1. What is the synonym of word LAMENT?
   (A) Comment
   (B) Complain
   (C) Condone
   (D) Console

2. Choose the word which is the exact OPPOSITE of the word RELINQUISH:
   (A) Abdicate
   (B) Renounce
   (C) Possess
   (D) Deny

3. Choose the word which is the exact OPPOSITE of the word VANITY:
   (A) Pride
   (B) Humility
   (C) Conceit
   (D) Ostentious

4. Choose the correct meaning for the idiom/phrase “To play second fiddle”:
   (A) To be happy, cheerful and healthy
   (B) To reduce importance of one’s senior
   (C) To support the role and view of another person
   (D) To do back seat driving

5. If DELHI is coded as ‘C D K G H’ and ‘MADRAS’ as ‘I Z C Q Z R’ then how will PATNA be coded?
   (A) O Z T M Z
   (B) O Z S M Z
   (C) Q B U M B
   (D) O Z M S Z

6. Pointing to a lady, a man said, “The son of her only brother is the brother of my wife”. How is the lady related to the man?
   (A) Mother-in-law
   (B) Sister of father-in-law
   (C) Maternal Aunt
   (D) Mother’s Sister

7. In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is:
   (A) 1 hour
   (B) 2 hours
   (C) 3 hours
   (D) 4 hours

8. A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot @ 4 km/hr and partly on bicycle @ 9 km/hr. The distance travelled on foot is:
   (A) 14 Km
   (B) 15 Km
   (C) 16 Km
   (D) 17 Km

9. A fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, he had:
   (A) 588 apples
   (B) 600 apples
   (C) 672 apples
   (D) 700 apples

10. What is the highest integral value of ‘k’ for which the quadratic equation \(x^2 - 6x + k = 0\) have two real and distinct roots?
    (A) 9
    (B) 7
    (C) 3
    (D) 8

11. If the roots of the equation \(x^2 + bx + c = 0\) are opposite in sign, then:
    (A) \(c > 0\)
    (B) \(c < 0\)
    (C) \(b^2 = 4c\)
    (D) \(c = \frac{b^2}{4}\)
12. If \( i = \sqrt{-1} \) and \( n \) is a positive integer, then
\[ i^n + i^{n+1} + i^{n+2} + i^{n+3} = \]
\( (A) \ 1 \]
\( (B) \ i \]
\( (C) \ i^2 \]
\( (D) \ 0 \]

13. Three numbers are in A.P., their sum is 24 and sum of their squares is 200, the numbers are:
\( (A) \ 4, 8, 12 \]
\( (B) \ 6, 8, 10 \]
\( (C) \ 5, 8, 11 \]
\( (D) \ 2, 8, 14 \]

14. \[ \int \frac{dx}{x - x^3} = A \log \left( \frac{x^2}{1-x^2} \right) + c \] then \( A \) is equal to:
\( (A) \ 1/2 \]
\( (B) \ 2 \]
\( (C) \ 2/3 \]
\( (D) \ 1/3 \]

15. \[ \int \sqrt{1 + \sin \frac{x}{4}} \ dx \] is equal to:
\( (A) \ 8 \left( \sin \frac{x}{8} - \cos \frac{x}{8} \right) + c \]
\( (B) \ \left( \sin \frac{x}{8} + \cos \frac{x}{8} \right) + c \]
\( (C) \ \frac{1}{8} \left( \sin \frac{x}{8} - \cos \frac{x}{8} \right) + c \]
\( (D) \ 8 \left( \cos \frac{x}{8} + \sin \frac{x}{8} \right) + c \]

16. An arc AB of length 5 cm is marked on a circle of radius 3 cm. Area of sector bounded by this arc and radii from A and B is:
\( (A) \ 7.5 \text{ cm}^2 \]
\( (B) \ 7.5 \text{ m}^2 \]
\( (C) \ 75 \text{ m}^2 \]
\( (D) \ 75 \text{ cm}^2 \]

17. The function
\[ g(x) = \sin x - \cos x \] and \( f(x) = \log \left( \frac{1-x}{1+x} \right) \]
are:
\( (A) \ \text{Both odd} \]
\( (B) \ f(x) \text{ is odd and } g(x) \text{ is neither even nor odd} \]
\( (C) \ f(x) \text{ is neither even nor odd and } g(x) \text{ is odd} \]
\( (D) \ f(x) \text{ is odd and } g(x) \text{ is even} \]

18. \[ \sec^2 \theta - \tan^2 \theta = \]
\( (A) \ 1 \]
\( (B) \ -1 \]
\( (C) \ 0 \]
\( (D) \ \sec^2 2\theta \]

19. What are the chances that no two boys are sitting together for a photograph if there are 5 girls and 2 boys?
\( (A) \ \frac{1}{21} \]
\( (B) \ \frac{4}{7} \]
\( (C) \ \frac{2}{7} \]
\( (D) \ \frac{5}{7} \]

20. Formula to calculate standardized normal random variable is:
\( (A) \ x-\mu/\sigma \]
\( (B) \ x+\mu/\sigma \]
\( (C) \ x-\sigma/\mu \]
\( (D) \ x+\sigma/\mu \]

21. Relationship between correlation coefficient and coefficient of determination is that:
\( (A) \ \text{Both are unrelated} \]
\( (B) \ \text{The coefficient of determination is the coefficient of correlation squared} \]
\( (C) \ \text{The coefficient of determination is the square root of the coefficient of correlation} \]
\( (D) \ \text{Both are equal} \]
22. In a class of 120 students numbered 1 to 120, all even numbered students opt for Physics, whose numbers are divisible by 5 opt for Chemistry and those whose numbers are divisible by 7 opt for Math. How many opt for none of the three subjects?
   (A) 19
   (B) 41
   (C) 21
   (D) 57

23. The ratio of the volumes of two cubes is 729 : 1331. What is the ratio of their total surface areas?
   (A) 81 : 121
   (B) 9 : 11
   (C) 729 : 1331
   (D) 27 : 121

24. If A = \[
\begin{pmatrix}
1 & 0 \\
-1 & 7
\end{pmatrix}
\] and B = \[
\begin{pmatrix}
1 & 0 \\
0 & 1
\end{pmatrix}
\], then the value of k so that \(A^2 = 8A + kB\) is:
   (A) 7
   (B) -7
   (C) 0
   (D) 5

25. If A = \[
\begin{pmatrix}
1 & 2 \\
3 & 0
\end{pmatrix}
\] and B = \[
\begin{pmatrix}
3 & 4 \\
1 & 6
\end{pmatrix}
\], then \((AB)^T\) is:
   (A) \[
\begin{pmatrix}
5 & 9 \\
16 & -12
\end{pmatrix}
\]
   (B) \[
\begin{pmatrix}
5 & -9 \\
-16 & 12
\end{pmatrix}
\]
   (C) \[
\begin{pmatrix}
5 & 9 \\
16 & 12
\end{pmatrix}
\]
   (D) None of these

26. The value of \(\lim_{x \to 0} (\sin x)^x\) is:
   (A) 1
   (B) \(\infty\)
   (C) -1
   (D) Limit does not exist

27. A computer program that converts assembly language to machine language is:
   (A) Compiler
   (B) Interpreter
   (C) Assembler
   (D) Comparator

28. Which type of system puts the user into direct conversation with the computer through a keyboard?
   (A) Real time processing
   (B) Interactive computer
   (C) Batch processing
   (D) Time sharing

29. A section of code that may only be executed by one process at any one time is:
   (A) Critical region
   (B) Critical resource
   (C) Gray code
   (D) None of the above

30. Static binding occurs at:
   (A) Compilation time
   (B) Run time
   (C) Program storage time
   (D) None of the above

31. Increasing the precision of the float data type requires at least one additional bit in:
   (A) The mantissa
   (B) The exponent
   (C) Both mantissa and exponent
   (D) Neither in mantissa nor in exponent

32. A helpful illustration used to visualize relationships among variables of Boolean expression is:
   (A) map
   (B) logic gates
   (C) Venn diagram
   (D) Graph
33. The idea of cache memory is based:
(A) On the property of locality of reference
(B) On the heuristic 90-10 rule
(C) On the fact that references generally tend to cluster
(D) None of these

34. In the following indexed addressing mode instruction, MOV 5(R1), LOC
The effective address is _______.
(A) EA = 5 + R1
(B) EA = R1
(C) EA = [R1]
(D) EA = 5 + [R1]

35. What will be output of the following C code?
#include<stdio.h>
Void main()
{
    int i = 5;
    printf("%d%d%d",i,i, i++);
}
(A) 6 5 7
(B) 7 5 6
(C) 7 6 5
(D) 5 5 6

36. What will be the output if you will compile and execute the following C code?
#define x 3+2
void main()
{
    int i;
    i = x*x*x
    printf("%d\n",i);
}
(A) 24
(B) 50
(C) 32
(D) 16

37. Scope resolution operator is used_______.
(A) To resolve the scope of global variables only
(B) To resolve the scope of functions of the classes only
(C) To resolve the scope of global variables as well as functions of the classes
(D) None of these

38. Which of the following is true about pure virtual functions?
1. Their implementation is not provided in a class where they are declared.
2. If a class has a pure virtual function, then the class becomes an abstract class and an instance of this class cannot be created.
(A) Both 1 and 250
(B) Only 1
(C) Only 2
(D) Neither 1 nor 2

39. To arrange a binary tree in ascending order we need:
(A) Post order traversal
(B) Pre order traversal
(C) In order traversal
(D) None of the above

40. To arrange the books of library the best method is:
(A) Bubble sort
(B) Quick sort
(C) Merge sort
(D) Heap sort

41. Which of the following is useful in traversing a given graph by breadth first search?
(A) Queue
(B) List
(C) Set
(D) Stack
42. The minimum number of arithmetic operations required to evaluate the polynomial
\[ P(X) = X^3 + 4X^3 + 6X + 5 \]
for a given value of X using only one temporary variable.
(A) 6
(B) 7
(C) 8
(D) 9

