Q1// Choose the Correct Answer(s)

1. Petri Net. is use as a __________ method in an intelligent modeling.
   a) Knowledge Representation b) Search c) Engine d) Random

2. Local minima is not found in __________ search algorithm.
   a) Depth First b) A* c) Hill Climbing d) SSS*

3. Genetic algorithm useful to find the __________ of ANN.
   a) Problems b) Connections c) Structures d) Weight values.

4. The __________ is the concept of stochastic search methods.
   a) Randomization b) Approximation c) Backtracking d) Recursion

5. __________ Algorithms is a Symbol based learning method.
   a) ANN b) Candidate Elimination c) A* & SSS* d) Neuro-Fuzzy

6. __________ useful as a classifier in pattern recognition applications.
   a) Fuzzy Logic b) ANN c) Randomization d) Genetic

7. __________ is connectionist machine learning.
   a) ID3 b) ANN c) Hidden Markov Model d) Genetic Algorithms

8. ID3 algorithm based on the __________ concept to calculate the importance decision.
   a) Baysian Rule b) Hebbian Rule c) Stochastic d) Entropy

9. Production system is a ____________ pair.
   a) Randomize & Search  b) Condition & Action  c) Search & Backtrack
d) Search & Condition

10. Clustering algorithms are used as ____________ methods.
   a) Searching b) Learning c) Association d) Randomized

11. The delivery of continuous multimedia data in a distributed operating system depends on:
    a) Compression  b) CPU type  c) Quality of service  c) Jitter

12. FIREWIRE refers to:
a) A Graphical user interface.
b) An interface between the operating system and user applications.
c) An interface designed for connecting the CPU to the computer system.
d) An interface designed for connecting peripheral devices to the computer system.

13. Semaphore refers to:
a) A technique to handle deadlock.
b) A long term scheduling method.
c) A communication tool.
d) A synchronization tool.

14. Virtual File system refers to:
a) One type of file system provided by an operating system.
b) Integrated file system type in one directory.
c) The object oriented technique of file system.
d) A layer in a file system technique.

15. If q refers to time quantum, n is the number of processes in the ready queue, then the largest wait time of a process to get next CPU attention equals to:
a) (n-1)*q  
b) q*n  
c) (q-1)*n  
d) n*q - 1

16. Given a computer system with segmentation memory management scheme, taking in consideration the following segment table

<table>
<thead>
<tr>
<th>limit</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>1400</td>
</tr>
<tr>
<td>1</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>6300</td>
</tr>
<tr>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>4300</td>
</tr>
<tr>
<td>3</td>
<td>1100</td>
</tr>
<tr>
<td></td>
<td>3200</td>
</tr>
<tr>
<td>4</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>4700</td>
</tr>
</tbody>
</table>

The logical address \(< 3, 852>\) mapping the physical address:
a) 4353  
b) 6353  
c) 4052  
d) 5552

17. The type of latencies that affect the performance of real-time systems:
a) Interrupt latency  
b) Dispatch latency  
c) Interrupt latency and dispatch latency  
d) None of the above

18. The operating system may work in save state by allocating resources to each process in some order, this method is used to:
a) Detect deadlock state  
b) Prevent deadlock state  
c) Avoid deadlock state  
d) Recover deadlock state

19. To obtain better memory space utilization, a routine is kept on disk until it is called this approach is called:
a) Static loading  
b) Dynamic linking  
c) Overlays  
d) Dynamic loading

20. Given the following process with their CPU burst time and the SJF algorithm is used to schedule these process
<table>
<thead>
<tr>
<th>Process</th>
<th>CPU burst</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>9</td>
</tr>
<tr>
<td>P2</td>
<td>12</td>
</tr>
<tr>
<td>P3</td>
<td>3</td>
</tr>
<tr>
<td>P4</td>
<td>5</td>
</tr>
</tbody>
</table>

Then the average waiting of these processes is:
a)7  b)8  c)9  d)10

21. The compression by sub sampling method tries to resample the image at a --------.
   a)higher rate  b)lower rate  c)middle rate  d)zero rate

22. Compression by transformation of the model involves analyzing the image using --------
   a)testing  b)normalization  c)histogram  d)filters

23. There are two kinds of information which can be removed during compression, one of
them is ---------- information.
a)important  b)irrelevant  c)noisy  d)damaged

24. The degree of data reduction achieved by a compression process or algorithm is called ----
   a)reduction  b)compression  c)objective  d)subjective

