SUBJECT CODE	SUBJECT
A-04-18	COMPUTER SCIENCE AND APPLICATIONS

HALL TICKET NUMBER	PAPER
	II

OMR SHEET NUMBER	NUMBER OF QUESTIONS
	100

DURATION	MAXIMUM MARKS	NUMBER OF PAGES
2 HOURS	200	16

This is to certify that, the entries made in the above portion are correctly written and verified.

_____   _____
Candidate's Signature   Name and Signature of Invigilator

Instructions for the Candidates

1. Write your Hall Ticket Number in the space provided on the top of this page.
2. This paper consists of hundred multiple-choice type of questions.
3. At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested **to open the booklet and compulsorily examine it as below** :
   (i) To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
   (ii) **Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy 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) After this verification is over, the Test Booklet Number should be entered in the OMR Sheet and the OMR Sheet Number should be entered on this Test Booklet.
4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.

   Example : (A) (B) ● (D)

   where (C) is the correct response.
5. Your responses to the items are to be indicated in the **OMR Answer Sheet given to you**. If you mark at any place other than in the circle or half circle or semi circle in the Answer Sheet, it will not be evaluated.
6. Read instructions given inside carefully.
7. Rough Work is to be done in the end of this booklet.
8. If you write your name or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.
9. **The candidate must handover the OMR Answer Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall.** The candidate is allowed to take away the carbon copy of OMR Sheet and used Question paper booklet at the end of the examination.
10. **Use only Blue/Black Ball point pen.**
11. **Use of any calculator or log table etc., is prohibited.**
12. **There is no negative marks for incorrect answers.**

అభ్యర్థికి సూచనలు

1. ఈ పుట పై భాగంలో ఇవ్వబడిన స్థలంలో మీ హాల్‌టికెట్ నంబరు రాయండి.
2. ఈ ప్రశ్న పత్రము వంద (100) బహుళైచ్చిక ప్రశ్నలను కలిగి ఉంది.
3. పరీక్ష ప్రారంభమున ఈ ప్రశ్నాపత్రము మీకు ఇవ్వబడుతుంది మొదటి ఐదు నిమిషములలో ఈ ప్రశ్నాపత్రమును తెరిచి కింద తెలిపిన అంశాలను తప్పనిసరిగా సరిచూసుకోండి.
   (i) ఈ ప్రశ్న పత్రమును చూడడానికి కవర్ పేజి అంచున ఉన్న కాగితపు సీలును చించండి. కాగితపు సీలులేని మరియు ఇదివరకే తెరిచి ఉన్న ప్రశ్నాపత్రమును మీరు అంగీకరించవద్దు.
   (ii) కవర్ పేజి పై ముద్రించిన సమాచారం ప్రకారం ఈ ప్రశ్న పత్రములోని పేజిల సంఖ్యను మరియు ప్రశ్నల సంఖ్యను సరిచూసుకోండి పేజిల సంఖ్యకు సంబంధించి గాని లేదా సూచించిన సంఖ్యలో ప్రశ్నలు లేకపోవుట లేదా నిజప్రతి కాకపోవుట లేదా ప్రశ్నలు క్రమపద్ధతిలో లేకపోవుట లేదా ఏవైనా తేడాలుండుట వంటి దోషపూరితమైన ప్రశ్న పత్రాన్ని వెంటనే మొదటి ఐదు నిమిషాల్లో పరీక్ష పర్యవేక్షకునికి తిరిగి ఇచ్చివేసి దానికి బదులుగా సరిగ్గా ఉన్న ప్రశ్నపత్రాన్ని తీసుకోండి. తదనంతరం ప్రశ్నపత్రము మార్చబడదు అదనపు సమయం ఇవ్వబడదు.
   (iii) పై విధంగా సరిచూసుకొన్న తర్వాత ప్రశ్నపత్రం సంఖ్యను OMR పత్రము పై అదేవిధంగా OMR పత్రము సంఖ్యను ఈ ప్రశ్నాపత్రము పై నిర్దిష్ట స్థలంలో రాయవలెను.
4. ప్రతి ప్రశ్నకు నాలుగు ప్రత్యామ్నాయలు (A), (B), (C) మరియు (D) లుగా ఇవ్వబడ్డాయి. ప్రతి ప్రశ్నకు సరైన జవాబును ఎన్నుకొని OMR పత్రములో ప్రతి ప్రశ్న సంఖ్యకు ఇవ్వబడిన నాలుగు వృత్తాల్లో సరైన జవాబు సూచించే వృత్తాన్ని బాల్ పాయింట్ పెన్ తో కింద తెలిపిన విధంగా పూరించాలి.