43. The primary tool used in the structured design is a:
(A) Structure chart
(B) Data Flow Diagram
(C) Module
(D) None of the above

44. The approach used in top-down analysis and design is:
(A) To identify the top level functions by combining many smaller components into a single entity
(B) To prepare flow charts after programming has been completed
(C) To identify a top level function and then create a hierarchy of lower-level modules and components
(D) None of the above

45. In the system concepts, term Integration:
(A) Implies structure and order
(B) Refers to the holism of systems
(C) Means that parts of the computer system depend on one another
(D) Refers to the manner in which each component functions with other components of the system

46. System prototyping helps the designer in:
(A) Communicating to the user, quickly, how the system, when developed, will look like and get a feedback
(B) Giving a demo of the software, to the system manager to whom he reports
(C) Making the programmers understand how the system will function
(D) None of these

47. Visual Basic responds to events using which of the following?
(A) A code procedure
(B) An event procedure
(C) A form procedure
(D) A property

48. What will be the output of the following statement?
\[ 
\text{txtBox.Text} = \text{FormatCurrency}(1234.567) \]
(A) $1234.567
(B) $1,234.567
(C) $1234.57
(D) $1,234.57

49. Suppose that the selector in a Select Case block is the string variable myVar. Which of the following is NOT a valid Case clause?
(A) Case “Adams”
(B) Case “739”
(C) Case (myVar.Substring(0, 1)
(D) Case myVar.Length

50. Which of the following statements is guaranteed to pass the variable numVar by value to the Sub procedure Tally?
(A) Tally(numVar)
(B) Tally(ByVal numVar)
(C) Tally((numVar))
(D) Tally(ByVal numVar As Double)

51. In SQL, which command is used to make permanent changes made by statements issued since the beginning of a transaction?
(A) ZIP
(B) PACK
(C) COMMIT
(D) SAVE

52. In a relational schema, each tuple is divided into fields called:
(A) Relations
(B) Domains
(C) Queries
(D) All of the above
53. Given relations \( r(w, x) \) and \( s(y, z) \), the result of
“SELECT DISTINCT \( w, x \) FROM \( r, s \)” is
guaranteed to be same as \( r \), provided:
(A) \( r \) has no duplicates and \( s \) is non-empty
(B) \( r \) and \( s \) have no duplicates Queries
(C) \( s \) has no duplicates and \( r \) is non-empty
(D) \( r \) and \( s \) have the same number of tuples

54. \( R(A, B, C, D) \) is a relation. Which of the following
does not have a lossless join, dependency preserving
BCNF decomposition?
(A) \( A->B, B->CD \)
(B) \( A->B, B->C, C->D \)
(C) \( AB->C, C->AD \)
(D) \( A->BCD \)

55. Which image files are a lossy format?
(A) GIF
(B) MPEG
(C) JPEG
(D) PNG

56. Many bitmapped images in a sequence is known
as:
(A) JPEG Animation
(B) Tweening
(C) TIF Animation
(D) GIF Animation

57. A structure of linked elements through which the user
can navigate, interactive multimedia becomes _____.
(A) Hypermedia
(B) Hypertext
(C) Intermedia
(D) Digital media

58. Frames from one LAN can be transmitted to another
LAN via the device:
(A) Router
(B) Modem
(C) Bridge
(D) Repeater

59. In _____ topology if cable breaks, it will stops all
transmission.
(A) Mesh
(B) Bus
(C) Star
(D) Primary

60. What is the main function of transport layer?
(A) Process to process delivery
(B) Node to node delivery
(C) Synchronization
(D) Updating and maintenance of routing tables
Choose the word which is most nearly the SAME in meaning as the word ARDUOUS:

(A) Hazardous  
(B) Difficult  
(C) Different  
(D) Pleasurable

2. The master dispensed the services of his servant.

(A) of  
(B) off  
(C) with  
(D) for

3. PASSAGE:

The New Year is a time for resolutions. Mentally at least, most of us could compile formidable lists of do’s and don’ts. The same old favourites recur year in year out with monotonous regularity. Past experience has taught us that certain accomplishments are beyond attainment. If we remain inveterate smokers, it is only because we have so often experienced the frustration that results from failure. Most of us fail in our efforts at self improvement because our schemes are too ambitious and we never have time to carry them out. We also make the fundamental error of announcing our resolutions to everybody so that we look even more foolish when we slip back into our old bad ways.

The author seems to imply that many are inveterate smokers because:

(A) They have not really tried to give up smoking  
(B) They know from past experience they can succeed in their attempt  
(C) They know from past experience that they can never succeed in their attempt to give up  
(D) They do not have the will power to stop smoking

Choose the word which is most nearly the OPPOSITE in meaning as the word TERRIBLE:

(A) Soothing  
(B) Frightening  
(C) Scaring  
(D) Delectable

5. If \( a : b = 2 : 3 \) and \( b : c = 4 : 3 \), then find \( a : b : c \)

(A) 8 : 12 : 9  
(B) 2 : 3 : 8  
(C) 2 : 3 : 9  
(D) 2 : 3 : 12

6. A train travels for seven hours, the first half of the distance at 60 km/h and the other half at 80 km/h. Find the total distance travelled:

(A) 400 km  
(B) 480 km  
(C) 560 km  
(D) 640 km

7. In a certain coded language, if the word “PLAYER” is coded as “AELPRY”, then how is the word “MANAGER”, coded in that language?

(A) AEAGMNR  
(B) AAGEMNR  
(C) AAEGMNR  
(D) AAEGNMR

8. A’s father’s mother-in-law’s only daughter’s son is B. How is A related to B?

(A) Brother  
(B) Sister  
(C) Nephew  
(D) Cannot be determined

9. For \( S = \) sum of roots and \( P = \) product of roots, quadratic equation is:

(A) \( A \cdot x^2 + Sx + P = 0 \)  
(B) \( A \cdot x^2 + Sx - P = 0 \)  
(C) \( A \cdot x^2 - Sx + P = 0 \)  
(D) \( A \cdot x^2 - Sx - P = 0 \)
10. If \( \log_y y = 100 \) and \( \log_x x = 10 \), then the value of \( y \) is:
   (A) 3^{10}
   (B) 3^{100}
   (C) 3^{1000}
   (D) 3^{10000}

11. In how many ways can we arrange the word "FUZZTONE" so that all the vowels come together?
   (A) 4320
   (B) 2160
   (C) 1440
   (D) 6

12. By simplifying \( [(16x^8y^3)/(2x^2y^2)] \times [x^2y^3/x^3y^2] \), answer will be:
   (A) 16x^5y^4
   (B) 16x^4y^4
   (C) 16x^4y^3
   (D) 16x^5y^3

13. The perpendicular distance of a point \( P(3, 4) \) from the \( y \)-axis is:
   (A) 3
   (B) 4
   (C) 5
   (D) 7

14. The development of cylinder is a:
   (A) Rectangle
   (B) Circle
   (C) Ellipse
   (D) None of the above

15. If \( y = c_1 \log x + c_2 \log c_3 + c_4 e^x + c_5 \) is the general solution of a homogeneous linear differential equation, then the order of the equation is:
   (A) 2
   (B) 3
   (C) 4
   (D) 5

16. Considering Cosine Rule of any triangle \( ABC \), possible measures of angle \( A \) include:
   (A) Angle \( A \) is obtuse
   (B) Angle \( A \) is acute
   (C) Angle \( A \) is right-angled
   (D) All of the above

17. Type of distribution which is useful when occurrences of events are constant is classified as:
   (A) Open frequency distribution
   (B) Class frequency distribution
   (C) Rectangular distribution
   (D) Square distribution

18. Statistical measures such as average deviation, standard deviation and mean are classified as part of:
   (A) Deciles system
   (B) Moment system
   (C) Quartile system
   (D) Percentile system

19. Let \( R \) be a non-empty relation on a collection of sets defined by \( A R B \) if and only if \( A \cap B = \emptyset \) then (pick the TRUE statement):
   (A) \( R \) is reflexive and transitive
   (B) \( R \) is an equivalence relation
   (C) \( R \) is symmetric and not transitive
   (D) \( R \) is not reflexive and not symmetric

20. For a standard normal variate, the value of mean is:
   (A) \( \infty \)
   (B) 1
   (C) 0
   (D) Not defined
21. If the sides of a triangle measure 72, 75 and 21 units, what is the measure of it in radius?
   (A) 37.5 units
   (B) 24 units
   (C) 15 units
   (D) 9 units

22. A 4 cm cube is cut into 1 cm cubes. What is the percentage increase in the surface area after cutting?
   (A) 4%
   (B) 75%
   (C) 300%
   (D) 400%

23. If:

\[
\begin{bmatrix}
  a_{11} & a_{12} \\
  a_{21} & a_{22} \\
  a_{31} & a_{32}
\end{bmatrix}
\begin{bmatrix}
  b_{11} & b_{12} & b_{13} \\
  b_{21} & b_{22} & b_{23} \\
  b_{31} & b_{32} & b_{33}
\end{bmatrix}
\]

Then, order of matrix A = ?
   (A) 2x2
   (B) 2x3
   (C) 3x2
   (D) 3x3

24. Mathematically, what is a differential?
   (A) A gear box on the back end of your car
   (B) A word used a lot on a popular medical television series
   (C) A method of directly relating how changes in an independent variable affect changes in a dependent variable
   (D) A method of directly relating how changes in a dependent variable affect changes in an independent variable

25. What is operating system?
   (A) Collection of programs that manages hardware resources
   (B) System service provider to the application programs
   (C) Link to interface the hardware and application programs
   (D) All of the mentioned