25. -------------- (RLC) is a lossless compression process.
   a)Run Length Coding  b)Real Length Coding  c)Located Left Coding  d)Random Log Coding

26. Sub band representation sometimes called --------.
   a)wavelet  b)cosine  c)Fourier  d)zigzag

27. ----------- is the basic standard to compress component-wise color images.
   a)PEGJ  b)JPEG  c)PGEC  d)JPEN

28. The RAR software can optionally generate recovery records and recovery volumes that
   make it possible to reconstruct ----------- archives.
   a)damaged  b)redundant  c)lost  d)ciphered

29. Dictionary based compression methods do not use a statistical model, nor do they use ----
   a)strict size  b)variable size  c)tree size  d)alphabet size

30. Huffman coding algorithm starts by building a list of all the alphabet symbols in
    descending order of their probabilities. It then constructs a tree, with a symbol at every
    leaf, from the -----------.
    a)Up down  b)left right  c)right left  d)bottom up

31. ----------- are the kinds of search problems for which genetic algorithms are used.
    a)Search for solutions  b)Search for paths to goals  c)Search for stored data  d)search input data.

32. ----------- are the most essential in genetic algorithms in which produce two new
    chromosomes by exchanging information of the selected chromosomes.
    a)mutation operators  b)encoding operators
33. An adaptive network is a network structure whose overall input-output behavior is determined by a collection of --------------.
   a) Undefined parameters  b) modifiable parameters  c) defined parameters  d) modified parameters.

34. The -------------- process means transforms input crisp values into fuzzy values.
   a) defuzzification  b) composition  c) fuzzification  d) decision making

35. The variable which takes its value as natural language term is called --------------.
   a) expression  b) proposition  c) linguistic variable  d) text variable

36. Intelligent systems generally have a capacity to acquire and apply knowledge in an “intelligent” manner and have the capabilities of -------------- from incomplete information.
   a) Perception  b) reasoning  c) learning, and making inferences (or decisions)  d) all above.

37. A -------------- may be organized and developed according to one or a combination of several architectures.
   a) knowledge-based system  b) fuzzy system  c) control system  d) expert systems

38. -------------- refer to inexactness in human perception about a situation.
   a) Fuzziness  b) uncertainty  c) belief  d) probability

39. -------------- are a computational model of the operation of human brain.
   a) Neural network  b) genetic algorithm  c) petri net  d) symbolic model

40. In Feed forward networks ANN are static and the output depends --------------.
   a) Only on input  b) input and output  c) feedback  d) only on output

41. The channel in the data communication model can be
   a) postal mail services  b) telephone lines  c) radio lines  d) all the above

42. A protocol is a set of rules governing a time sequence of events that must take place
   a) between peer  b) between an interface  c) between modems  d) across an interface

43. The loss in signal power as light travels down the fiber is called
   a) attenuation  b) propagation  c) scattering  d) interruption

44. Communication circuits that transmit data in both directions but not at the same time are operating in
   a) a simplex mode  b) a half duplex mode  c) a full duplex mode  d) an asynchronous mode

45. An example of an analog communication method is
46. A communications device that combines transmissions from several I/O devices into one line is a
   a) concentrator  b) modifier  c) multiplexer  d) full-duplex line

47. Which of the following is considered a broad band communication channel?
   a) coaxial cable  b) fiber optics cable  c) microwave circuits  d) all of above

48. Which of the following is not a transmission medium?
   a) telephone lines  b) coaxial cables  c) modem  d) microwave systems

49. Which of the following is an advantage to using fiber optics data transmission?
   a) resistance to data theft  b) fast data transmission rate  c) low noise level  d) all of above

50. Which of the following is required to communicate between two computers?
   a) communications software  b) protocol  c) communication hardware  
   d) all of above including access to transmission medium

51. In RGB image model, color image is represented by:
   a) Red color component  b) Green color component  
   c) Blue color component  d) A triplet (Red, Green, Blue) color components.

52. Image processing is a computer imaging where:
   a) The application does not involve a human being in visual loop  
   b) The application involves a human being in the visual loop.  
   c) The applications dose only involves color images in the visual loop.  
   d) The applications dose only involves binary images in the visual loop.

53. Which of the following process is used for detect motion in two sequential image?
   a) Image Compression  b) Image Addition  c) Image Subtraction  
   d) Image Multiplication.