   ఉదాహరణ : (A) (B) ● (D)

   (C) సరైన ప్రతిస్పందన అయితే.
5. ప్రశ్నలకు జవాబును ఈ ప్రశ్నపత్రముతో ఇవ్వబడిన OMR పత్రము పైన ఇవ్వబడిన వృత్తాల్లోనే పూరించి గుర్తించాలి. అలాకాక సమాధాన పత్రం పై వేరొక చోట గుర్తించిన లేక సగ వృత్తం లేదా అసంపూర్ణ వృత్తాన్ని నింపిన మీ జవాబు మూల్యాంకనం చేయబడదు.
6. ప్రశ్న పత్రము లోపల ఇచ్చిన సూచనలను జాగ్రత్తగా చదవండి.
7. చిత్తుపని ప్రశ్నపత్రము చివర ఇచ్చిన ఖాళీ స్థలములో చేయాలి.
8. OMRపత్రము పై నిర్దిష్ట స్థలంలో సూచించవలసిన వివరాలు తప్పించి ఇతర స్థలంలో మీ గుర్తింపును తెలిపే విధంగా మీ పేరు రాయడం గాని లేదా ఇతర చిహ్నాలను పెట్టడం గాని చేసినట్లయితే మీ అనర్హతకు మీరే బాధ్యులవుతారు.
9. పరీక్ష పూర్తయిన తర్వాత OMR పత్రాన్ని తప్పనిసరిగా పరీక్ష పర్యవేక్షకుడికి ఇవ్వాలి. వాటిని పరీక్ష గది బయటకు తీసుకువెళ్ళకూడదు. పరీక్ష పూర్తయిన తరువాత అభ్యర్థులు ప్రశ్న పత్రాన్ని OMR పత్రం యొక్క కార్బన్ కాపీని తీసుకువెళ్ళవచ్చు.
10. నీలి/నల్ల రంగు బాల్ పాయింట్ పెన్ మాత్రమే ఉపయోగించాలి.
11. లాగరిథమ్ టేబుల్స్, క్యాలిక్యులేటర్లు, ఎలక్ట్రానిక్ పరికరాలు మొదలగునవి పరీక్ష గదిలో ఉపయోగించడం నిషిధం.
12. తప్పు సమాధానాలకు మార్కుల తగ్గింపు లేదు.
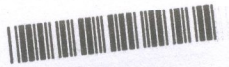
DO NOT WRITE HERE

COMPUTER SCIENCE AND APPLICATIONS
Paper – II

1. Let R be a relation on the set of all integers, where $(x, y) \in R$ if and only if $x = y^2$. Determine whether R is
   - (A) Reflexive
   - (B) Symmetric
   - (C) Anti symmetric
   - (D) Transitive

2. Let f be a function from R to R, defined by $f(x) = \dfrac{(x^2 + 1)}{(x^2 + 2)}$. f is
   - (A) one-to-one only
   - (B) a bijection
   - (C) not a function
   - (D) not a bijection

3. There are 38 different time periods during which classes at a University can be scheduled. If there are 677 different classes, how many different rooms will be needed ?
   - (A) 18
   - (B) 28
   - (C) 38
   - (D) 27

4. A Club has 25 members. The number of ways to choose four members of the Club to serve on an executive council is
   - (A) 10,650
   - (B) 12,650
   - (C) 12,100
   - (D) 10,100

