and equivalent Boolean expression for the K-Map :

cd \ ab	00	01	11	10
00	0	4	12	8
01	1 1	1 5	1 13	1 9
11	1 3	1 7	1 15	1 11
10	2	6	14	10

(1) a
(2) b
(3) c
(4) d

13. Which of the following Boolean expression correctly represents the logic circuit diagram ?



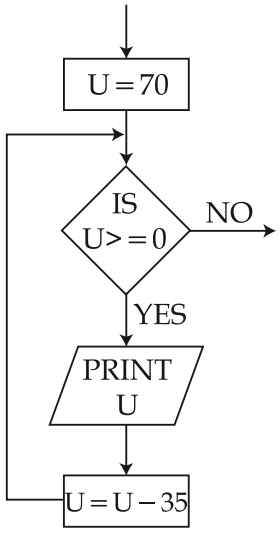
(1) $(A + B) \cdot (C + D)$
(2) $(A \cdot B)' + (C \cdot D)'$
(3) $A \cdot B + C \cdot D$
(4) $(A + B)' \cdot (C + D)'$

14. In Boolean Algebra, the expression $a + a \cdot b$ is equivalent to :
(1) a
(2) b
(3) $a \cdot b$
(4) $a + b$

15. What will be the result of the following expression ?
$3 - (-3 - 3) - 3$
(1) 6
(2) 0
(3) -3
(4) 3

16. Which of the following operations have the highest level of precedence ?
(1) ( )
(2) + −
(3) * /
(4) ^ (exponentiation)

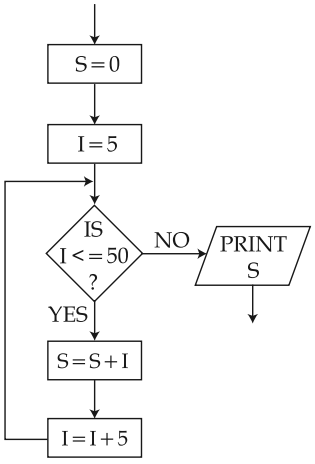
17. How many times loop will be executed in the following flow chart ?



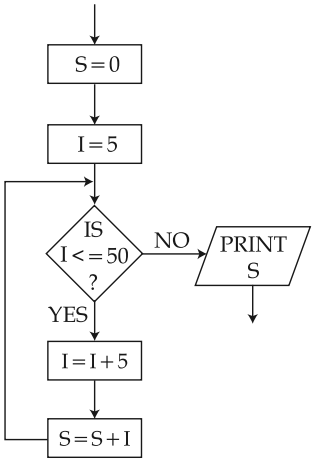
(1) 1
(2) 2
(3) 3
(4) 70

18. Which of the following flow charts will be most appropriate for finding sum of first 10 multiples of 5 ?

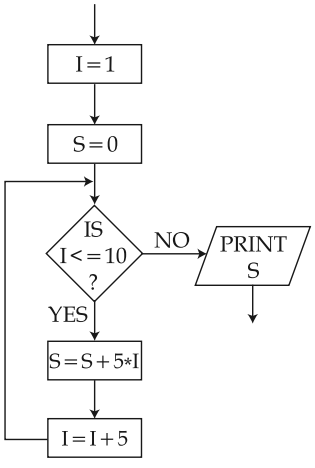
(1)



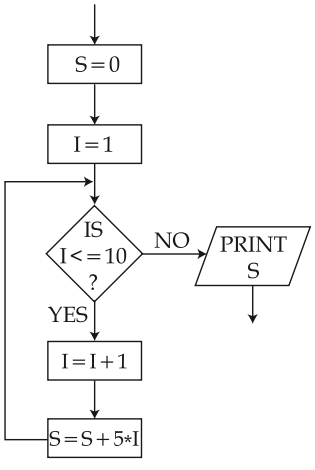
(2)



(3)



(4)



19. Which of the following is not part of programming construct ?
(1) Sequencing
(2) Branching
(3) Overlapping
(4) Looping

20. Which of the following expression will evaluate to true ?
Assuming the values of A, B, C as follows :
A = −10
B = 30
C = −15
(1) A > C and B < =C
(2) A <=B and B < =C
(3) B > =C and A > C
(4) A < C and C < =B