54. The cosine transform, like Fourier transform, uses sinusoidal basis function, but the difference is that:
   a) Cosine transforms maps image data into a different mathematical space via a transformation equation.  
   b) Cosine basis functions are not complex; these functions use only cosine functions and not sine functions.  
   c) Cosine transform allows for decomposition of an image into weighted sum of 2-d sinusoidal terms  
   d) The Fourier Transform is used only in image compression.

55. Edge Detection in image could be detect by:
   a) Lossy compression method  b) The Sobel edge method  
   c) Image restoration method  d) Zero Order Hold method.

56. Gray scale images could be defined as:
a) Image that contain information outside the normal human perceptual range.
b) Monochrome, or one-color image The typical image contains 8 bit/ pixel (data, which allows us to have (0-255) different brightness (gray) levels
  c) Image can modeled as three band monochrome image data, where each band of the data corresponds to a different color
d) Simplest type of images and can take on two values, typically black and white, or ‘0’ and ‘1’.

57. First Order Hold is performed by:
  a) Repeating previous pixel values.
  b) Finding linear interpolation between a adjacent pixels
  c) ANDed a white square with an image.
  d) The local groups of pixel called neighbourhoods replace the centre pixel with an average of the pixels in this neighbourhood.

58. Noise in digital image can be removed by:
  a) Stretch, Shrink and Slide mapping functions
  b) Mean, Median and Enhancement filters
  c) Sobel, Kirch and Robinson masks
  d) Region growing and shrinking technique.

59. In computer graphics, types of image data are divided into two primarily categories:
  a) RGB and HSL color space
  b) Bitmap image (or raster image) and Vector images.
  c) BMP format and JPEG format.
  d) Binary and color images.

60. Which of the following statements is true?
  a) Histogram equalization is a technique where the image contrast is decreased by compressing the gray levels
  b) Histogram equalization is a technique where the histogram of the resultant image is as flat as possible.
  c) Histogram equalization is a technique where the image is segmented into regions by operating principally in the re-based image.
  d) Histogram equalization is a technique where the image data is reduced by removing some of the detail information by mapping group of data points to a single point.

61. The measure the complexity of an attack are different, one of them:
  a) keys and algorithms  b) work factor  c) keys  d) algorithms

62. To overcome the security deficiencies of ECB, by used:
  a) CBC  b) CFB  c) OFB  d) CTR.

63. To achieve both secrecy and authenticity in public-key system by applying the transformations in:
  a) $D_b(c) = D_b(E_b(M)) = M$,  b) $E_a(c) = E_a(D_a(M)) = M$,
  c) $E_a(D_b(c)) = E_a(D_b(D_a(M))) = M$  d) $D_b(c) = D_a(E_a(M)) = M$.

64. A popular form of periodic substitution cipher based on shifted alphabets is the:
  a) Beal ciphers  b) Vigenere cipher
  c) Higher-Order Homophonics  d) Hill ciphers.
65. If the key to a substitution ciphers is a random sequence of characters and is not repeated, there is not enough information to break the cipher. Such a cipher is called a ……:
   a) Beaufort cipher  b) one-time-pad  c) Playfair cipher  d) product cipher.

66. ……… Algorith Enciphers 64-bit blocks of data with a 56-bit key.
   a) DES  b) Bluefish  c) RC4  d) twofish.

67. A…….. breaks the massage M into successive characters or bit hers each mi with the ith element Ki of key.
   a) block ciphers  b) stream ciphers  c) product ciphers  d) substitution cipher.

68. There are two different approaches to stream encryption:
   a) synchronous method and self-synchronous method
   b) Auto key cipher and cipher feedback mod
   c) Out-block feedback mode and counter method
   d) Autokey system.

69. ……….. Is the science and study of methods of bracking ciphers.
   a) cryptography  b) cryptology  c) cryptanalysis  d) cryptosystem

70. Under a ……… attack, a cryptanalyst must determine the key solely from intercepted cipher text.
   a) known-plaintext  b) cipher text-only  c) chosen-plaintext  d) chosen-ciphertext.

71. Can two classes contain member functions with the same name?
   a) No.
   b) Yes, but only if the two classes have the same name.
   c) Yes, but only if the main program does not declare both kinds.
   d) Yes, this is always allowed.

72. If we declare a queue template class with dynamic allocation, then we can declare queue of integer of length 100 as:
   a) int queue Q1[100];  b) template queue <int> Q1(100);
   c) queue <int> Q1(100);  d) D.class int queue (100) Q1;

73. To define a generalized sorting algorithm, we should use one of the following techniques:
   a) Function Overloading.  b) Templates  b) Polymorphism.  c) Inheritance.