26. Which of the following is a type of program that either pretends to have, or is described as having, a set of useful or desirable features but actually contains damaging code:
   (A) Trojans
   (B) Viruses
   (C) Worms
   (D) Bots

27. The technique used to store programs larger than the memory is ______.
   (A) Overlays
   (B) Extension registers
   (C) Buffers
   (D) Both (B) and (C)

28. The control unit of a computer controls other units by generating ______.
   (A) Control signals
   (B)Timing signals
   (C) Transfer signals
   (D) Command signals

29. The result obtained after (100101 – 011110) is:
   (A) 000111
   (B) 111000
   (C) 010101
   (D) 101010

30. Floating-point numbers are normally a multiple of size of a:
   (A) Bit
   (B) Nibble
   (C) Word
   (D) Byte
31. The type of control signals generated are generated based on:
   (A) Contents of the step counter
   (B) Contents of IR
   (C) Contents of condition flags
   (D) All of the mentioned

32. The spatial aspect of the locality of reference means:
   (A) That the recently executed instruction is executed again next
   (B) That the recently executed won’t be executed again
   (C) That the instruction executed will be executed at a later time
   (D) That the instruction in close proximity of the instruction executed will be executed in future

33. Which of the following is a correct format for declaration of function?
   (A) Return-type function-name (argument type);
   (B) Return-type function-name (argument type) {} 
   (C) Return-type (argument type) function-name;
   (D) All of the mentioned

34. Which of the following is not possible in C?
   (A) Array of function pointer
   (B) Returning a function pointer
   (C) Comparison of function pointer
   (D) None of the mentioned

35. False statements about function overloading is:
   (A) Defining multiple functions with same name in a class is called function overloading
   (B) Overloaded functions must differ in their order and types of arguments
   (C) Overloaded functions should be preceded with virtual keyword
   (D) No statement is false

36. Pick out the correct statement:
   (A) A friend function may be a member of another class
   (B) A friend function may not be a member of another class
   (C) A friend function may or may not be a member of another class
   (D) None of the above

37. Relational Algebra is a ______ query language that takes two relations as input and produces another relation as output of the query.
   (A) Relational
   (B) Structural
   (C) Procedural
   (D) Fundamental

38. Which of the following is correct?
   (A) SQL query automatically eliminates duplicates
   (B) SQL permits attribute names to be repeated in the same relation
   (C) SQL query will not work if there are no indexes on the relations
   (D) None of these

39. A transaction is delimited by statements (or function calls) of the form ______.
   (A) Begin transaction and end transaction
   (B) Start transaction and stop transaction
   (C) Get transaction and post transaction
   (D) Read transaction and write transaction

   ______ refers to the ability of the system to recover committed transaction updates if either the system or the storage media fails.
   (A) Isolation
   (B) Atomicity
   (C) Consistency
   (D) Durability
41. Which of the following statement(s) about stack data structure is/are NOT correct?
   (A) Linked lists are used for implementing stacks
   (B) Top of the stack always contains the new node
   (C) Stack is the FIFO data structure
   (D) Null link is present in the last node at the bottom of the stack

42. Which of the following is not true about QuickSort?
   (A) In-place algorithm
   (B) Pivot position can be changed
   (C) Adaptive sorting algorithm
   (D) Can be implemented as a stable sort

43. What are the applications of binary search?
   (A) To find the lower/upper bound in an ordered sequence
   (B) Union of intervals
   (C) Debugging
   (D) All of the above

44. Which of the following algorithms can be used to most efficiently determine the presence of a cycle in a given graph?
   (A) Depth First Search
   (B) Breadth First Search
   (C) Prim’s Minimum Spanning Tree Algorithm
   (D) Kruskal’s Minimum Spanning Tree Algorithm

45. In a DFD external entities are represented by a:
   (A) Rectangle
   (B) Ellipse
   (C) Diamond shaped box
   (D) Circle

46. Which of the models is used for system components?
   (A) PERT chart
   (B) Gantt chart
   (C) Organizational Hierarchy Chart
   (D) DFD

47. A data dictionary has information about:
   (A) Every data element in a data flow
   (B) Only key data element in a data flow
   (C) Only important data elements in a data flow
   (D) Only numeric data elements in a data flow

48. The CASE repository:
   (A) Works as storage for the diagrams and project data
   (B) Provides valuable information to the project manager
   (C) Both (A) and (B)
   (D) None of the above

49. All the classes necessary for windows programming are in the module:
   (A) win.txt
   (B) win.std
   (C) win.main
   (D) None of these

50. The function procedures in Visual Basic are ______ by default.
   (A) Public
   (B) Private
   (C) Protected
   (D) None of the above

51. The arguments appearing in a call statement must match the parameters in the appropriate Sub or Function header in all but one of the following ways. Which one?
   (A) Number of arguments
   (B) Name of arguments
   (C) Data type of arguments
   (D) Order of arguments
52. The properties window plays an important role in the development of Visual Basic Applications. It is mainly used:
   (A) To change how objects look and feel
   (B) When opening programs stored on a hard drive
   (C) To allow the developer to graphically design program components
   (D) To set program related options like Program Name, Program Location, etc

53. Which one of the following is the characteristic of a multimedia system?
   (A) High storage
   (B) High data rates
   (C) Both (A) and (B)
   (D) None of the mentioned

54. Short films that use stop motion techniques are what type of animation?
   (A) Frame-based animation
   (B) HTML
   (C) Animation
   (D) Production

55. HTML uses:
   (A) User defined tags
   (B) Pre-specified tags
   (C) Fixed tags defined by the language
   (D) Tags only for linking

56. In HTML form `<input type = "text">` is used for:
   (A) Block of text
   (B) One line text
   (C) One paragraph
   (D) None

57. Communication between a computer and a keyboard involves _______ transmission.
   (A) Automatic
   (B) Half duplex
   (C) Full duplex
   (D) Simplex

58. Fiber optics possess following properties:
   (A) Immune electromagnetic interference
   (B) Very less signal attenuation
   (C) Very hard to tap
   (D) All of the above

59. This layer is an addition to OSI model:
   (A) Application layer
   (B) Presentation layer
   (C) Session layer
   (D) Both (B) and (C)

60. Physical or logical arrangement of network is:
   (A) Topology
   (B) Routing
   (C) Networking
   (D) None of the mentioned
ENTRANCE TEST-2017

SCHOOL OF APPLIED SCIENCES AND TECHNOLOGY
MCA

Total Questions : 60
Time Allowed : 70 Minutes

Instructions for Candidates:
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3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.

4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.

5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.

6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.

7. There will be ‘Negative Marking’ for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.

8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.

9. Do not make any stray mark on the OMR sheet.

10. Calculators and mobiles shall not be permitted inside the examination hall.

11. Rough work, if any, should be done on the blank sheets provided with the question booklet.

12. OMR Answer sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.

13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/herself.

14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate’s Copy to the candidate.

DAJ-11111-A
1. In the following question three statements are followed by a conclusion. Study the statements and the conclusion and point out which statement studied together will bring to the conclusion.

**Statements:**

i. Price rise is a natural phenomenon
ii. If production increases prices fall
iii. High prices affect the poor

**Conclusion:** If production rises the poor feel relieved.

Answer choices:

(A) Only i and ii
(B) Only i and iii
(C) Only ii and iii
(D) Data Insufficient

2. Which should be the next two numbers in the series 28 25 5 21 18 5 14 ?

(A) 11, 5
(B) 10, 7
(C) 11, 8
(D) 5, 10

3. If 3/4 of a number is equal to 2/3 of another number, what is the ratio between these two numbers ?

(A) 3 : 4
(B) 5 : 6
(C) 8 : 9
(D) 9 : 10

4. A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is:

(A) 100 kmph
(B) 105 kmph
(C) 115 kmph
(D) 120 kmph

5. The meaning of word EGRESS is

(A) Entrance
(B) Exit
(C) Double
(D) Program

6. Find the synonym that is most nearly similar in meaning to the word CLANDESTINE

(A) abortive
(B) secret
(C) tangible
(D) doomed

**Directions: Questions 7 and 8.**
Read the passage and select the most suitable answer to questions from the given choices.

Observe the dilemma of the fungus: It is a plant, but it possesses no chlorophyll. While all other plants put the sun’s energy to work for them combining the nutrients of ground and air into the body structure, the chlorophylls must look elsewhere for energy supply. It finds it in those other plants which, having received their energy free from the sun, relinquish it at some point in their cycle either to animals (like us humans) or to the fungi.

In this search for energy the fungus has become the earth’s major source of rot and decay. Wherever you see mould forming on a piece of bread, or a pile of leaves turning to compost, or a blown-down tree becoming pulp on the ground, you are watching a fungus eating. Without fungus action the earth would be piled high with the dead plant life of past centuries. In fact, certain plants which contain resins that are toxic to fungi will last indefinitely; specimens of the redwood, for instance, can still be found resting on the forest floor centuries after having been blown down.

