Roll No. | | | | | | | | |

(Write Roll Number from left side exactly as in the Admit Card)

Signature of Invigilator

Question Booklet Series **Y**

PAPER–II

Question Booklet No.
(Identical with OMR Answer Sheet Number)

Subject Code : 22

COMPUTER SCIENCE AND APPLICATIONS

Time : 2 Hours *Maximum Marks: 200*

Instructions for the Candidates

1. Write your Roll Number in the space provided on the top of this page as well as on the OMR Sheet provided.
2. At the commencement of the examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and verify it:
   (i) To have access to the Question Booklet, tear off the paper seal on the edge of this cover page.
   (ii) Faulty booklet, if detected, should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.
   (iii) Verify whether the Question Booklet No. is identical with OMR Answer Sheet No.; if not, the full set is to be replaced.
   (iv) After this verification is over, the Question Booklet Series and Question Booklet Number should be entered on the OMR Sheet.
3. This paper consists of One hundred (100) multiple-choice type questions. All the questions are compulsory. Each question carries *two* marks.
4. Each Question has four alternative responses marked: (A) (B) (C) (D). You have to darken the circle as indicated below on the correct response against each question.

   Example: (A) (B) ● (D), where (C) is the correct response.
5. Your responses to the questions are to be indicated correctly in the OMR Sheet. If you mark your response at any place other than in the circle in the OMR Sheet, it will not be evaluated.
6. Rough work is to be done at the end of this booklet.
7. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Sheet, except in the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
8. Do not tamper or fold the OMR Sheet in any way. If you do so, your OMR Sheet will not be evaluated.
9. You have to return the Original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry question booklet and duplicate copy of OMR Sheet after completion of examination.
10. **Use only Black Ball point pen.**
11. **Use of any calculator, mobile phone, electronic devices/gadgets etc. is strictly prohibited.**
12. **There is no negative marks for incorrect answer.**

COMPUTER SCIENCE AND APPLICATIONS

PAPER II

1. Cryptographic hash function takes an arbitary block of data and returns

(A) a variable size bit string always.

(B) a fixed size bit string always.

(C) any one of a variable or fixed size bit stream.

(D) None of the above

2. The time complexity of a Turning machine to recognize L over {0, 1} such that L = $\{0^n 1^n \mid n > 0\}$ is of the order of

(A) n

(B) n^2

(C) n^3

(D) n^4

3. To implement top-down parsing the grammer should be of the type

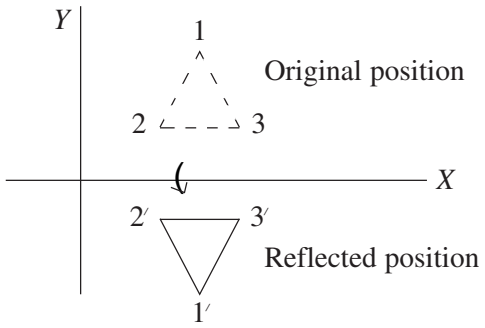
(A) *LL* (1)

(B) *LL* (2)

(C) *LL* (3)

(D) All of the above

4.



The above reflection is accomplished with the transformation matrix:

(A) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(B) $\begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(C) $\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(D) None of the above

5. Which of the following is not correct?

(A) Type 3 grammer includes type 0, type 1 and type 2 grammers.

(B) Type 0 grammer includes type 1, type 2 and type 3 grammers.

(C) Type 1 grammer includes type 2 and type 3 grammers.

(D) Type 2 grammer includes type 3 grammer.

6. In multi-level index

(A) the datafile is ordered by the attribute that is also the search key in the index file.

(B) the datafile is ordered by an attribute that is different from the search key in the index file.

(C) an index structure consisting of two or more tires of records where an upper tier's records point to the associated index records of the tier below.

(D) None of the above

7. Which of the following ANN uses supervised learning?

(A) Hopfield network

(B) Self-organizing Map (SOFM)

(C) Simple Recurrent Network (SRN)

(D) All of the above

8. Fourth Normal Form (4NF) is concerned with dependencies between the elements of compound keys composed of

(A) one attribute

(B) two attributes

(C) three or more attributes

(D) None of the above

9. Basic components of IOT consist of

(A) Sensor Nodes

(B) Sensor Nodes and Gateways

(C) Gateways and Cloud

(D) Sensor Nodes, Gateways and Cloud

10. Which of the following is not a monotonically increasing grammer?

(A) Context-sensitive grammer

(B) Unrestricted grammer

(C) Regular grammer

(D) Context-free grammer

11. Traffic intensity is given by, where $L = n$ of bits in a packet, a = Average rate, R = transmission rate.

(A) $\frac{LR}{a}$

(B) $\frac{L}{Ra}$

(C) $\frac{La}{R}$

(D) $\frac{R}{La}$

12. Let the page fault service time be 10 mSec. in a computer with average memory access time being 20n Sec. If one page fault is generated for every 10^6 memory accesses, what is the effective access time for the memory?