74. When a class member function is called, it receives an implicit argument which denotes the particular object (of the class) for which the function is invoked. Within the body of the member function, one can refer to this implicit argument explicitly as:
   a) Structure  b) This  c) Pointer  d) >

75. Operator overloading means:
   a) defining additional meanings for the predefined operators.
   b) defining additional arithmetic operators.
c) defining additional logical operators.
d) defining inline functions.

76. The conventional way to distinguish between the overloaded preincrement and post-increment operators (++) is
   a) to assign a dummy value to preincrement.
   b) to make the argument list of postincrement include an int
   c) to have the postincrement operator call the preincrement operator.
   d) implicitly done by the compiler.

77. Given the C++ function definition void f(A x) f x.g() g, and the function call f(y) where y is an object of class A,
   a) f() must be a member function of class A.
   b) a copy of y is made when f() is called.
   c) y is also the implicit this object in f().
   d) none of the above.

78. What is the expression type that is most suitable for arithmetic expression evaluation
   a) Postfix expression
   b) Infix expression
   c) Prefix expression
   d) None of the above

79. Inserting and deleting of an item in the middle is more flexible within:
   a) Static Array
   b) Linked List
   c) Dynamic allocation array
   d) Stacks

80. Many list functions need to change the caller's head pointer. To do this in the C language, pass a pointer to the head pointer. Such a pointer to a pointer is sometimes called a "reference pointer". The main steps for this technique are...
   a) Design the function to take a pointer to the head pointer. To change a struct node*, pass a struct node**.
   b) Use '&' in the caller to compute and pass a pointer to the value of interest.
   c) Use '*' on the parameter in the callee function to access and change the value of interest.
   d) None of the above.

81. One of these architectures is not one of Flynn Categories
   a) MIMD
   b) Pipeline
   c) SIMD

82. One of these architectures is not a computer
   a) MISD
   b) SISD
   c) SIMD

83. One of these architectures is not a Parallel computer
   a) MIMD
   b) SISD
   c) SIMD

84. One of these architectures is only Vector/Array computer
   a) MIMD
   b) SISD
   c) SIMD
85. One of these architectures is only is Shared memory computer  
   a)MIMD  b)MISD  c)SIMD

86. Only one of these is a RISC (reduced instruction set computer)  
   a)MIMD  b)Pipeline  c)SIMD

87. Only one of these is not communicate via memory  
   a)MIMD  b)Pipeline  c)SIMD

88. Only one of these is von Neumann architecture  
   a)MISD  b)SISD  c)SIMD

89. The best that suited SIMD Category type of program-level parallelism is  
   a)Instruction-level parallelism  b)Bit-level parallelism  
   c)Job-level parallelism

90. The best that suited MIMD Category type of program-level parallelism is  
   a)Instruction-level parallelism  b)Bit-level parallelism  
   c)Job-level parallelism

91. Data in a data warehouse is organized around ……………………  
   a)the Database of the enterprise  b)the business subjects of the enterprise  
   c)the necessary data of the enterprise  d)all data of the enterprise

92. Subject orientation of data allows a data warehouse to maintain its ……………
   a)overall architecture through special interval  
   b)overall architecture from time to time  
   c)overall architecture throughout its lifespan  
   d)no one from upper

93. Data Integration in data warehouse means  
   a)The data in a data warehouse is presented in a multi manner.  
   b)The data in a data warehouse is presented in a one data type.  
   c)The data in a data warehouse is presented in a uniform manner.  
   d)The data in a data warehouse is presented in any one of upper.

94. The basic idea behind the data warehousing approach is to ………..  
   a)extract, filter, and integrate relevant information in advance of queries.  
   b)extract and integrate relevant information in advance of queries.  
   c)filter and integrate relevant information in advance of queries.  
   d)integrate relevant information in advance of queries.

95. We building a data warehouse to ……………  
   a)decisions making.
b) business strategy requires.
c) answers the questions in business and future strategy.
d) decisions making, business strategy requires and answers the questions in business and future strategy.

96. Data warehouses and OLAP tools are based on a
   a) multidimensional data model.
   b) database management system.
   c) multi database system.
   d) hybrid data model.