21. Which of the following is the correct order of problem solving steps ?
(1) Testing and Debugging, Coding, Analysing the problem, Developing an Algorithm
(2) Developing an Algorithm, Coding, Testing and Debugging, Analysing the problem
(3) Analysing the problem, Developing an Algorithm, Coding, Testing and Debugging
(4) Developing an Algorithm, Analysing the problem, Coding, Testing and Debugging

22. Which of the following can be considered as a unary as well as a binary operator ?
(1) −
(2) *
(3) /
(4) %

23. As per the naming rules for variables in VISUAL BASIC, which of the following will be incorrect ?
(1) _Amount
(2) Value12
(3) First Name
(4) MySalary2Times

24. Which of the following will be true in Visual Basic ?
(1) "Care" > "care"
(2) "Care" = "care"
(3) "Care" < "care"
(4) Error, only numeric values allowed

25. In Visual Basic, if ASC ("A") is 65, what will be ASC ("E") ?
(1) 69
(2) Error
(3) 68
(4) 70

26. In Visual Basic, the constructs in which an IF block is contained inside another IF block are called :

(1) Chain of IF blocks

(2) Sequential IF blocks

(3) Nested IF blocks

(4) Serial IF blocks

27. In Visual Basic, which of the following CASE clause will be valid for the value of selector in a SELECT CASE block to be greater or equal to 50 ?

(1) CASE >= 50

(2) CASE IS >= 50

(3) CASE IS > 50 OR = 50

(4) CASE IS => 50

28. What will be correct statement for declaring and assigning a value 325 to an Integer variable called MyScore ?

(1) Integer DIM MyScore = 325

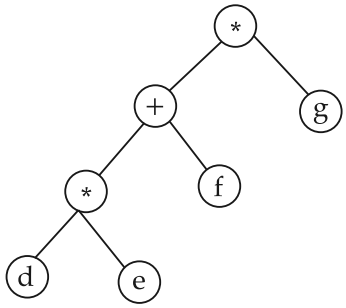
(2) Integer MyScore = 325

(3) DIM Integer MyScore = 325

(4) DIM MyScore as Integer = 325

29. Consider the following expression tree.

Preorder and post-order traversal of the tree will result into _____ and _____ expressions, respectively.



(1) d * e + f * g, d e * f + g *

(2) * + * d e f g, d e * f + g *

(3) * + * d e f g, d * e + f * g

(4) * + * d e f g, d e f g * + *

30. Given below are the applications of "Queue" data structure.

(a) Managing function calls in C++

(b) Managing calls in a call centre

(c) Allocating terminals to the students in a computer lab, when the students sign up in a web-based request form.

Choose the **correct** option :

(1) (a), (b) and (c) are correct applications

(2) Only (a) and (b) are the correct applications

(3) Only (b) and (c) are the correct applications

(4) Only (a) and (c) are the correct applications

31. Consider the following two C++ statements and the accompanying contexts.

(a) return P→next == NULL; // P is a pointer to an element in the link list L.

(b) return S → next == NULL; // S is a stack implemented as a link list.

If the return value is TRUE in both cases, which of the following is correct ?

(1) P points to the last element in L and S is empty.

(2) P points to the last element in L and S is full.

(3) L is empty and S is full.

(4) Both L and S are empty.

32. Consider the following statements about searching algorithms and choose the correct option.

(1) Sequential search requires the list to be ordered, while there is no such constraint for Binary search.

(2) Binary search has time complexity of $O(\log_2 n)$, while sequential search has time complexity of O(n). Here, n is the number of elements in the list.

(3) Link list is a suitable data structure for storing a list, and performing Binary search.

(4) The best case in Binary search is, when the key element exists in the begining of the list.

33. The number of pointer changes required for inserting a node between two given nodes in the linked implementation of a doubly linked list is _____.