(A) 21nSec.

(B) 30nSec.

(C) 23nSec.

(D) 35nSec.

13. A prolog program consists of a set of

(A) Facts

(B) Rules

(C) Clauses

(D) Conditions

14. Which one of the following is not correct?

(A) If L_1 and L_2 are CFLs, then the language $L_1 \cup L_2$ is also a CFL.

(B) If L_1 and L_2 are CFLs, then the language $L_1 L_2$ is also a CFL.

(C) If L_1 is a CFL, then the language $L = L_1^*$ is also a CFL.

(D) None of the above

15. Which of the following is a facility provided by DBMS to assist the recovery process?

(A) Recovery Manager

(B) Logging facilities

(C) Backup mechanism

(D) All of the above

16. In the IEEE 754 Floating point number format, 8 bit exponent field is represented by

(A) $\text{Excess} - \left[\left(2^{n-1}\right) - 1\right]$ Code

(B) $\text{Excess} - \left[\left(2^{n} - 1\right)\right]$ Code

(C) $\text{Excess} - \left[2^{n}\right]$ Code

(D) $\text{Excess} - \left[\left(2^{n+1}\right) - 1\right]$ Code

where $n = 8$.

17. Which of the following is not a UML diagram used in software development model?

(A) Class Diagram

(B) State Diagram

(C) Data flow Diagram

(D) Activity Diagram

18. What is the outpur of the following Prolog program?

```
fib (0,0).
fib (1,1).
fib (N,R):   N>1,
             N1 is N-1,
             N2 is N-2,
             fib (N1, R1),
             fib (N2, R2),
             R is R1+R2.
?- fib (3,R).↵
```

(A) R = 0, 1, 1

(B) R = 1, 1, 2

(C) R = 2

(D) R = 3

19. Consider three CPU-intensive processes, which require 10, 20 and 30 time units and arrive at times 0, 2 and 6 respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.

(A) 1

(B) 2

(C) 3

(D) 4

20. Consider a relation $R(A, B, C)$ with the following instance:

A	B	C
5	5	5
5	7	8
7	7	9

Assume the above data are valid, which of the following functional dependencies must be false?

I. $A \rightarrow B$

II. $A \rightarrow C$

III. $AB \rightarrow C$

(A) I only

(B) II only

(C) I and II

(D) II and III

21. In the Slow-start algorithm, the size of the Congestion window increases _____ until it reaches a threshold value.

(A) Multiplicatively
(B) Exponentially
(C) Additively
(D) Randomly

22. Which of the following represents the result of a query in a query tree?

(A) root node
(B) leaf node
(C) intermediate node
(D) None of the above

23. The number of leaf nodes in a complete binary tree of depth d is

(A) 2^d
(B) $2^{d+1} + 1$
(C) $2^{d-1} + 1$
(D) $2^d + 1$

24. Which of the ANN can be used to recover a clean version of a stored image given a noisy version of that image?

(A) Linear feedforward network
(B) Multi-layer feedforward network
(C) Simple recurrent network
(D) Hopfield network

25. In JavaScript which of the following is used to declare variable?

(A) function
(B) var
(C) dim
(D) None of the above

26. Properties of Bézier curves are:

(A) It always passes through the first and last control points.
(B) The boundary conditions at the two ends of the curve are
$P(O) = p_o$
$P(1) = p_n$
(C) It is a polynomial of degree one less than the number of control points used.
(D) All of the above

Which one is correct?

27. Cosider a disk pack with 16 surfaces, 128 tracks per surface and 256 sectors per track. 512 bytes of data are stored in a bit serial manner in a sector. The capacity of the disk pack and the number of bits required to specify a particular sector in the disk are respectively.