5. The number of bit strings of length 10 contain at least three 1s and at least three 0s is
   - (A) 684
   - (B) 902
   - (C) 612
   - (D) 912

6. Let $V = \{S, A, B, a, b\}$ and $T = \{a, b\}$. Determine whether P consists of $S \to aA$, $A \to a$, $A \to b$.
   - (A) is type 2 only
   - (B) is type 3, not type 2
   - (C) is type 2, not type 1
   - (D) none of the above

7. For which value of n, the graph K_n is regular ?
   - (A) For all $n \geq 3$
   - (B) For all $n \geq 0$
   - (C) For all $n \geq 1$
   - (D) For $n = 3$

8. The string 11101 is not in
   - (A) $\{0, 1\}^*$
   - (B) $\{1\}^* \{0\}^* \{1\}^*$
   - (C) $\{11\} \{1\}^* \{01\}$
   - (D) $\{11\}^* \{01\}^*$

9. _____ is known as universal gate.
   - (A) NOT gate
   - (B) NAND gate
   - (C) OR gate
   - (D) NOR gate

10. Let P(x) be the statement "x spends more than five hours every weekday in class", where the universe of discourse for x is the set of students. The quantification $\exists x \neg P(x)$ means in English
   - (A) There is a student who does not spend more than 5 hours every weekday in class
   - (B) There is a student who does not spend 5 hours every weekday in class
   - (C) There is a student who spends more than 5 hours every weekday in class
   - (D) There is a student who spends 5 hours every week in class

11. The binary equivalent of $(0.6875)_{10}$ is
   - (A) $(0.1111)_2$
   - (B) $(0.1010)_2$
   - (C) $(0.1101)_2$
   - (D) $(0.1011)_2$

12. The octal equivalent of $(0.513)_{10}$ is
   - (A) $(0.405612)_8$
   - (B) $(0.406512)_8$
   - (C) $(0.406517)_8$
   - (D) $(0.406571)_8$

13. The complement of the function $F = x'yz' + x'y'z$ is F', where F' is
   - (A) $(x + y' + z)(x + y + z')$
   - (B) $(x' + y + z)(x' + y + z')$
   - (C) $(x + y + z)(x + y' + z')$
   - (D) $(x + y' + z')(x' + y' + z)$

14. What is the output of the following program ?

```
#include <stdio.h>
int main()
{
    int a[ ] = {1, 2, 3, 4, 5, 6};
    int * ptr = (int *) (&a+1);
    printf("%d", *(ptr–1));
    return 0;
}
```

(A) 1

(B) 2

(C) 6

(D) Runtime errors

15. What is the meaning of using extern before function declaration ? For example following function f1 is made extern

```
extern int f1(int a, int b)
{
    return (a+b);
}
```

(A) Function is made globally available

(B) Extern means nothing, f1() is same without extern keyword

(C) Function need to be declared before its use

(D) Function is made local to the file

16. What does the following fragment of C-program print ?

Char C[ ] = "TSET2018";

Char *P = C;

Printf ("%S", P + P[3] – P[1]);

(A) TSET2018

(B) T2018

(C) 2018

(D) 018

17. What is the return type of malloc () or calloc () ?

(A) Void *

(B) Pointer of allocated memory type

(C) Void **

(D) int *

18. If a class contains pure virtual function, then it is termed as

(A) Virtual class

(B) Sealed class

(C) Pure class

(D) Abstract class

19. One of the following statements is false

(A) Union may also be used to define a class in C++

(B) In C++, unions may also include constructors and destructors

(C) In C++, unions may contain both member functions and variables

(D) A union in C++ can inherit any other classes of any type

20. What is the output of the following C++ program ?

```cpp
#include <iostream.h>
using namespace std;
int i;
Class A
{
         Public :
                 ~A()
                 {i = 10;
                 }
};
int foo()
{ i = 3; A ob; return i;
}
int main()
{
    cout << foo() << endl;
    return 0;
}
```