(1) one

(2) two

(3) three

(4) four

34. Which of the following options is the correct code for traversing a link list staring at pointer P, upto element X ?

(1) while (P == NULL || P → Element ! = X)
P = P → Next ;

(2) while (P == NULL && P → Element ! = X)
P = P → Next ;

(3) while (P ! = NULL || P → Element ! = X)
P = P → Next ;

(4) while (P ! = NULL && P → Element ! = X)
P = P → Next ;

35. A binary search tree with N integers may have height _____ in the best case, and _____ in the worst case.

(1) O(N), O(N)

(2) $O(N^2)$, N

(3) $O(\log_2 N)$, $O(N^2)$

(4) $O(\log_2 N)$, $N-1$

36. If all required header files are already included, identify the possible output of the C++ code :

```
class Weather
{
        int Humidity, Temp;
public :
        Weather (int H = 50, int T = 20)
        {       Humidity = H; Temp = T;}
        void  HOT (int T) { Temp += T;}
        void  HUMID (int H) { Humidity = H; }
        void  DISP( ) { cout << Humidity <<" : "<< Temp << endl;}
};
void main( )
{
        Weather W(60);
        W.HOT(5); W.HUMID(65);
        W.DISP( );
}
```

(1) 65 : 25
(2) 60 : 25
(3) 60 : 20
(4) 65 : 5

37. Identify the correct output of the C++ code from the following options assuming all required header files are included.

```
void main( )
{
        int N[ ] = {1, 2, 3, 4};
        int  *P = N;
        N[1] + = 10;
        cout << *P << " : " ;
        P ++;
        cout << *P << endl;
}
```

(1) 1 : 12
(2) 1 : 2
(3) 11 : 2
(4) 11 : 12

38. Select the correct output of the following C++ program segment assuming all necessary header files are correctly included.

```
void main( )
{
        char *S = "MySQL";
        S + = 2;
        cout << S <<endl;
}
```

(1) SQL
(2) QL
(3) My
(4) MyS

39. This question is based upon the following class and code segment :

```
class STOCK
{       float price ;
      public :
        STOCK( ) ;                  // Function 1
        STOCK(float P) ;            // Function 2
        STOCK(STOCK &S) ;           // Function 3
        void INIT( ) ;              //  Function 4
        void DISP( ) ;              //  Function 5
        ~ STOCK( ) ;                //  Function 6
};
void main( )
{
        STOCK S2(10) ;  // Statement 1
        ________
        ________        // Other Statements
        ________
}
```

Which of the following can be an example of copy constructor ?

(1) Function 1
(2) Function 2
(3) Function 3
(4) Function 5

40. This question is based upon the following class and code segment :

```
class STOCK
{       float price ;
      public :
        STOCK( ) ;                  // Function 1
        STOCK(float P) ;            // Function 2
        STOCK(STOCK &S) ;           // Function 3
        void INIT( ) ;              //  Function 4
        void DISP( ) ;              //  Function 5
        ~ STOCK( ) ;                //  Function 6
};
void main( )
{
        STOCK S2(10) ;  // Statement 1
        ________
        ________        // Other Statements
        ________
}
```

Which of the following constructor will be invoked automatically because of the declaration given as Statement 1 in the given code ?

(1) Function 2
(2) Copy Constructor
(3) Function 1
(4) Function 3

41. This question is based upon the following class and code segment :

```
class STOCK
{       float price ;
      public :
        STOCK( ) ;                  // Function 1
        STOCK(float P) ;            // Function 2
        STOCK(STOCK &S) ;           // Function 3
        void INIT( ) ;              //  Function 4
        void DISP( ) ;              //  Function 5
        ~ STOCK( ) ;                //  Function 6
};
void main( )
{
        STOCK S2(10) ; // Statement 1
        ________
        ________        // Other Statements
        ________
}
```

Which of the following declaration/statement will invoke the default constructor of the class - STOCK ?

(1) STOCK S1(S2);
(2) STOCK S2;
(3) STOCK S1(20);
(4) S2.INIT( );

42. Name the type of Inheritance if Activity, Teacher and SUPW are C++ Classes and → denotes inheritance.

Activity
↓
Teacher
↓
SUPW

(1) Multi Level Inheritance
(2) Multiple Inheritance
(3) Single Level Inheritance
(4) Hybrid Inheritance

43. Consider the following Inheritance in C++ :

```
class Person
{
        char AadharNo[12];
        protected :
        char Name[20];
        public :
        _______
        _______
        void Readdata( );
};
class Student : public Person
{
        int Grade;
        public :
        _____
        _____
};
```

What will be the visibility mode of Name and Readdata ( ) in the derived class student ?