(A) 256 Mbyte, 19 bits
(B) 256 Mbyte, 28 bits
(C) 512 Mbyte, 20bits
(D) 64 Gbyte, 28 bits

28. In what way 'Cache Memory' is different from 'Main Memory' for which 'Cache Memory' works faster?

(A) Cache Memory doesn't have addressing system but Main Memory has.
(B) Cache Memory system is made of different hardware material which makes it faster.
(C) Cache Memory has different type of addressing system.
(D) None of the above

29. Physical Database design is the process of

(A) deriving the physical structure of the database.

(B) creating a conceptual and external schemes for the high level data model.

(C) analyzing overall data requirements.

(D) None of the above

30. Given the following function in C:

```
double f(double x, double Y)
    {
      int;
      double a,b;
      for (a=1, b=1, i=1; i<y; i++)
    {
              a* = x/i;
              b+ = a;
    }
    return b;
    }
```

For large value of *Y*, the best approximation of the return value of *f* is

(A) x^Y

(B) e^x

(C) $ln(1+x)$

(D) y^x

31. Which of the following phase of a typical compiler is not related to front end of that compiler?

(A) Syntax analysis

(B) Lexical analysis

(C) Code optimization

(D) Semantic analysis

32. How 'Cache-coherence' problem can be overcome in a multiprocesser system?

(A) Using 'MESI CACHE COHERENCY PROTOCOL'

(B) Using LRU based system

(C) Using Bus arbitration technique

(D) None of the above

33. A software requirement specification is

I. a contact between client and software developers and clients specifying what the developers will develop for the clients.

II. a specification of the features that the software to be developed must have.

III. a specification of the resources along with man power that will be required for the development of the software.

(A) I only

(B) II only

(C) I and II only

(D) I, II and III

34. Which database design method transforms DBMS independent conceptual model into DBMS dependent model?

(A) Conceptual

(B) Logical

(C) Physical

(D) None of the above

35. IP Sec is designed to provide the security at the

(A) Transport Layer

(B) Network Layer

(C) Application Layer

(D) Session Layer

36. A proxy firewall filters at

(A) Physical Level

(B) Data Link Layer

(C) Transport Layer

(D) Application Layer

37. Consider a relation R (A, B, C, D, E) is in Third Normal Form. Which of the following functional dependencies must be FALSE?

(A) $A, B \rightarrow C$

(B) $A, C \rightarrow E$

(C) $A, B \rightarrow D$

(D) $C, D \rightarrow E$

38. The cylomatic complexity of the following program is:

```
f = 1;
sum = 0;
for(i=1;i<=n;i++)
    {
      if(grade[i]  <7)
              f = o;
      sum = sum + grade[i];
    }
    average = sum/n;
    if(averge > = 8  &&  f = = 1)
            printf ("Excellent");
```

(A) 4

(B) 6

(C) 8

(D) None of the above

39. Consider the following table in a relational database:

Last Name	Designation	Subject	Course
Roy	Professor	DBMS	B.Tech.
Sen	Associate Professor	OS	M.Tech.
Roy	Associate Professor	OS	MCA
Pal	Assistant Professor	Data structure	B.Tech.

Assume the data in the table are valid, then the candidate key of the table is

(A) {Last Name}

(B) {Last Name, Designation}

(C) {Subject, Course}

(D) {Last Name, Course}

40. Which of the following HTML tag is used to create a numbered Lists?

(A) $\langle dL \rangle$

(B) $\langle List \rangle$

(C) $\langle uL \rangle$

(D) $\langle oL \rangle$

41. Consider a relation $R(A, B, C, D, E, F)$ having FDs $A \rightarrow B$, $BC \rightarrow D$, $E \rightarrow C$, $D \rightarrow A$. The candidate keys of R are

(A) AE, BE, DE

(B) AEF, BEF, DEF

(C) AEF, BCF, BEF

(D) AEF, BDF, BEF

42. Which of the following technique is less costly in designing 'Control Unit' of a computer?

(A) Hardware based Control Unit design

(B) Micro-programming based Control Unit design

(C) Both Hardware and Software based designed

(D) None of the above

43. Which one of the following is the formal process of deciding which attribute should be grouped together in a relation?

(A) Optimization

(B) Normalization

(C) Tuning

(D) None of the above

44. Which command is used to display the Unix version 7?

(A) `uname-r`

(B) `uname-n`

(C) `uname-t`

(D) `Kernel`

45. In a tree, where the height of the two child subtrees of any node differ by atmost one is called

(A) Threaded Binary tree

(B) AVL tree

(C) Complete tree

(D) Binary Search tree

46. Group 1 contains some CPU scheduling algorithms and Group 2 contains some applications. Match entries in Group I to entries in Group II.