(A) 0

(B) 3

(C) 10

(D) 12

21. What is the output of the following code segment ?

```cpp
#include <iostream>
using namespace std;
class A {
protected : int i;
public :
    A (int x) {i = x; cout << "Constructing A";}
    ~A() {cout <<"Destructing A";}
};
class B : public A {
    int j;
public :
        B (int x, int y) : A(y)
        {
            j = x;
            cout << "Constructing B";
        }
    ~B()
    {
      cout << "Destructing B";
    }
      void show()
      {
        cout << i << " " << j;
      }
};
int main ()
{
    B ob(3, 4);
    ob.show();
    return 0;
}
```

(A) 4 3

(B) 3 4

(C) Compilation error

(D) Runtime error

22. For the table given below, which of the following is true ?

T1 :

A	B	C	D
a_1	b_1	c_1	d_1
a_2	b_3	c_1	d_2
a_3	b_4	c_2	d_2
a_4	b_2	c_2	d_1

(A) Any subsort of ABCD is a candidate key

(B) A, B, C and D are only candidate keys

(C) A and C are candidate keys

(D) A, B and CD are candidate keys

23. What is the output of relational algebraic query ?

Name $- \pi_{Name}((Name \infty \pi_{Beer}$ (Likes) – Likes) on schema Name (drinker) and Likes (drinker, Beer)

(A) It prints lists of names of the drinkers who do not like Beer

(B) It prints all the names of drinkers who take atleast one kind of Beer

(C) It prints all the names the drinkers who likes all Beers

(D) It prints all the names of the drinkers who likes all Beers which are not in the Beer table

24. The Relation R(X, Y) may have duplicate tuples. Which of the following SQL queries has a result that is guaranteed not have duplicates, regardless of what tuples R contains ?

I. Select X from R where X = 1

II. Select Min(Y) from R group by X

III. Select X, Y from R group by X, Y

IV. Select X from R where X not in (Select X from R)

(A) III and IV   (B) III only

(C) I and II   (D) II, III and IV

25. Locks held for short duration are termed as

(A) Index Locks

(B) Shared Locks

(C) Latch

(D) Phantom Problem

26. Which of the following statement is true ?

I. Reliability is poor and availability is good in distributed database.

II. Data localization reduces the contention of CPU and I/O services.

III. Expansion of system in terms of adding more data or adding more processors is difficult in distributed database.

(A) I is false and II and III are true

(B) II is true and I and III are false

(C) All statements are false

(D) All statements are true

27. Which of the following is true ?

I. Query By Example (QBE) uses linear style of SQL.

II. Query By Example (QBE) is visual relational database query language.

(A) Both are true

(B) Both are false

(C) Only I is correct

(D) Only II is correct

28. The result of SQL statement

Select substr('123456789', INSTR ('abcabcabc', 'b'),4) is

(A) 6789

(B) 2345

(C) 1234

(D) 456789

29. Consider relation R(A, B, C, D) with set of functional dependencies F = {A → AC, B → ABC, D → ABC}. Which of the following is false ?
    (A) AD is candidate key
    (B) Closure of C (C⁺) is non empty
    (C) A → AC is nontrivial dependency
    (D) Closure of B (B⁺) is ABCD

30. When data are added or deleted frequently from a file, the file is said to have
    (A) Relevancy
    (B) Volatility
    (C) Quality
    (D) Accuracy

31. The best file organization and access method, when the volatility is high is
    (A) Sequential
    (B) Direct
    (C) Indirect
    (D) Indexed sequential

32. Thomas Write rule is used for
    (A) Enhancing the greater concurrency by accepting obsolete writes
    (B) Enhancing the greater concurrency by rejecting obsolete writes
    (C) Lower the concurrency by accepting the obsolete writes
    (D) Lower the concurrency by rejecting the obsolete writes

33. Which of the following is an optimistic concurrency control scheme ?
    (A) Lock Based Protocols
    (B) Timestamp Protocols
    (C) Both (A) and (B)
    (D) Neither (A) nor (B)