(1) Name → Protected, Readdata → Protected
(2) Name → Protected, Readdata → Public
(3) Name → Private, Readdata → Protected
(4) Name → Public, Readdata → Public

44. Which of the following commands in C++ will open a text file NOTES.TXT for reading the content from it ?

(1) ifstream F ("NOTES.TXT");
(2) ofstream F ("NOTES.TXT");
(3) fstream F ("NOTES.TXT");
(4) fstream F ("NOTES.TXT", ios :: read);

45. Which of the following file stream function will move the file pointer to Nth record in a binary file F created with the help of objects of class EMP ?

(1) F.tellg(N)
(2) F.seekp(N)
(3) F.seekp((N − 1)* sizeof (EMP))
(4) F.seekp(sizeof (EMP)/N)

46. Which of the following best describes an attribute/column in a table ?

(1) It is a set of numeric values in a table
(2) It is a set of string values in a table
(3) It is a vertical subset of a table
(4) It is a horizontal subset of a table

47. TRUNCATE command of SQL is an example of

(1) DML
(2) DCL
(3) DDL
(4) TCL

48. **This question is based on following table :**

TABLE : DELIVERY

SNO	DBOY	ITEM	STAR	AMOUNT
1001	AMAN	FOOD	5	3000
1005	JONES	MEDICINE	3	5000
1008	AMAN	MEDICINE	2	4000
1009	RAZID	FOOD	4	4500
1010	JONES	GIFT	5	5000
1018	AMAN	FOOD	5	3000
1022	RAZID	MEDICINE	4	5000

Which of the following commands will produce the output from the table DELIVERY, as shown below ?

DBOY	SUM (AMOUNT)
AMAN	10000
JONES	10000
RAZID	9500

(1) SELECT DBOY, AMOUNT FROM DELIVERY;
(2) SELECT DBOY, SUM (AMOUNT) FROM DELIVERY;
(3) SELECT DBOY, SUM (AMOUNT) FROM DELIVERY GROUP BY AMOUNT;
(4) SELECT DBOY, SUM (AMOUNT) FROM DELIVERY GROUP BY DBOY;

49. This question is based on following table :

TABLE : DELIVERY

SNO	DBOY	ITEM	STAR	AMOUNT
1001	AMAN	FOOD	5	3000
1005	JONES	MEDICINE	3	5000
1008	AMAN	MEDICINE	2	4000
1009	RAZID	FOOD	4	4500
1010	JONES	GIFT	5	5000
1018	AMAN	FOOD	5	3000
1022	RAZID	MEDICINE	4	5000

Which of the following SQL commands will display the names of delivery boys (DBOY) without any repeatation of names ?

(1) SELECT DISTINCT DBOY FROM DELIVERY;
(2) SELECT UNIQUE DBOY FROM DELIVERY;
(3) SELECT NOREPEAT DBOY FROM DELIVERY;
(4) SELECT DBOY DISTINCT FROM DELIVERY;

50. This question is based on following table :

TABLE : DELIVERY

SNO	DBOY	ITEM	STAR	AMOUNT
1001	AMAN	FOOD	5	3000
1005	JONES	MEDICINE	3	5000
1008	AMAN	MEDICINE	2	4000
1009	RAZID	FOOD	4	4500
1010	JONES	GIFT	5	5000
1018	AMAN	FOOD	5	3000
1022	RAZID	MEDICINE	4	5000

Which of the following commands will display the entire content of the table DELIVERY in descending order of STAR rating ?