	Group I	***Group II***
(P)	Gang Scheduling	(1) Guaranteed Scheduling
(Q)	Rate Monotonic Scheduling	(2) Real-time Scheduling
(R)	Fair Share Scheduling	(3) Thread Scheduling

(A) (P) – (3) (Q) – (2) (R) – (1)

(B) (P) – (1) (Q) – (2) (R) – (3)

(C) (P) – (2) (Q) – (3) (R) – (1)

(D) (P) – (1) (Q) – (3) (R) – (2)

47. A thread is usually defined as a 'Light weight process' because an Operating System (OS) maintains smaller data structures for a thread than for a process. In relation to this, which of the followings is true?

(A) On per-thread basis, the OS maintains only CPU register state.

(B) The OS does not maintain a separate stack for each thread.

(C) On per-thread basis, the OS does not maintain virtual memory state.

(D) On per-thread basis, the OS maintains only scheduling and accounting information.

48. The number of edges in a regular graph of degree d and n vertices is

(A) $n + d$

(B) maximum of n, d

(C) nd

(D) $(nd)/2$

49. In the back propagation algorithm, the gradient of the error with respect to the weight vector is itself a vector. What does the direction of the vector indicate?

(A) It points in the direction of steepest decrease in error.

(B) It points in the director of steepest increase in the error.

(C) It indicates that component of the weight vector that results in the maximum error.

(D) None of the above

50. Which one of the following is most appropriate in case of functional testing?

(A) Test cases are designed on the basis of internal structure of the source code.

(B) Test cases are designed on the basis of functionality ignoring internal structure of the source code.

(C) Test cases are designed on the basis of functionality and internal structure of the source code.

(D) Test cases are designed on the basis of pre-conditions and post-conditions.

51. In A^* algorithm heuristic values are admissible where n is the current node, if

(A) $h(n) > h^*(n)$

(B) $h(n) <= h^*(h)$

(C) $h(n)$ = constant

(D) None of the above

52. For a 10 Mbps Ethernet Link, if the Length of the packet is 32 bits, the transmission Delay is (in Microseconds)

(A) 3·2

(B) 32

(C) ·32

(D) 320

53. Which of the following is not the metric for object-oriented testing?

(A) Number of key classes

(B) Fan In (FIN)

(C) Lack of Cohesion in methods

(D) Public Access to Data members (PAD)

54. Which of the following ANN would you use for weather forecasting?

(A) Simple Recurrent Network (SRN)

(B) Self-Organizing Map (SOM)

(C) Hopfield Network

(D) Multi-layer feed forward network

55. In an indexed file organization, which is true?

(A) Index files must be direct access storage files.

(B) Each key is associated with an index.

(C) Each primary key value should not be changed during updation.

(D) All of the above

56. The expression 'Deleyed Load' is used in the context of

(A) Processor–Printer Communication

(B) Memory–Monitor Communication

(C) Pipelining

(D) None of the above

57. Consider a relation $S(W, X, Y, Z)$ with $FDs\ W \rightarrow X$ and $Y \rightarrow Z$. The decomposition $S1\ (W, X)$ and S2 (Y, Z) is

(A) Lossless join.

(B) Lossless join but not dependency preserving.

(C) Lossless join and dependency preserving.

(D) Dependency preserving but not loss join.

58. If

```
(rear = = maxsize -1)
        rear = 0 ;
else
        rear = rear +1;
```

is required in

(A) stack

(B) linear queue

(C) circular queue

(D) dequeue

59. Which of the following phase of the software development life cycle, regression testing is normally used?

(A) Design

(B) Coding

(C) Testing

(D) Maintenance

60. Consider the following function:

```
int f()
{
    int i, s;
    s=0;
    for (i=0;i<5; i++)
{   if (i%3==1)
    s+=i;
    else
        s++;
.}
return s;
}
```

The return value of `f()` is

(A) 5

(B) 7

(C) 6

(D) 8

61. Parallel processing can occur in

(A) the Instruction stream

(B) the Data stream

(C) Both (A) and (B)