34. Which of the following is true with respect to conflict equivalent schedules S_1 and S_2 ?
    (A) $S_2(S_1)$ can be obtained from $S_1(S_2)$ by swapping any pair of operations of $S_1(S_2)$
    (B) S_2 can not be obtained from S_1 or S_1 can not be obtained from S_2
    (C) $S_2(S_1)$ can be obtained from $S_1(S_2)$ by swapping non-conflicting pair of operations of $S_1(S_2)$
    (D) $S_2(S_1)$ can be obtained from $S_1(S_2)$ by swapping conflicting pair of operations of $S_1(S_2)$

35. Consider the following statements
    I. Every view serializable is conflict serializable.
    II. Any view serializable that is not conflict seriable must contain a blind write.
    Which of the following is correct ?
    (A) Both are true   (B) Both are false
    (C) I is true   (D) II is true

36. How many nonisomorphic rooted trees are there with 4 vertices ?
    (A) 4   (B) 2^4
    (C) $2^4 - 1$ (D) 1

37. A clique in a simple undirected graph is a complete subgraph that is not contained in any larger complete subgraph.
    How many cliques the following graph have ?
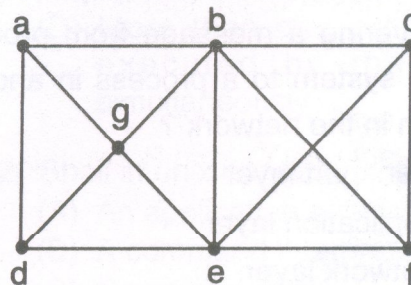
    (A) 4   (B) 1
    (C) 7   (D) 5

38. Which of the following is not a Local Area Network Standard ?
   (A) IEEE 802.3
   (B) IEEE 802.4
   (C) IEEE 802.5
   (D) IEEE 804.6

39. The protocol that is mostly responsible for making a packet switched network a reliable network
   (A) RARP   (B) ARP
   (C) ICMP   (D) IP

40. Which of the following protocol is not an application layer protocol ?
   (A) FTP
   (B) SMTP
   (C) SNMP
   (D) SCTP

41. The two layers which are responsible for error detection and correction are
   (A) Physical and Data link layers
   (B) Data link layer and Network layers
   (C) Data link layer and Transport layer
   (D) Transport layer and Application layer

42. Which layer takes the responsibility of delivering a message from process in one system to a process in another system in the network ?
   (A) Transport layer
   (B) Application layer
   (C) Network layer
   (D) Presentation layer

43. Which of the following statement(s) regarding linker software is/are true ?
   I. A function of the linker is to combine several object models into a single load module.
   II. A function of a linker is to replace absolute references in an object module by symbolic references to locations in other modules.
   (A) Only I
   (B) Only II
   (C) Both I and II
   (D) Neither I nor II

44. The translator which performs macro calls expansion is called
   (A) Preprocessor
   (B) Macro preprocessor
   (C) Macro processor
   (D) Preassembler

45. Consider the following statements related to compiler construction
   I. Lexical analysis is specified by context free grammar and implemented by push down automata.
   II. Syntax analysis is specified by regular expressions and implemented by finite state machine.
   Which of the above statement(s) is/are correct ?
   (A) Only I
   (B) Only II
   (C) Both I and II
   (D) Neither I nor II

46. One of the purposes of using intermediate code in compilers is to
    (A) Make parsing and semantic analysis simpler
    (B) Improve error recovery and error reporting
    (C) Increase the chances of reusing the machine independent optimizer in other compilers
    (D) Improve the register allocation

47. In a two pass assembler, symbol table is
    (A) Generated in second pass
    (B) Generated in first pass
    (C) Generated and used in second pass only
    (D) Not generated at all

48. Which of the following describes a handle appropriately ?
    (A) It is a non terminal whose production will be used for reduction in the next step.
    (B) It is a position in a sentential form where the next shift or reduce operation will occur.
    (C) It is the production P that will be used for reduction in the next step along with a position in the sentential form where RHS of the production is found.
    (D) It is the production that may be used for reduction in future step.