(1) SELECT * FROM DELIVERY ORDER BY STAR DESCENDING;
(2) SELECT * FROM DELIVERY ORDER BY STAR;
(3) SELECT * FROM DELIVERY ORDER BY STAR DESC;
(4) SELECT * FROM DELIVERY ORDER BY STAR REVERSE;

51. This question is based on following table :

TABLE : DELIVERY

SNO	DBOY	ITEM	STAR	AMOUNT
1001	AMAN	FOOD	5	3000
1005	JONES	MEDICINE	3	5000
1008	AMAN	MEDICINE	2	4000
1009	RAZID	FOOD	4	4500
1010	JONES	GIFT	5	5000
1018	AMAN	FOOD	5	3000
1022	RAZID	MEDICINE	4	5000

Which of the following SQL commands will remove the rows, which have column value of STAR less than 5 ?

(1) REMOVE FROM DELIVERY WHERE STAR < 5;
(2) DROP TABLE DELIVERY WHERE STAR < 5;
(3) DELETE FROM DELIVERY WHERE STAR < 5;
(4) DELETE * FROM DELIVERY WHERE STAR < 5;

52. Consider the following tables in a database SPORTS :

Table 1 : STUDENTS

ADMNO	SNAME
101	AMAR
205	MARIA
410	MALALA

Table 2 : GAMES

GAMEID	GNAME
G03	CRICKET
G05	FOOTBALL

Which of the following SQL Command will produce an output as :

SNAME	GNAME
AMAR	CRICKET
MARIA	CRICKET
MALALA	CRICKET
AMAR	FOOTBALL
MARIA	FOOTBALL
MALALA	FOOTBALL

(1) SELECT SNAME, GNAME FROM STUDENTS, GAMES;
(2) SELECT SNAME, GNAME FROM STUDENTS X GAMES;
(3) SELECT SNAME FROM STUDENTS, GNAME FROM GAMES;
(4) SELECT SNAME FROM STUDENTS, SELECT GNAME FROM GAMES;

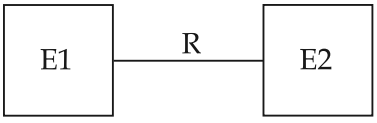
53. 3NF is based on the concept of :

(1) Functional dependency
(2) Closure dependency
(3) Transitive dependency
(4) Normal dependency

54. Which of the following is not an example of Database Application ?

(1) Payroll Management
(2) Digital Drawing
(3) HR Management
(4) Invoicing System

55. Which of the following options appropriately represent the relationship shown in the diagram ?



(1) ONE - TO - ONE
(2) ONE - TO - MANY
(3) MANY - TO - ONE
(4) MANY - TO - MANY

56. Name the tag and the attribute to be used to change the sequence of the list items in an ordered list from numbers to upper case letters

(1) Tag-<OL>, Attribute - START
(2) Tag-<OL>, Attribute - VALUE
(3) Tag-<OL>, Attribute - TYPE
(4) Tag-<OL>, Attribute - CASE

57. Study the 3 statements given below and identify the tag which satisfies these 3 statement conditions :

(a) This tag is used to create a section break
(b) This tag has attributes ALIGN, WIDTH, COLOR and SIZE
(c) This tag does not have a closing tag

(1) <P>
(2)
(3) <HR>
(4) <META>

58. Which of the following HTML tag does not have a name attribute associated with it ?

(1) <FORM>
(2) <SELECT>
(3) <A>
(4) <EMBED>

59. Observe the code snippet given below :

<A HREF = "# TOP "> Back to Top </ A>

The # sign is used to :

(1) Create a link to another webpage

(2) Create a link to an Email address

(3) Create an internal link and instruct browser to look for a named anchor in current document

(4) Create an external link and instruct the browser to look for a named anchor in another HTML document

60. Which attribute of the <IMG> tag tells the browser what text to display if it cannot show the image ?

(1) TEXT

(2) ALT

(3) NOSHOW

(4) NOIMAGE

61. Which of the following attribute of the <TABLE> tag specifies the amount of space between the border and the contents of the cell ?

(1) PADDING

(2) SPACING

(3) CELL PADDING

(4) CELL SPACING

62. What is the correct usage of the FRAMEBORDER attribute of the <FRAME> tag in HTML ?

(1) Specifies the color of the border of the frame

(2) Specifies the status of scroll bars of a frame

(3) Specifies the distance between top and bottom edge of the frame and frame contents

(4) Specifies whether the border should be visible or not

63. Rasleen is adding links to her company website. She wants to change the link colour as soon as the visitor's mouse hoven over the link and wants it should retain the original colour when visitor's mouse moves to any other location away from the link. Which of the following two event handless will be required to write a JavaScript code to achieve the same.