7. The passage states all the following about fungi EXCEPT:

(A) They are responsible for the decomposition of much plant life
(B) They cannot live completely apart from other plants
(C) They are vastly different from other plants
(D) They are poisonous to resin producing plants

8. The passage is primarily concerned with

(A) Warning people of the dangers of fungi
(B) Rot and decay of plants in nature
(C) Describing the action of fungi
(D) Relating how most plants use solar energy
9. The circle $x^2 + y^2 = 9$ is contained in the circle $x^2 + y^2 - 6x - 8y + 25 = c^2$ if
   (A) $c = 2$
   (B) $c = 3$
   (C) $c = 5$
   (D) $c = 10$

10. The eccentricity of ellipse $9x^2 + 5y^2 - 30y = 0$ is
    (A) $1/3$
    (B) $2/3$
    (C) $3/4$
    (D) $1/4$

11. If $\tan \theta = b/a$ then the value of $a \cos 2\theta + b \sin 2\theta$ is
    (A) $b$
    (B) $a$
    (C) $a/b$
    (D) $a/(a+b)$

12. Classify the following differential equation $e^x dy/dx + 3y = x^2 y$
    (A) Separable and not linear
    (B) Linear and not separable
    (C) Neither separable nor linear
    (D) Both separable and linear

13. If $\alpha, \beta$ are the roots of the equation $x^2 - 2x - 1 = 0$ then the value of $\alpha^2 + \beta^2$ is
    (A) 64
    (B) 6
    (C) 256
    (D) 132

14. The coefficient of the fourth term in the binomial expansion of $(x + y)^8$
    (A) 10
    (B) 15
    (C) 22
    (D) 25

15. How many ways a 6 member team can be formed having 3 men and 3 ladies from a group of 6 men and 7 ladies?
    (A) 650
    (B) 700
    (C) 750
    (D) 520

16. $\log \frac{a}{b} + \log \frac{b}{a} = \log (a+b)$, then:
    (A) $a - b = 1$
    (B) $a = b$
    (C) $a^2 - b^2 = 1$
    (D) $a + b = 1$

17. A random variable $X$ has the following probability distribution:

<table>
<thead>
<tr>
<th>X</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>P(X=x)</td>
<td>A</td>
<td>3a</td>
<td>5a</td>
<td>7a</td>
<td>9a</td>
<td>11a</td>
<td>13a</td>
<td>15a</td>
<td>17a</td>
</tr>
</tbody>
</table>

    Then the value of ‘a’ is
    (A) 1/81
    (B) 2/81
    (C) 5/81
    (D) 7/81

18. What is the probability that a number selected from numbers [1, 30] is prime number?
    (A) 1/3
    (B) 2/7
    (C) 5/9
    (D) 5/30

19. The mean of first $n$ natural numbers is equal to $(n+7)/3$ then ‘$n$’ is equal to
    (A) 9
    (B) 10
    (C) 11
    (D) 12

20. In a Poisson distribution if $P(X=3) = 1/4 P(X=4)$ then $P(X=5) = k P(X=7)$ where $k$ equals to:
    (A) 1/7
    (B) 21/128
    (C) 128/21
    (D) 21/256

21. Matrix $A$ will not be transformed into an identity matrix if matrix is
    (A) singular
    (B) non-singular
    (C) identified
    (D) unidentified
22. Result of square matrix will be inverse when all columns or rows are
   (A) linearly dependant
   (B) linearly independent
   (C) identity dependence
   (D) identity independence

23. In matrices, determinant of a matrix is denoted by
   (A) vertical lines around matrix
   (B) horizontal lines around matrix
   (C) bracket around matrix
   (D) none of above

24. If A is a matrix of order $m \times n$ and B is a matrix of order $n \times p$ then order of $AB$ is
   (A) $p \times m$
   (B) $p \times n$
   (C) $n \times p$
   (D) $m \times p$

25. Domain constraints, functional dependency and referential integrity are special forms of ____.
   (A) Foreign key
   (B) Primary key
   (C) Assertion
   (D) Referential constraint

26. Which of the following is not integrity constraint?
   (A) Not null
   (B) Positive
   (C) Unique
   (D) Check ‘predicate’

27. Which of the join operations do not preserve non matched tuples?
   (A) Left outer join
   (B) Right outer join
   (C) Inner join
   (D) None

28. The basic data type char(n) is a ______ length character string and varchar(n) is ______ length character.
   (A) Fixed, equal
   (B) Equal, variable
   (C) Fixed, variable
   (D) Variable, equal

29. Which of the following file organizations is most efficient for a file with a high degree of file activity?
   (A) Sequential
   (B) ISAM
   (C) VSAM
   (D) B-Tree Index

30. Which company is the biggest player in the microprocessor industry?
   (A) Motorola
   (B) IBM
   (C) Intel
   (D) AMD

31. The first digital computer built with IC chips was known as
   (A) IBM 7090
   (B) Apple ? l
   (C) IBM System / 360
   (D) VAX-10

32. EBCDIC can code up to how many different characters?
   (A) 256
   (B) 16
   (C) 32
   (D) 64

33. A microprocessor has a data bus with 64 lines and address bus with 32 lines. The maximum number of bits that can be stored in memory is:
   (A) $32 \times 232$
   (B) $32 \times 264$
   (C) $64 \times 232$
   (D) $64 \times 264$

34. Memory address refers to the successive memory words and the machine is called as ______.
   (A) word addressable
   (B) byte addressable
   (C) bit addressable
   (D) Terra byte addressable
35. PC Program Counter is also called _______.
   (A) memory pointer
   (B) instruction pointer
   (C) data counter
   (D) file pointer

36. The access time of memory is _______ the time required for performing any single CPU operation.
   (A) Longer than
   (B) Shorter than
   (C) Negligible than
   (D) Same as

37. Visual Basic forms are identified by a:
   (A) "form" suffix
   (B) "frm" suffix
   (C) A special icon

38. To run an application in Visual Basic:
   (A) Click on the start button (blue arrow)
   (B) Use the File Menu
   (C) Use the Project Menu to select Run
   (D) None of the above

39. To exit Visual Basic:
   (A) Use the File Menu to select Quit
   (B) Use the Window Menu to select Exit
   (C) Click Alt-Q
   (D) Click on the diskette icon

40. The reference library of Visual Basic books is called:
   (A) MSDN Library
   (B) Help Library
   (C) Contents
   (D) Topic pane

41. When collection of various computers seems a single coherent system to its client, then it is called
   (A) computer network
   (B) distributed system
   (C) both (A) and (B)
   (D) none of the mentioned

42. Two devices are in network if
   (A) a process in one device is able to exchange information with a process in another device
   (B) a process is running on both devices
   (C) PIDs of the processes running of different devices are same
   (D) none of the mentioned

43. Which one of the following computer networks is built on the top of another network?
   (A) prior network
   (B) chief network
   (C) prime network
   (D) overlay network

44. In computer network nodes are
   (A) the computer that originates the data
   (B) the computer that routes the data
   (C) the computer that terminates the data
   (D) all of the mentioned

45. Interleaving the audio and video segments of a video clip together in a data file is:
   (A) Flare
   (B) Flattening
   (C) Hot Spot
   (D) Helical Scan

46. The rank of the matrix
    \[
    \begin{bmatrix}
    1 & 2 & -1 & 3 \\
    3 & 4 & 0 & -1 \\
    -1 & 0 & -2 & 7
    \end{bmatrix}
    \]
    is :
    (A) 1
    (B) 2
    (C) 3
    (D) 4

47. Space between lines:
   (A) Leading
   (B) Keming
   (C) Extrude
   (D) Expanded

48. The visual representation of a project that includes a table of contents as well as a chart of the logical flow of the interactive interface is often called
   (A) A master layout
   (B) A navigation map
   (C) A workflow diagram
   (D) A prototype
49. The make-or-buy decision is associated with the _______ step in the SDLC.
   (A) Problem/Opportunity Identification
   (B) Design
   (C) Analysis
   (D) Development and Documentation

50. In the Analysis phase, the development of the _______ occurs, which is a clear statement of the goals and objectives of the project.
   (A) documentation
   (B) flowchart
   (C) program specification
   (D) design

51. Actual programming of software code is done during the _______ step in the SDLC.
   (A) Maintenance and Evaluation
   (B) Design
   (C) Analysis
   (D) Development and Documentation

52. Enhancements, upgrades, and bug fixes are done during the _______ step in the SDLC.
   (A) Maintenance and Evaluation
   (B) Problem/Opportunity Identification
   (C) Design
   (D) Development and Documentation

53. When determining the efficiency of algorithm, the space factor is measured by
   (A) Counting the maximum memory needed by the algorithm
   (B) Counting the minimum memory needed by the algorithm
   (C) Counting the average memory needed by the algorithm
   (D) Counting the maximum disk space needed by the algorithm

54. When determining the efficiency of algorithm, the time factor is measured by
   (A) Counting microseconds
   (B) Counting the number of key operations
   (C) Counting the number of statements
   (D) Counting the kilobytes of algorithm

55. The operation of processing each element in the list is known as
   (A) Sorting
   (B) Merging
   (C) Inserting
   (D) Traversal

56. Arrays are best data structures
   (A) for relatively permanent collections of data
   (B) for the size of the structure and the data in the structure are constantly changing
   (C) for both of above situations
   (D) for none of above situations

57. Which of the following statements is correct?
   (A) A constructor is called at the time of declaration of an object.
   (B) A constructor is called at the time of use of an object.
   (C) A constructor is called at the time of declaration of a class.
   (D) A constructor is called at the time of use of a class.

58. Which of the following correctly describes overloading of functions?
   (A) Virtual polymorphism
   (B) Transient polymorphism
   (C) Ad-hoc polymorphism
   (D) Pseudo polymorphism

59. Which of the following concepts means adding new components to a program as it runs?
   (A) Data hiding
   (B) Dynamic typing
   (C) Dynamic binding
   (D) Dynamic loading

60. Which of the following problems causes an exception?
   (A) Missing semicolon in statement in main().
   (B) A problem in calling function
   (C) A syntax error.
   (D) A run-time error
ENTRANCE TEST-2016

FACULTY OF APPLIED SCIENCE & TECHNOLOGY

MASTER OF COMPUTER APPLICATIONS (MCA)

Question Booklet Series A

Total Questions : 60
Time Allowed : 70 Minutes

Instructions for Candidates:

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1. Majid makes Tea. Which among the following is correct?
   (A) Tea has made by Majid  (B) Tea is made by the Majid
   (C) Tea was made by Majid  (D) Tea is made by Majid

2. The Phrase Wild Goose Chase means:
   (A) Collective effort  (B) Hard work
   (C) Very profitable  (D) Unprofitable

3. Solve the Narration: [Rahul said to me, “I had gone through it.”]
   (A) Rahul told me that he have went through it
   (B) Rahul told me that he had gone through it
   (C) Rahul told me that he had went through it
   (D) Rahul told me that he gone through it

4. Choose the Correct Spelling:
   (A) Zigzagged  (B) Zigzagged
   (C) Zigzagged  (D) Zigzagged

5. Antonym of DOCILE:
   (A) Pliant  (B) Pliable
   (C) Unyielding  (D) Quiet

Read the Passage below and solve Questions from 6 to 9:

The enjoyment of physical possession of things would seem to be one of the
prerogatives of wealth which has been little impaired. Presumably nothing has
happened to keep the man who can afford them from enjoying his Rembrandt and
his homegrown orchids. But enjoyment of things has always been associated with
the third prerogative of wealth which is the distinct it confers. In a world where nearly
everyone was poor, the distinction was very great. It was the natural consequence of
rarity. In England it is widely agreed, the ducal families are not uniformly superior.
There is a roughly normal incidence of intelligence and stupidity, good taste and bad
taste, morality, immorality. But very few people are dukes and duchesses, although
the later have become rather more frequent with modern easing of divorce laws. As
a result, even though they may be intrinsically unexceptional they are regarded with some awe. So it has long been with the rich. Were dukes numerous their position would deteriorate. As the rich have become more numerous, they have inevitably become a debased currency.