(D) None of the above

62. Which type of Ethernet framing is used for TCP/IP and DEC net?

(A) Ethernet 802·3

(B) Ethernet 802·2

(C) Ethernet II

(D) Ethernet SNAP

63. Which Protocol assigns IP address to the client connected in the internet?

(A) DHCP

(B) IP

(C) RPC

(D) None of the above

64. Which of the following transformation is referred to as commutativity of projection and join?

(A) $R \cup S \equiv S \cup R$

(B) $R \cap S \equiv S \cap R$

(C) $\Pi_{L1 \cup L2}(R \bowtie S) \equiv \Pi_{L1}(R)\ ) \bowtie_C \Pi_{L2}(S))$

(D) Both (A) and (B)

65. Cosider the following table of arrival time and burst time for three processes P_0, P_1 and P_2.

Process	Arrival time	Burst time
P_0	0 mSec.	9 mSec.
P_1	1 mSec.	4 mSec.
P_2	2 mSec.	9 mSec.

Pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?

(A) 5·0 mSec.

(B) 4·33 mSec.

(C) 6·33 mSec.

(D) 7·33 mSec.

66. For a *K-nn* classifier, as the value of *K* increases

(A) bias increases and variance decreases.

(B) bias decreases and variance increases.

(C) bias and variance both increases.

(D) bias and variance both decreases.

67. A file system with 300 GBytes uses a file descriptor with 8 direct block address, 1 indirect block address and 1 doubly indirect block address. The size of each disk block is 128 Bytes and the size of each disk block address is 8 Bytes. The maximum possible file size in this file system is

(A) 3 Kbytes

(B) 35 Kbytes

(C) 280 Bytes

(D) Dependent on the size of the disk

68. Network Layer 'Firewall' works as a
(A) Frame Filter
(B) Packet Filter
(C) Both Frame and Packet Filter
(D) None of the above

69. Divide and conquer policy is used in
(A) Merge Sort
(B) Binary Search
(C) Quick Sort
(D) All of the above

70. ALU of a computer can only perform 'addition'. Then how subtraction can be done in it and what type of adder circuit is used in ALU (Arithmetic Logic Unit)?
(A) Additions using complements and serial adder.
(B) Using different Algorithms and Carry Look ahead adder.
(C) Addition using complements and Carry Look ahead adder.
(D) Using 'Carry and Save addition technique' and 'Carry Look ahead adder'.

71. Can boosting technique be applied on regression problems? Can bagging be applied on regression problems?
(A) No, No
(B) No, Yes
(C) Yes, No
(D) Yes, Yes

72. Consider a machine with 64 MB physical memory and a 32-bit virtual address space. If the page size is 4KB, what is the approximate size of the page table?
(A) 16 MB
(B) 8 MB
(C) 2 MB
(D) 24 MB

73. Skolem function is used to remove
(A) $\forall$
(B) $\exists$
(C) variable
(D) None of the above

74. The production system $S \rightarrow aA$, $A \rightarrow aB/a$, $B \rightarrow b$ represents
(A) CFG
(B) Regular grammer
(C) both CFG and regular grammer
(D) neither CFG nor regular grammer

75. In UML the diagram used in describing the system behaviour during execution is
(A) State Chart Diagram
(B) Deployment Diagram
(C) Implementation Diagram
(D) All of the above

76. In a computer a negative fixed point binary number is represented by the format
(A) Sign bit – Magnitude
(B) Sign bit – 1's Complement
(C) Sign bit – 2's Complement
(D) Only 2's Complement

77. Suppose n processes, P_1, ..., P_n share m identical resource units, which can be reserved and released one at a time. The maximum resource requirement of process Pi is Si, where Si > 0. Which one of the following is a sufficient condition for ensuring that deadlock does not occur?
(A) $\forall i, Si < m$
(B) $\forall i, Si < n$
(C) $\sum_{i=1}^{m} Si < (m+n)$
(D) $\sum_{i=1}^{n} Si < (m \times n)$

78. Primary functions of ALU (Arithmatic Logic Unit) are

(A) Arithmatic, Logical

(B) Arithmatic, Logical and Shifting

(C) Arithmatic, Shifting and Decoding

(D) Arithmatic only

79. A CPU generates 32 bit virtual addresses. The page size is 4KB. The processor has a translation look-aside buffer (TLB) which can hold a total of 128 page table entries and is 4-way set associative. The minimum size of the TLB tag is

(A) 11 bits

(B) 13 bits

(C) 15 bits

(D) 20 bits

80. Which of the following is not a form of functional testing?

(A) Boundary value analysis

(B) Equivalence class testing

(C) Data flow testing

(D) Decision table based testing

81. OLAP is

(A) A dynamic synthesis of multi dimentional data

(B) An analysis of multi dimentional data

(C) A consolidation of large volumes of multi-dimentional data

(D) All of the above

82. Let X, Y be two item sets and let Supp (X) denotes the support of item set X. Then the confidence of the rule $X \rightarrow y$ denoted by conf ($x \rightarrow y$) is