(1) OnMouseOver and OnMouseExit

(2) OnMouseOver and OnMouseOut

(3) OnMouseIn and OnMouseOut

(4) OnMouseIn and OnMouseExit

64. Which of the following is not a method of the window object in JavaScript ?

(1) open( )

(2) close( )

(3) name( )

(4) prompt( )

65. Which of the following is not a valid variable name in JavaScript ?

(1) Number10
(2) _myNumber
(3) 10Number
(4) my_Number

66. The style definitions are normally saved in external files that have the extension as :

(1) .html
(2) .css
(3) .js
(4) .stl

67. In XML, what is the single top level element called that can contain any number of nested sub-elements ?

(1) Node element
(2) Root element
(3) Meta element
(4) Source element

68. A valid XML document means :

(a) The document must be well formed
(b) The document must apply to the rules of the DTD

(1) Both (a) and (b) are true
(2) Only (a) is true
(3) Only (b) is true
(4) Both (a) and (b) are false

69. XML uses :

(1) HTML tags
(2) Predefined tags
(3) Custom tags
(4) Scripting tags

70. Which of the following is not a method of the Document object in the DOM ?

(1) Write("String")
(2) getElementsByWrite( )
(3) getElementsById( )
(4) getElementsByName( )

71. How many times the below FOR LOOP gets executed ?

```
<SCRIPT LANGUAGE = "VBScript">
    Q = 29
    FOR AGE = 5 to Q STEP 6
    DOCUMENT.WRITE P
    NEXT
</SCRIPT>
```

(1) 4 times
(2) 5 times
(3) It will not execute as STEP parameter is wrong
(4) It will not execute as P is not enclosed in ( )

72. What is the output of the following code snippet of VBScript ?

18 MOD 7 + 4*2 − 10

(1) 4
(2) 1
(3) 0
(4) 2

73. Nagarjuna wants to play the movie that he has created using flash in different software. What should he do as a final step to achieve this purpose ?

(1) Publish the flash movie
(2) Save the flash movie
(3) Export the flash movie
(4) Preview the movie and save in desired format

74. This effect is used to make a symbol disappear from view by using motion tweening and changing alpha settings of the symbol :

(1) Zoom effect
(2) Fade effect
(3) Masking effect
(4) Morphing effect

75. The frame rate of a movie is measured in number of :

(1) frames per hour
(2) frames per minute
(3) frames per second
(4) frames per milli second

76. This tool of Photoshop selects adjacent pixels based on their similarity in color :

(1) Blur tool
(2) Healing Brush tool
(3) Magic wand tool
(4) Gradient tool

77. Which of the following crimes will be dealt under cyber crime ?

(1) Theft of a brand new computer from a shop

(2) Accessing own bank account online

(3) Posting pictures of people without seeking their permission

(4) Stealing LED monitor from neighbour's house

78. Mr. Janaki Raman has joined a financial organization as a chief of operations. On a regular basis, he has to conduct a number of Interactive training sessions for the employees spread across in 13 Countries. Which of the following protocols he must be using for the same ?

(1) FTP

(2) VOIP

(3) SMTP

(4) PPP

79. What is the full form of WLL ?

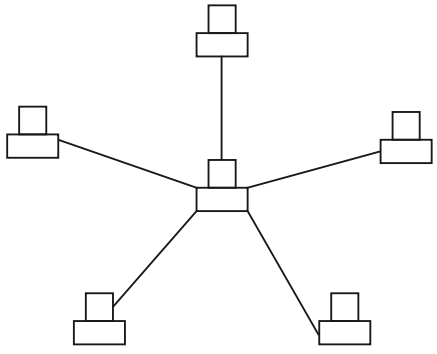
(1) Wireless Local Line

(2) Wireless Local Loop

(3) Wireless Local Live

(4) Wireless Low Line

80. Which topology of network is represented in the following diagram ?



(1) STAR

(2) BUS

(3) TREE

(4) RING