6. The distinction conferred by wealth:
   (A) Was unfair to the poor
   (B) Was unlikely to spread throughout the world
   (C) Was very great when there were few rich people
   (D) Was very great when there were many rich people

7. The enjoyment of the physical possession of things:
   (A) Is one of the privileges of wealth which has not been changed
   (B) Is one of the privileges of wealth which should be curtailed
   (C) Has little to do with the prerogatives of wealth
   (D) Is a prerogative of wealth which cannot be disputed

8. Ducal families in England:
   (A) Are generally agreed to be fairly common
   (B) Are generally agreed to be fairly superior
   (C) Are superior because they are rich
   (D) Are generally agreed not to be always better than others

9. There are more duchesses now because:
   (A) It is easier for dukes to divorce and remarry
   (B) Dukes are more immoral than they used to be
   (C) Their position has deteriorated
   (D) They are debased

10. What is the remainder if the number 3 × 9 is divided by 5?
    (A) 1
    (B) 2
    (C) 3
    (D) 4
11. Total number of factors of 576 is:
   (A) 18    (B) 19
   (C) 20    (D) 21

12. If a student walks from his house to school at 5 Kms/h, he is late by 30 minutes. However if he walks at 6km/h, he is late by 5 min only. The distance from school to his house is kms:
   (A) 6.5  (B) 12.5
   (C) 2.5  (D) 15

13. A is twice as fast as B and B is thrice as fast as C. The Journey covered by C in 54 min. will be covered by B in __________ min.
   (A) 18  (B) 12
   (C) 38  (D) 9

14. A and B can do work in 12 days, B and C in 15 days, C and A in 20 Days. How long would each take separately to do the same work? Values of A, B and C are:
   (A) 10, 20 and 30  (B) 20, 30 and 60
   (C) 30, 20 and 60  (D) 60, 30 and 20

15. In a certain class, the ratio of passing grades to failing grades is 7 to 5. How many of the 36 students failed the course?
   (A) 20  (B) 15
   (C) 10  (D) 25

16. A’s father is B’s son-in-law. C, A’s sister, is the daughter of P. How is P related to B?
   (A) Brother  (B) Father
   (C) Grandfather (D) Cannot be determined

17. A is the son of B. C, B’s sister has a son D and a daughter E. F is the maternal uncle of D. How is E related to F?
   (A) Sister  (B) Mother
   (C) Cousin  (D) Niece
18. What is the 38th term of the following sequence 1, 3, 9, 27, 81, ...?
   (A) \( 1 \times 3^{37} \)  (B) \( 2 \times 3^{37} \)
   (C) \( 1 \times 3^{38} \)  (D) \( 2 \times 3^{38} \)

19. Each term in the following sequence is \(-4\) times the previous term. The value of \(xy\) is given by:
   \(x, y, -64, 256, ...\):
   (A) -64  (B) -4
   (C) 64   (D) -16

20. Captain is related to Soldier as Leader is related to:
   (A) Follower  (B) Chair
   (C) Party     (D) Minister

21. Video is related to Cassette as Computer is related to:
   (A) Reels   (B) Recording
   (C) Floppy  (D) Files

22. Choose the pair group of words for Jackal: Dog.
   (A) Crow : Bat  (B) Orange : Lemon
   (C) Tiger : Wolf (D) None of the above

23. Find the odd Man out for the word FRIENDSHIP:
   (A) FRIEND  (B) SHIP
   (C) FRESH   (D) DRIP

24. In a certain code language BOY is written as \$\$. and HOUR is written as @*£0.
   How is RUBY written in Char Code?
   (A) 0 £ $.  (B) £ $. 0
   (C) . £ $ 0 (D) None of the above

25. If FRIEND is coded as HUMJTK, how is CANDLE written in that code?
   (A) FYOBOC  (B) DCQHQK
   (C) DEQJQM   (D) EDRIRL

CWG-33123-A
26. Rahim walks 9 kms East, turns South-West and walks another 8 Kms. He again takes a turn towards North-West and walks another 8 kms. In which direction from his starting point is he standing now?
   (A) North East  (B) South East
   (C) West        (D) East

27. In rule method the null is represented by:
   (A) [ ]  (B) $\emptyset$
   (C) [x: x=x] (D) [x: x $\neq$ x]

28. If A and B are having 99 elements in common, then number of elements common to each of the sets A $\times$ B and B $\times$ A are:
   (A) $2^{99}$  (B) $99^2$
   (C) 100      (D) 9

29. Solution of $|3x - 2| \geq 1$ is:
   (A) [1/3,1]  (B) (1/3,1)
   (C) {1/3,1}  (D) ($-\infty$, 1/3] $\cup$ [1, $\infty$)

30. If $a^2 + b^2 + c^2 = 1$ then $b + ca + ab$ lies in the interval:
   (A) [-1/2,1]  (B) [0,1/2]
   (C) [0,1]     (D) [1,2]

31. If coefficients of (2r+1)th term and (r+2)th term are equal in the expansion of $(1+x)^{15}$ then the value of r will be:
   (A) 13  (B) 14
   (C) 15  (D) 16

32. The system of equations:
   $\alpha x + y + z = \alpha - 1$
   $x + \alpha y + z = \alpha - 1$
   $x + y + \alpha z = \alpha - 1$
   has no solution if $\alpha$ is
   (A) Not $-2$  (B) 1
   (C) $-2$      (D) either $-2$ or 1

CWG-33123-A  6
   *
33. \( f(x) = |x| - 1 \) is not differentiable at:
   (A) 0                  (B) \( \pm 1, 0 \)
   (C) 1                  (D) \( \pm 1 \)

34. Which of the statements is true?
   (A) A differentiable function is an increasing function
   (B) An increasing function is continuous
   (C) A continuous function is differentiable
   (D) A differentiable function is continuous

35. Derivative of \( f(x) = \frac{|x|}{x} \) is:
   (A) 2x                  (B) \(-2x\)
   (C) \(2x^2\)            (D) \(2|x|\)

36. Area inside Parabola \( y^2 = 4ax \) between the lines \( x = a \) and \( x = 4a \) is equal to:
   (A) \(4a^2\)            (B) \(8a^2\)
   (C) \(28a^2/3\)         (D) \(35a^2/3\)

37. The solution of \((xy \cos xy + \sin xy) dx + x^2 \cos xy dy = 0\) is:
   (A) \(x \sin(xy) = k\)  (B) \(x/y \sin(xy)\)
   (C) \(xy \sin(xy) = k\) (D) None of the above

38. The solution of differential equation \(x \, dy + y \, dx = 0\) represents:
   (A) Rectangular Hyperbola
   (B) Straight Line Passing through origin
   (C) Parabola whose vertex is at origin
   (D) Circle whose center is at origin

39. The lines:
   \((p - q)x + (q - r)y + (r - p) = 0\)
   \((r - q)x + (r - p)y + (p - q) = 0\)
   \((r - p)x + (p - q)y + (q - r) = 0\)
   are
   (A) Parallel              (B) Perpendicular
   (C) Concurrent           (D) None of the above

CWG-33123–A  

* Turn over
40. The value of x for maximum value of (√3 \sin x + \cos x) is:
   (A) 30°  \hspace{1cm}  (B) 45°  \hspace{1cm}  (C) 60°  \hspace{1cm}  (D) 90°

41. If a dice is thrown 5 times then the probability of getting 6 exactly 3 times is:
   (A) \frac{125}{388}  \hspace{1cm}  (B) \frac{125}{3888}  \hspace{1cm}  (C) \frac{625}{23328}  \hspace{1cm}  (D) \frac{250}{2332}

42. A coin is tossed 3 times. The probability of getting exactly 2 heads is:
   (A) \frac{3}{8}  \hspace{1cm}  (B) \frac{1}{2}  \hspace{1cm}  (C) \frac{1}{4}  \hspace{1cm}  (D) None of these

43. The ratio of surface area of spheres be 4 : 5 the ratio of their volumes is:
   (A) 4 : 25  \hspace{1cm}  (B) 25 : 4  \hspace{1cm}  (C) 125 : 8  \hspace{1cm}  (D) 8 : 125

44. In which major piece of equipment is the highest residual charge stored?
   (A) Power Unit of the System  \hspace{1cm}  (B) The Chip  \hspace{1cm}  (C) The UPS  \hspace{1cm}  (D) The CRT Monitor

45. Which of the following would be the correct description for WORM virus?
   (A) It infects the boot sector  \hspace{1cm}  (B) It propagates through internet and email  
   (C) It has no effect increasing the internet traffic  \hspace{1cm}  (D) It alters the folder structure