97. Type of OLAP Servers:
   a) ROLAP, MOLAP, HOLAP
   b) TOLAP, MOLAP, HOLAP
   c) TOLAP, WOLAP, MOLAP
   d) ROLAP, TOLAP, MOLAP

98. The data mining process begins and ends with ……………………..
   a) the final results
   b) remove noise and inconsistent data
   c) data relevant to the analysis task are retrieved from the database.
   d) the business objective

99. In data mining process, 60% of the time goes into…………………..
   a) Business Objectives determination
   b) Data preparation step.
   c) Data Mining step
   d) Analysis of results

100. data warehouse metadata are data defining
     a) the warehouse schema
     b) the warehouse data
     c) the warehouse architecture
     d) the warehouse objects

101. The definition of distributed database (DDB) include two important aspects:
     a) Distribution and logical correlation
     b) Logical correlation and data isolation
     c) Distribution and data isolation

102. The major differences between DDB and traditional DB is:
     a) Centralized control
     b) Data independence
     c) data integrity

103. The primary advantage of DDB systems is:
     a) Data sharing
     b) Speed of query processing
     c) Software development

104. The major levels of DDB architecture:
     a) Global schema, Conceptual schema, Physical schema
     b) Global schema, Conceptual schema, Fragmentation schema
     c) Global schema, Fragmentation schema, Allocation schema

105. In design of DDB, the following objectives should be taken:
     a) Processing locality, Availability, cost storage
     b) Processing locality, Reliability, Work distribution
     c) Processing locality, Availability and Reliability, Work distribution, and cost storage
106. There are two alternative approaches use in designing DDB
   a) Homogeneous and heterogeneous approaches
   b) Top-down and Bottom-up approaches
   c) Vertical and Horizontal approaches

107. In order to built a Robust DDB system, it is important to know:
   a) What kinds of failures can occur
   b) The ensure of execution of various transactions
   c) The ensure of correction of execution

108. The property of atomicity in DDB systems should be taken:
   a) The sites in which a transaction \( T \) executed must on the final outcome of execution
   b) The sites must not agree on final outcome
   c) The most of sites must agree on the final outcome of execution

109. Concurrency Control in DDB systems refer to as the system control the transactions execution to:
   a) Prevent them from destroying
   b) Prevent any connection between transactions
   c) Prevent sharing the processor between many transactions

110. A DDB system is in a deadlock state if:
   a) Every transaction in the set is waiting for another transaction in the set
   b) Every transaction in the set is not waiting for another transaction
   c) Every transaction in the set is waiting for another transaction out of the set

111. The NLP is:
   a) A set of rules that define the legal structure in the language.
   b) To enable a person to communicate with a computer in a language that they use in their everyday life.
   c) The use of computers to automate some or all of the process of translating from one language to another.
   d) Not all above.

112. One of these options is required for any speech recognition system. a) Lexical. b) Semantic. c) Segmentation. d) Not all above.

113. This example represents:

   ![Diagram](image)

   a) Conceptual graph. b) Semantic network. c) Frame. d) Not all above.

114. The simplest kind of natural language interface uses \------------------ as the basis of its operation.
   a) Informal Stage b) Formal stage c) Keyword Skimming. d) Not all above.
115. The Natural Language Generation Systems convert the
   a) Samples of human Language into more formal representation.
   b) Information from Computer DB into normal Sounding human Language.
   c) The Sentence to correspond until of meaning.
   d) Not all above.

116. The Condition of Context Free Grammar is :
   a) Left side <= Right Side  b) Left side should be single and non terminal.
   c) Non terminal Terminal.  d) Not all above.

117. This expression $A = B + C * D$ represent the type of mapping:
   a) One to many  b) One to one  c) Many to many  d) Not all above.

118. The Morphological Analysis means
   a) Analyze the root of the word.
   b) Understand the meaning of sentences.
   c) Understand the relationship between the sentence.
   d) Not all above.

119. One of these options is not a type of sentence classifications
   a) Object oriented sentences  b) Action sentences
   c) Grammatical sentences  d) Not all above.

120. Agent case is
   a) the entity that applies the action to the object.
   b) Its describe the movement from one place to another.
   c) Is the noun group that receives the action of the verb.
   d) Not all above.

Q2// Answer the following:

1. Why data compression techniques are necessary?
2. Describe briefly the meaning of soft computing and mention its various components.
3. Give the main steps for PGP Cryptography Protocol work, (encryption process only).
4. Explain data warehouse definition with all its properties and its advantage.