49. Match all the items in Group 1 with correct options from those given in Group 2 :

Group 1	Group 2
P. Regular expression	1. Syntax analyzer
Q. Push down automata	2. Code generation
R. Data flow analysis	3. Lexical analysis
S. Register allocation	4. Code optimization

    (A) P – 4, Q – 1, R – 2, S – 3
    (B) P – 3, Q – 1, R – 4, S – 2
    (C) P – 3, Q – 4, R – 1, S – 2
    (D) P – 2, Q – 1, R – 4, S – 3

50. The Lexical analysis for a modern computer language needs which of the following machine models ?
    (A) Deterministic push down automata
    (B) Non-deterministic push down automata
    (C) Finite state automata
    (D) Turing machine

51. In a multi programming operating system
    (A) User programs are executed sequentially
    (B) More than one user program will reside in the primary memory simultaneously
    (C) Only one program reside in the primary memory at any time
    (D) More than one program can be executed by the processor simultaneously

52. Shell in unix operating system is
    (A) An application software
    (B) A command interpreter
    (C) Command only
    (D) It is a text editor utility

53. Which of the following memory allocation techniques provide virtual memory ?
   (A) Contiguous memory allocation
   (B) Sequential memory allocation
   (C) Demand paged memory allocation
   (D) Random memory allocation

54. Which of the features of unix may be used for inter process communication ?
   (A) Signals
   (B) Pipes
   (C) Semaphores
   (D) All of the above

55. Unix file system is hierarchical in nature. Which of the following is true for a directory ?
   (A) It is a leaf node
   (B) It is a path name
   (C) Every non leaf node of the file system structure is a directory
   (D) Only root node is a directory

56. System calls are responsible to deal with
   (A) Shell
   (B) Library functions
   (C) Kernel data structures
   (D) User level programs only

57. Consider the following command that invokes the executable file a.out, with the following command line arguments a.out God loves you.

   argv[2][2] corresponds to which character ?
   (A) e
   (B) o
   (C) v
   (D) d

58. A file system in unix OS consists of
   (A) Boot block, super block
   (B) Inode list, data blocks
   (C) Boot block, super block, inode list
   (D) Boot block, super block, inode list, data block

59. The description of particular product, program or set of programs in a target environment is characterized as
   (A) Software engineering
   (B) Software development
   (C) Software process
   (D) Software requirements specification

60. On the following process model, risk is evaluated and managed at each stage of development.
   (A) Spiral model
   (B) Agile model
   (C) Waterfall model
   (D) Unified process model

61. One of the following is the technique of requirements elicitation
   (A) Structure chart
   (B) ER diagram
   (C) Class diagram
   (D) Use-case model

62. The process of transforming source code to design is known as
   (A) Software refactoring
   (B) Software restructuring
   (C) Reverse engineering
   (D) Reengineering

63. A web server sends a program to be stored on the user's hard drive called a _____ frequently without a disclosure or the user's content.
   (A) Cookie
   (B) Website
   (C) Server
   (D) Data store

64. A situation where a business is selling online to an individual consumer is
    (A) Business-to-consumer E-commerce
    (B) Business-to-Business E-commerce
    (C) E-Business
    (D) Banner

65. The processing time of a business process from beginning to end is
    (A) Cycle time
    (B) Lead time
    (C) Lapsed time
    (D) Process time

66. Computer-to-computer direct transfer of standard business documents is
    (A) EDI (Electronic Data Interchange)
    (B) EFT (Electronic Fund Transfer)
    (C) Electronic Distributor
    (D) e-broker

67. The concept of delivering the ordered items at a designated time is
    (A) JIT (Just-In-Time)
    (B) Ontime shipping
    (C) Online delivery
    (D) Supply chain

68. A Boolean function is self-dual if and only if $F(x_1, x_2, \ldots, x_n) = \overline{F(\overline{x}_1, \overline{x}_2, \ldots, \overline{x}_n)}$.