46. Which is reserved address for private networks?
   (A) 10.0.0.0 to 10.255.255.255  \hspace{1cm}  (B) 128.0.0.0 to 191.255.255.255  
   (C) 150.0.0.0 to 150.255.255.255  \hspace{1cm}  (D) 202.40.55.0 to 202.40.55.255

47. Error detection at Data Link Level is achieved by:
   (A) Bit Stuffing  \hspace{1cm}  (B) Cyclic Redundancy Codes  
   (C) Hamming Codes  \hspace{1cm}  (D) Both (B) & (C)
48. What is the use of Web Font in HTML?
   (A) Core font used to develop web pages
   (B) Enables use of fonts over web without installation
   (C) Special font developed by Microsoft
   (D) All of the above

49. An interface that provides a method for transferring binary information between internal storage and external devices is called:
   (A) I/O Interface
   (B) I/O Bus
   (C) Input Interface
   (D) Output Interface

50. MRI indicates:
   (A) Memory Reference Information
   (B) Memory Reference Instruction
   (C) Memory Register Instruction
   (D) Memory Register Information

51. The process of accessing data stored in a serial access memory is similar to manipulating data on a:
   (A) Heap
   (B) Stack
   (C) Binary Tree
   (D) Queue

52. Consider the following recursive C function that takes two arguments.
    unsigned int foo(unsigned int n,unsigned int r) {if(n>0)return((n%r)+foo(n/r,r)); else return 0;} What is value of function foo when it called as foo(512,2) ?
   (A) 2
   (B) 4
   (C) 8
   (D) 16

53. What will be the output of following program?
    main()
    {
     int x=15;
     printf("%d\n",x!=15, x=20, x<30);
    }
   (A) Error
   (B) 0, 0,1
   (C) 0, 20,1
   (D) 15, 20, 30
54. A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible, is known as:
   (A) Full Binary Tree   (B) AVL Tree
   (C) Complete Binary Tree (D) Threaded Tree

55. An entity instance is a single occurrence of a/an:
   (A) Relationship Type   (B) Entity and Relationship type
   (C) Entity Type         (D) None of the above

56. Which of the following relational algebra operations do not require the participating tables to be union-compatible?
   (A) Union            (B) Intersection
   (C) Difference       (D) Join

57. Which of the following statements is true?
   (A) Paging is faster than Segmentation
   (B) Segmentation is faster than Paging
   (C) Paging and Segmentation have equal speed
   (D) None of the above

58. In order to allow only one process to enter its critical section, binary semaphore are initialized to:
   (A) -1    (B) 2
   (C) 1     (D) 0

59. What will be the result of the expression 13 & 25 ?
   (A) 38    (B) 9
   (C) 25    (D) 12

60. In C++ the operator that cannot be overloaded is:
   (A) ++    (B) ~
   (C) ::     (D) ()
Master of Computer Applications /A

1. A matrix $A = [a_{ij}]$ of order $2 \times 3$ whose elements are such that $a_{ij} = i + j$, is:
   (A) $\begin{bmatrix} 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$
   (B) $\begin{bmatrix} 2 & 3 & 4 \\ 5 & 4 & 3 \end{bmatrix}$
   (C) $\begin{bmatrix} 2 & 3 & 4 \\ 5 & 5 & 4 \end{bmatrix}$
   (D) None of these

2. If $A = \begin{bmatrix} -1 & 2 \\ 3 & -4 \end{bmatrix}$, then element $a_{12}$ of $A^2$ is:
   (A) 22
   (B) $-15$
   (C) $-10$
   (D) 7

3. If $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ then $A^2 + 2A$ equals:
   (A) $A$
   (B) $2A$
   (C) $3A$
   (D) $4A$

4. If $\Delta = \begin{bmatrix} 1 & 3 & 1 \\ 2 & -1 & 1 \\ 0 & 4 & 2 \end{bmatrix}$, the value of $\begin{bmatrix} 4 & 12 & 4 \\ 8 & -4 & 4 \\ 0 & 16 & 8 \end{bmatrix}$ is:
   (A) $12\Delta$
   (B) $64\Delta$
   (C) $42\Delta$
   (D) $4\Delta$

5. If $\tan A = 1/2$ and $\tan B = 1/3$, then the value of $A + B$ i.e. $\tan^{-1}1/2 + \tan^{-1}1/3$ is:
   (A) $\pi/6$
   (B) $\pi$
   (C) Zero
   (D) $\pi/4$
6. Which of the following is correct?
   (A) \(2 \sin A \cos B = \sin(A + B) + \cos(A + B)\)
   (B) \(2 \sin A \cos B = \sin(A - B) - \sin(A + B)\)
   (C) \(2 \sin A \sin B = \cos(A + B) - \cos(A - B)\)
   (D) \(2 \sin A \sin B = \cos(A - B) - \cos(A + B)\)

7. \(2 \sin \left( \frac{5\pi}{12} \right) \sin \left( \frac{\pi}{12} \right)\) equals:
   (A) \(-1/2\)  (B) \(1/2\)
   (C) \(1/4\)  (D) \(1/6\)

8. A tower is \(100\sqrt{3}\) m high. Find the angle of elevation of its top from a point 100 m away from its foot:
   (A) \(\theta = 60^\circ\)  (B) \(\theta = 45^\circ\)
   (C) \(\theta = 30^\circ\)  (D) \(\theta = 22\frac{1}{2}^\circ\)

9. The angle of depression of a point situated at a distance of 70 m from the base of a tower is \(45^\circ\). The height of the tower is:
   (A) \(70\sqrt{2}\) m  (B) \(70\) m
   (C) \(70\) m  (D) \(35\) m

10. The radius of a cylinder is same as that of a sphere. Their volumes are equal. The height of the cylinder is how many times of its radius?
    (A) \(1/2\)  (B) \(2/4\)
    (C) \(2/3\)  (D) \(4/3\)

11. How many metres of cloth 2.5 m wide will be required to make a conical tent whose base radius is 7 m and height is 24 m?
    (A) 120 m  (B) 180 m
    (C) 220 m  (D) 550 m

12. A metal ring whose radii are 5 cm and 3 cm, then the area of a ring is:
    (A) \(8 \pi\) cm\(^2\)  (B) \(12 \pi\) cm\(^2\)
    (C) \(16 \pi\) cm\(^2\)  (D) \(24 \pi\) cm\(^2\)

CLM-53702-A 3
13. The angle $\theta$ between two lines whose slopes are $m_1$ and $m_2$ is:

(A) $\tan \theta = \frac{m_1 - m_2}{1 + m_1 m_2}$

(B) $\tan \theta = \frac{m_1 + m_2}{1 - m_1 m_2}$

(C) $\tan \theta = \frac{m_1 - m_2}{1 - m_1 m_2}$

(D) $\tan \theta = \frac{m_1 + m_2}{1 + m_1 m_2}$

14. Length of major axis is three times the length of minor axis, then eccentricity is:

(A) $\frac{1}{3}$

(B) $\frac{\sqrt{3}}{3}$

(C) $\frac{1}{\sqrt{2}}$

(D) $2\frac{2}{\sqrt{3}}$

15. The equation of a line passing through $(x_1, y_1)$ and making an angle $\alpha$ with the line $y = mx + C$ is given by:

(A) $y - y_1 = \frac{m \pm \tan \alpha}{1 \pm m \tan \alpha} (x - x_1)$

(B) $y + y_1 = \frac{m \pm \tan \alpha}{1 \pm m \tan \alpha} (x + x_1)$

(C) $y - y_1 = \frac{m \pm \tan \alpha}{1 \pm m \tan \alpha} (x + x_1)$

(D) $y + y_1 = \frac{m \pm \tan \alpha}{1 \pm m \tan \alpha} (x - x_1)$

16. Sum of all the angles of a hexagon is:

(A) $180^\circ$

(B) $360^\circ$

(C) $720^\circ$

(D) $900^\circ$

17. The distance between $P(3, -2)$ and $Q(-7, -5)$ is:

(A) $\sqrt{115}$

(B) $\sqrt{109}$

(C) $\sqrt{91}$

(D) $11$
18. If the following words are arranged in an alphabetical order, which word will appear in the middle:
   (A) Principal  (B) Principle
   (C) Principia  (D) Priceless

19. “Dearth” is related to “Scarcity” in the same way as “Substitute” is related to:
   (A) Replace  (B) Rumour
   (C) Destroy  (D) Assume

20. If TEMPLE is coded as VHQNIA, how would you code CHURCH?
    (A) EKYWI  (B) EKYQZD
    (C) EKYPZD  (D) EKYQWD

21. If it is possible to form a word with the first, fourth, seventh and eleventh letters of the word SUPERFLIOUS, write the first letter of that word:
    (A) S  (B) L
    (C) O  (D) E

22. Introducing Asha to guests, Bhaskar said, “Her father is the only son of my father”. How is Asha related to Bhaskar?
    (A) Daughter  (B) Mother
    (C) Sister  (D) Niece

23. Pointing towards a woman in a photograph, Vijay said, “She is the daughter of the father of the sister of my brother”. How is the lady in the photograph related to Vijay?
    (A) Daughter  (B) Wife
    (C) Mother  (D) None of these

24. In 10 years, A will be twice as old as B was 10 years ago. If at present A is 9 years older than B, the present age of B is:
    (A) 19 years  (B) 29 years
    (C) 39 years  (D) 49 years

25. 40 men can cut 60 trees in 8 hrs. If 8 men leave the job, how many trees will be cut by 32 men in 12 hrs.
    (A) 32  (B) 72
    (C) 82  (D) 52

CLM-53702-A 5

[Turn over]
26. If \(A : B = 3 : 4\), \(B : C = 8 : 9\), \(C : D = 15 : 16\), find \(A : B : C : D\).
   (A) \(15 : 20 : 21 : 28\)  
   (B) \(9 : 15 : 21 : 28\)  
   (C) \(5 : 20 : 25 : 48\)  
   (D) \(30 : 40 : 45 : 48\)