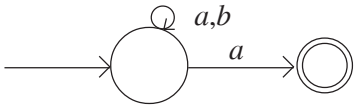
(A) $\frac{Supp(X)}{Supp(Y)}$

(B) $\frac{Supp(Y)}{Supp(X)}$

(C) $\frac{Supp(X \cup Y)}{Supp(X)}$

(D) $\frac{Supp(X \cap Y)}{Supp(X)}$

83. The regular expression corresponding to the following finite automation is



(A) (a + b)*a

(B) (a + b) a*

(C) a* b* + a

(D) None of the above

84. Which one is the use of Logic in AI?

(A) As a tool of analysis

(B) As a basis of knowledge representation

(C) As a language

(D) All of the above

85. For the basic feasible solution to remain optimal

(A) all $C_j - Z_j$ values must remain zero.

(B) no objective function co-efficients are allowed to change.

(C) the value of objective function must not change.

(D) All of the above

86. A Turning machine is an automation for

(A) Unrestricted grammers

(B) Context-free grammers

(C) Context-sensitive grammers

(D) Regular grammers

87. Which type of search can go on and on deeper and deeper in the state space and we may get lost?

(A) A*

(B) Breadth First Search

(C) Depth First Search

(D) None of the above

88. The register used as a working area in CPU is

(A) Program Counter

(B) Instruction Register

(C) Instruction Decoder

(D) Accumulator

89. In object-oriented programming language, 'generalization' is implemented using

(A) Overloading

(B) Encapsulation

(C) Data Hiding

(D) Inheritance

90. Consider the following recursive function:

```
int f(int x)
  {
     if(x==4)
             return 2;
       else return 2*f(x+1);
  }
```

The return value of `f(2)` is

(A) 2

(B) 4

(C) 8

(D) 16

91. The postfix expression for the infix expression:

A + B * (C+D) / F + D * E is

(A) A + * BCD / F * + DE + +

(B) A * B + C D / F * DE + +

(C) ABCD + * F / + DE * +

(D) AB + CD + * F / D + E *

92. Given some data set, you are interested in identifying outliers. If you use clustering for this task which approach would you prefer?

(A) Hierarchical

(B) Over Lapping

(C) Partitional

(D) Partial

93. Exact string matching algorithms are

(A) KMP-algorithm

(B) Rabin-Karp algorithm

(C) Boyer-Moore algorithm

(D) All of the above

94. What is a pattern vector?

(A) A vector of measured features $X = [X_1, X_2, ..., X_n]^T$ of an input example

(B) A vector of weights $W = [W_1, W_2, ..., W_n]^T$ is a neural network

(C) A vector of outputs $Y = [y_1, y_2, ..., y_n]^T$ of a classifier

(D) All of the above

95. Which of the following testing is more comprehensive to test the components like hardware, software and external interfaces?

(A) Unit testing

(B) Integration testing

(C) System testing

(D) Acceptance testing

96. If f is _____ and g is _____ and non-increasing then $h(x) = g(f(x))$ is convex.

(A) Concave, Concave

(B) Convex, Concave

(C) Concave, Convex

(D) Convex, Convex

97. Which of the following is not true?

(A) $R \cup S \equiv S \cup R$

(B) $R \cap S \equiv S \cap R$

(C) $R - S \equiv S - R$

(D) All of the above

98. You want to enable both ARPA and SNAP encapsulation on one router interface. How do you do this?

(A) The interface can handle multiple encapsulation types with no extra configuration.

(B) Assign two network numbers, one for each encapsulation type.

(C) Enable Novell-ehter to run multiple encapsulation types.

(D) Both APRA and SNAP are enable by default, so you don't have to configure anything.

99. Parallel algorithms are executed on

(A) SISD system

(B) SIMD system

(C) MIMD system

(D) Both (B) and (C)

100. A hash function $h(k) = k \bmod 3$ is given. What is the number of collisions to store the following key sequence?

15, 11, 34, 98, 10, 37, 51, 14 ,16, 47

(A) 7

(B) 2

(C) 9

(D) 3

ROUGH WORK

ROUGH WORK

ROUGH WORK

ROUGH WORK

ROUGH WORK