27. A train 140 m long is running at 60 km/hr. In how much time will it pass a platform 260 m long?
   (A) 24 sec  
   (C) 34 sec  
   (B) 42 sec  
   (D) 45 sec

28. After two successive decreases of 20\%, the price of television is ₹ 12,800. What is the original price?
   (A) ₹ 30,000/-  
   (C) ₹ 35,000/-  
   (B) ₹ 25,000/-  
   (D) ₹ 20,000/-

29. Anoop starts walking towards South. After walking 15 m he turns towards North. After walking 20 m, he turns towards East and walks 10 m. He then turns towards South and walks 5 m. How far is he from his original position and in which direction?
   (A) 10 metres North  
   (C) 10 metres West  
   (B) 10 metres East  
   (D) 10 metres South

30. In 10 yrs, A will be twice as old as B was 10 years ago. If at present A is 9 years older than B, the present age of B is:
   (A) 19 years  
   (C) 39 years  
   (B) 29 years  
   (D) 49 years

31. Find the odd man out:
   (A) Ring  
   (C) Tyre  
   (B) Bangle  
   (D) Plate

32. Six persons are sitting in a circle facing circle. Ali is between Sara and Nasir. Akbar is between Vinod and Saleem. Sara is between Ali and Vinod. Who is between Ali and Saleem?
   (A) Sara  
   (C) Vinod  
   (B) Nasir  
   (D) None

33. A is twice as fast as B and B is thrice as fast as C. The journey covered by C in 54 min will be covered by B in:
   (A) 18 min  
   (C) 38 min  
   (B) 27 min  
   (D) 9 min
34. A car covers four successive 3 km stretches at speeds of 10 km/hr, 20 km/hr, 30 km/hr and 60 km/hr respectively. What is the average speed of the car for the inline journey?
   (A) 20 km/hr  (B) 30 km/hr
   (C) 35 km/hr  (D) 25 km/hr.

35. Something that cannot be read is:
   (A) Illegible  (B) Eligible
   (C) Invincible  (D) Incurable

36. To call a spade a spade means:
   (A) say something to be taken seriously
   (B) desist from making controversial statement
   (C) find meaning or purpose in your action
   (D) be outspoken in language

37. Choose the correctly spelt word:
   (A) Efflorescence  (B) Efloscence
   (C) Efloscence  (D) Eflorescence

38. Choose the wrongly spelt word:
   (A) Hillock  (B) Viiify
   (C) Mileage  (D) Hillarious

39. The antonym of “ignoble” is:
   (A) Huge  (B) Worthy
   (C) Known  (D) Hypocritical

40. Inquisitive is synonym of:
   (A) Sensitive  (B) Careful
   (C) Curious  (D) Anxious

41. One who does not believe in the existence of God is:
   (A) Atheist  (B) Amateur
   (C) Anarchist  (D) Prodigal
42. The custom of having more than one husband at the same time is called:
   (A) Polygamy          (B) Polyandry
   (C) Debauchery        (D) Bigamy

43. Light cannot pass through:
   (A) Dull object       (B) Dark object
   (C) Obscure object    (D) Opaque object

44. The smallest addressable portion of disk is called:
   (A) Sector            (B) Track
   (C) Bit               (D) Byte

45. A binary system based on Two's Complement arithmetic gives the answer 11011111.
The decimal equivalent of this answer is:
   (A) −33               (B) 33
   (C) −28               (D) None of the above

46. The fastest type of storage device is:
   (A) pen drive         (B) registers
   (C) magnetic disk     (D) cache

47. Repeater operates in which layer of the OSI Model?
   (A) Physical Layer    (B) Data Link Layer
   (C) Network Layer     (D) Transport Layer

48. The length of IPv4 address is:
   (A) 32 bits           (B) 64 bits
   (C) 256 bits          (D) None of the above

49. If a process is executing in its critical section, then no other processes can be executing in their critical section. This condition is called:
   (A) Mutual exclusion  (B) Synchronous exclusion
   (C) Asynchronous exclusion (D) None of the above
50. A page fault occurs when:
   (A) A page gives inconsistent data
   (B) A page cannot be accessed due to its absence from memory
   (C) A page is invisible
   (D) All of these

51. Which of the following can be used as loop back address?
   (A) 0.0.0.127
   (B) 1.0.0.127
   (C) 127.0.0.1
   (D) 127.0.0.0

52. Output of the following program is:
    ```
    main()
    {
        int val=7;
        val=++val/++val;
        printf("%d",val);
    }
    ```
   (A) 0
   (B) 1
   (C) 2
   (D) None of the above

53. Which C++ keyword is used to return memory to the pool of available memory?
   (A) New
   (B) Delete
   (C) Return
   (D) None of the above

54. Which of the following is a group of one or more attributes that uniquely identifies a row?
   (A) Key
   (B) Determinant
   (C) Tuple
   (D) Relation

55. If the sequence of operations on stack are as follows: push(1), push(2), push(2), push(1), pop, push(1), push(2), pop, pop, pop, push(2), pop the sequence of popped out values are:
   (A) 2,2,2,1,1
   (B) 2,1,1,2,2
   (C) 1,2,1,2,2
   (D) None of the above
56. In operating system which one of the following is used for controlling access by multiple processes to common resource?
   (A) Thread    (B) Cache    
   (C) Semaphore (D) None of the above

57. In an Entity-Relationship Diagram Rectangles represents:
   (A) Entity     (B) Attribute 
   (C) Database   (D) Table

58. With paging there is no:
   (A) Internal fragmentation (B) External Fragmentation 
   (C) Either type       (D) None of these

59. Which of the following state transitions is not possible?
   (A) Blocked to running (B) Ready to running 
   (C) Blocked to ready  (D) Running to blocked

60. The output of the following C program is:
    
    ```c
    main()
    {
      int i=2, k=3;
      i++;
      ++k;
      {
        int i=0;
        i=k++;
        printf("%d\n",i,k);
      }
      printf("%d\n",i,k);
    }
    ```

    (A) 4535    (B) 4554 
    (C) 4335    (D) None of the above
Master of Computer Applications /A

1. A matrix $A = [a_{ij}]$ of order $2 \times 3$ whose elements are such that $a_{ij} = i + j$, is:
   
   (A) $\begin{bmatrix} 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$  
   (B) $\begin{bmatrix} 2 & 3 & 4 \\ 5 & 4 & 3 \end{bmatrix}$  
   (C) $\begin{bmatrix} 2 & 3 & 4 \\ 5 & 5 & 4 \end{bmatrix}$  
   (D) None of these

2. If $A = \begin{bmatrix} -1 & 2 \\ 3 & -4 \end{bmatrix}$, then element $a_{11}$ of $A^2$ is:

   (A) 22  
   (C) -10  
   (B) -15  
   (D) 7

3. If $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ then $A^2 + 2A$ equals:

   (A) A  
   (C) 3A  
   (B) 2A  
   (D) 4A

4. If $\Delta = \begin{bmatrix} 1 & 3 & 1 \\ 2 & -1 & 1 \\ 0 & 4 & 2 \end{bmatrix}$, the value of $\begin{bmatrix} 4 & 12 & 4 \\ 8 & -4 & 4 \\ 0 & 16 & 8 \end{bmatrix}$ is:

   (A) $12\Delta$  
   (C) $42\Delta$  
   (B) $64\Delta$  
   (D) $4\Delta$

5. If $\tan A = 1/2$ and $\tan B = 1/3$, then the value of $A + B$ i.e. $\tan^{-1}1/2 + \tan^{-1}1/3$ is:

   (A) $\pi/6$  
   (C) Zero  
   (B) $\pi$  
   (D) $\pi/4$
6. Which of the following is correct?
   (A) \(2 \sin A \cos B = \sin(A + B) + \cos(A + B)\)
   (B) \(2 \sin A \cos B = \sin(A - B) - \sin(A + B)\)
   (C) \(2 \sin A \sin B = \cos(A + B) - \cos(A - B)\)
   (D) \(2 \sin A \sin B = \cos(A - B) - \cos(A + B)\)

7. \(2 \sin \left(\frac{5\pi}{12}\right) \sin \left(\frac{\pi}{12}\right)\) equals:
   (A) \(-1/2\)  (B) \(1/2\)
   (C) \(1/4\)  (D) \(1/6\)

8. A tower is \(100\sqrt{3}\) m high. Find the angle of elevation of its top from a point
   100 m away from its foot:
   (A) \(\theta = 60^\circ\)  (B) \(\theta = 45^\circ\)
   (C) \(\theta = 30^\circ\)  (D) \(\theta = 22\frac{1}{2}^\circ\)

9. The angle of depression of a point situated at a distance of 70 m from the base
   of a tower is 45°. The height of the tower is:
   (A) \(70\sqrt{2} \text{ m}\)  (B) \(70 \text{ m}\)
   (C) \(70 \frac{70}{\sqrt{2}} \text{ m}\)  (D) \(35 \text{ m}\)

10. The radius of a cylinder is same as that of a sphere. Their volumes are equal. The
     height of the cylinder is how many times of its radius?
    (A) \(1/2\)  (B) \(2/4\)
    (C) \(2/3\)  (D) \(4/3\)

11. How many metres of cloth \(2.5 \text{ m}\) wide will be required to make a conical tent
     whose base radius is 7 m and height is 24 m?
    (A) \(120 \text{ m}\)  (B) \(180 \text{ m}\)
    (C) \(220 \text{ m}\)  (D) \(550 \text{ m}\)

12. A metal ring whose radii are 5 cm and 3 cm, then the area of a ring is:
    (A) \(8\pi \text{ cm}^2\)  (B) \(12\pi \text{ cm}^2\)
    (C) \(16\pi \text{ cm}^2\)  (D) \(24\pi \text{ cm}^2\)
13. The angle $\theta$ between two lines whose slopes are $m_1$ and $m_2$ is:

(A) $\tan \theta = \frac{m_1 - m_2}{1 + m_1 m_2}$  
(B) $\tan \theta = \frac{m_1 + m_2}{1 - m_1 m_2}$  
(C) $\tan \theta = \frac{m_1 m_2}{1 - m_1 m_2}$  
(D) $\tan \theta = \frac{m_1 m_2}{1 + m_1 m_2}$

14. Length of major axis is three times the length of minor axis, then eccentricity is:

(A) $\frac{1}{3}$  
(B) $\frac{1}{\sqrt{3}}$  
(C) $\frac{1}{\sqrt{2}}$  
(D) $2 \frac{1}{\sqrt{3}}$

15. The equation of a line passing through $(x_1, y_1)$ and making an angle $\alpha$ with the line $y = mx + C$ is given by:

(A) $y - y_1 = \frac{m \pm \tan \alpha}{1 \mp m \tan \alpha} (x - x_1)$  
(B) $y + y_1 = \frac{m \pm \tan \alpha}{1 \mp m \tan \alpha} (x + x_1)$  
(C) $y - y_1 = \frac{m \pm \tan \alpha}{1 \mp m \tan \alpha} (x + x_1)$  
(D) $y + y_1 = \frac{m \pm \tan \alpha}{1 \mp m \tan \alpha} (x - x_1)$

16. Sum of all the angles of a hexagon is:

(A) $180^\circ$  
(B) $360^\circ$  
(C) $720^\circ$  
(D) $900^\circ$

17. The distance between $P(3, -2)$ and $Q(-7, -5)$ is:

(A) $\sqrt{115}$  
(B) $\sqrt{109}$  
(C) $\sqrt{91}$  
(D) $11$
18. If the following words are arranged in an alphabetical order, which word will appear in the middle:
   (A) Principal
   (B) Principle
   (C) Principia
   (D) Priceless

19. “Dearth” is related to “Scarcity” in the same way as “Substitute” is related to:
   (A) Replace
   (B) Rumour
   (C) Destroy
   (D) Assume

20. If TEMPLE is coded as VHQNIA, how would you code CHURCH?
   (A) EKYWI
   (B) EKYQZD
   (C) EKYPZD
   (D) EKYQWD

21. If it is possible to form a word with the first, fourth, seventh and eleventh letters of the word SUPERFLUOUS, write the first letter of that word:
   (A) S
   (B) L
   (C) O
   (D) E

22. Introducing Asha to guests, Bhaskar said, “Her father is the only son of my father”. How is Asha related to Bhaskar?
   (A) Daughter
   (B) Mother
   (C) Sister
   (D) Niece

23. Pointing towards a woman in a photograph, Vijay said, “She is the daughter of the father of the sister of my brother”. How is the lady in the photograph related to Vijay?
   (A) Daughter
   (B) Wife
   (C) Mother
   (D) None of these

24. In 10 years, A will be twice as old as B was 10 years ago. If at present A is 9 years older than B, the present age of B is:
   (A) 19 years
   (B) 29 years
   (C) 39 years
   (D) 49 years

25. 40 men can cut 60 trees in 8 hrs. If 8 men leave the job, how many trees will be cut by 32 men in 12 hrs.?
   (A) 32
   (B) 72
   (C) 82
   (D) 52

CLM-53702-A  5  
[Turn over
26. If \( A : B = 3 : 4, \ B : C = 8 : 9, \ C : D = 15 : 16 \), find \( A : B : C : D \).
   (A) \( 15 : 20 : 21 : 28 \)  
   (B) \( 9 : 15 : 21 : 28 \)  
   (C) \( 5 : 20 : 25 : 48 \)  
   (D) \( 30 : 40 : 45 : 48 \)  

27. A train 140 m long is running at 60 km/hr. In how much time will it pass a platform 260 m long?
   (A) 24 sec  
   (B) 42 sec  
   (C) 34 sec  
   (D) 45 sec  

28. After two successive decreases of 20%, the price of television is ₹ 12,800. What is the original price?
   (A) ₹ 30,000/-  
   (B) ₹ 25,000/-  
   (C) ₹ 35,000/-  
   (D) ₹ 20,000/-  

29. Anoop starts walking towards South. After walking 15 m he turns towards North. After walking 20 m, he turns towards East and walks 10 m. He then turns towards South and walks 5 m. How far is he from his original position and in which direction?
   (A) 10 metres North  
   (B) 10 metres East  
   (C) 10 metres West  
   (D) 10 metres South  

30. In 10 yrs, A will be twice as old as B was 10 years ago. If at present A is 9 years older than B, the present age of B is:
   (A) 19 years  
   (B) 29 years  
   (C) 39 years  
   (D) 49 years  

31. Find the odd man out:
   (A) Ring  
   (B) Bangle  
   (C) Tyre  
   (D) Plate  

32. Six persons are sitting in a circle facing circle. Ali is between Sara and Nasir. Akbar is between Vinod and Saleem. Sara is between Ali and Vinod. Who is between Ali and Saleem?
   (A) Sara  
   (B) Nasir  
   (C) Vinod  
   (D) None  

33. A is twice as fast as B and B is thrice as fast as C. The journey covered by C in 54 min will be covered by B in:
   (A) 18 min  
   (B) 27 min  
   (C) 38 min  
   (D) 9 min  

CLM-53702-A
34. A car covers four successive 3 km stretches at speeds of 10 km/hr, 20 km/hr, 30 km/hr and 60 km/hr respectively. What is the average speed of the car for the entire journey?
   (A) 20 km/hr  (B) 30 km/hr  (C) 35 km/hr  (D) 25 km/hr.

35. Something that cannot be read is:
   (A) Illegible  (B) Eligible  (C) Invincible  (D) Incorrigible

36. To call a spade a spade means:
   (A) say something to be taken seriously  
   (B) desist from making controversial statement
   (C) find meaning or purpose in your action
   (D) be outspoken in language

37. Choose the correctly spelt word:
   (A) Efflourescence  (B) Efflorescence
   (C) Efflorescence  (D) Eflorescence

38. Choose the wrongly spelt word:
   (A) Hillock  (B) Viify
   (C) Mileage  (D) Hilarious

39. The antonym of "ignoble" is:
   (A) Huge  (B) Worthy
   (C) Known  (D) Hypocritical

40. Inquisitive is synonym of:
   (A) Sensitive  (B) Careful
   (C) Curious  (D) Anxious

41. One who does not believe in the existence of God is:
   (A) Atheist  (B) Amateur
   (C) Anarchist  (D) Prodigal
42. The custom of having more than one husband at the same time is called:
   (A) Polygamy  (B) Polyandry
   (C) Debauchery (D) Bigamy

43. Light cannot pass through:
   (A) Dull object  (B) Dark object
   (C) Obscure object (D) Opaque object

44. The smallest addressable portion of disk is called:
   (A) Sector  (B) Track
   (C) Bit (D) Byte

45. A binary system based on Two's Complement arithmetic gives the answer 11011111. The decimal equivalent of this answer is:
   (A) -33  (B) 33
   (C) -28 (D) None of the above

46. The fastest type of storage device is:
   (A) pen drive  (B) registers
   (C) magnetic disk (D) cache

47. Repeater operates in which layer of the OSI Model?
   (A) Physical Layer  (B) Data Link Layer
   (C) Network Layer (D) Transport Layer

48. The length of IPv4 address is:
   (A) 32 bits  (B) 64 bits
   (C) 256 bits (D) None of the above

49. If a process is executing in its critical section, then no other processes can be executing in their critical section. This condition is called:
   (A) Mutual exclusion  (B) Synchronous exclusion
   (C) Asynchronous exclusion (D) None of the above
50. A page fault occurs when:
   (A) A page gives inconsistent data
   (B) A page cannot be accessed due to its absence from memory
   (C) A page is invisible
   (D) All of these

51. Which of the following can be used as loop back address?
   (A) 0.0.0.127  
   (B) 1.0.0.127  
   (C) 127.0.0.1  
   (D) 127.0.0.0

52. Output of the following program is:
    ```c
    main()
    {
        int val=7;
        val=++val/(val++);
        printf("%d",val);
    }
    ```
    (A) 0  
    (B) 1  
    (C) 2  
    (D) None of the above

53. Which C++ keyword is used to return memory to the pool of available memory?
    (A) New  
    (B) Delete  
    (C) Return  
    (D) None of the above

54. Which of the following is a group of one or more attributes that uniquely identifies a row?
    (A) Key  
    (B) Determinant  
    (C) Tuple  
    (D) Relation

55. If the sequence of operations on stack are as follows: push(1), push(2), push(2), push(1), pop, push(1), push(2), pop, pop, pop, push(2), pop the sequence of popped out values are:
    (A) 2,2,2,1,1  
    (B) 2,1,1,2,2  
    (C) 1,2,1,2,2  
    (D) None of the above
56. In operating system which one of the following is used for controlling access by multiple processes to common resource?
   (A) Thread   (B) Cache
   (C) Semaphore   (D) None of the above

57. In an Entity-Relationship Diagram Rectangles represents:
   (A) Entity   (B) Attribute
   (C) Database   (D) Table

58. With paging there is no:
   (A) Internal fragmentation   (B) External Fragmentation
   (C) Either type   (D) None of these

59. Which of the following state transitions is not possible?
   (A) Blocked to running   (B) Ready to running
   (C) Blocked to ready   (D) Running to blocked

60. The output of the following C program is:

   ```c
   main()
   {
       int i=2, k=3;
       i++;
       ++k;
       {
           int i=0;
           i=k++;
           printf("%d\n",i,k);
       }
       printf("%d\n",i,k);
   }
   ```

   (A) 4535   (B) 4554
   (C) 4335   (D) None of the above