    Which of the following functions are self-dual ?
    I. $F(x, y) = x$
    II. $F(x, y) = xy + \overline{x}\,\overline{y}$
    III. $F(x, y) = x + y$
    IV. $F(x, y) = xy + \overline{x}y$
    (A) I, II are self dual
    (B) I and IV are self dual
    (C) II and III are self dual
    (D) III and IV are self dual

69. A Threshold gate produces an output y that is either 0 or 1, given a set of input values for Boolean variables $x_1, x_2, \ldots, x_n$. A Boolean function that can be represented by Threshold gate is called Threshold function.
    I. $F(x, y) = x \oplus y$ is not a Threshold function.
    II. $F(x, y, w, z) = wx + yz$ is a Threshold function.
    Identify correct statement.
    (A) I is true
    (B) II is true
    (C) Both are false
    (D) Both are true

70. The number of squares in a Karnaugh map with five variables is
    (A) 5
    (B) 25
    (C) 32
    (D) 16

71. The 8085 instruction set is classified into groups according word size. Which of the following is not belong to instruction set group ?
    (A) 1-byte instruction
    (B) 2-byte instruction
    (C) 3-byte instruction
    (D) 4-byte instruction

72. The fastest memory in memory hierarchy is
    (A) SRAM
    (B) Cache
    (C) Registers
    (D) DRAM

73. Cache memory is implemented using
    (A) PROM   (B) EPROM
    (C) Dynamic RAM   (D) Static RAM

74. Which circuit implements the hardware priority interrupt unit function to determine the highest priority of simultaneously arriving input signals ?
   (A) Priority encoder
   (B) Priority selector
   (C) Priority decoder
   (D) Multiplexer

75. What does the last instruction of each subroutine that transfer the control to the instruction in the calling program with temporary address storage, called as
   (A) Jump to subroutine
   (B) Call subroutine
   (C) Return from subroutine
   (D) Branch to subroutine

76. Graphics adapter card is used for the purpose of
   (A) Sending Graphics data to input unit
   (B) Sending Graphics data to output unit
   (C) Receiving Graphics data from output unit
   (D) All of the above

77. $x = at^2$; $y = 2at$ is the parametric equation of
   (A) Circle
   (B) Rectangular hyperbola
   (C) Ellipse
   (D) Parabola

78. The anti-aliasing technique which allows shift of ¼, ½ and ¾ of a pixel diameter enabling a closed path of a line is
   (A) Pixel phasing
   (B) Filtering
   (C) Intensity compensation
   (D) Sampling technique

79. All the hidden surface algorithms employ image space approach except
   (A) Back face removal
   (B) Depth buffer method
   (C) Scan line method
   (D) Depth sort method

80. In Breshenham's algorithm, while generating a circle, it is easy to generate
   (A) One octant first other by successive reflection
   (B) One octant first and other by successive rotation
   (C) One octant first and other by successive translation
   (D) All octants generated

81. In which of the following situations might a blind search be acceptable ?
   (A) Real-life
   (B) Complex game
   (C) Small search space
   (D) Large search space

82. Which is not a property of representation of knowledge ?
   (A) Representation verification
   (B) Representation adequacy
   (C) Inferential adequacy
   (D) Inferential efficiency

83. Web crawler is a/an
   (A) Intelligent goal-based agent
   (B) Problem solving agent
   (C) Simple reflex agent
   (D) Model based agent

84. A production rule consists of
   (A) A set of rule
   (B) A sequence of steps
   (C) Set of rules and sequence of steps
   (D) Arbitrary representation to a problem

85. What combines inductive methods with the power of first-order representation ?
(A) Inductive programming
(B) Logic programming
(C) Inductive logic programming
(D) List programming

86. The truth values of traditional set theory is _____ and that of fuzzy set is _____
(A) Either 0 or 1, between 0 and 1
(B) Between 0 and 1, either 0 or 1
(C) Between 0 and 1, between 0 and 1
(D) Either 0 or 1, either 0 or 1

87. A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization, the output will be zero when and only when the input is
(A) 000 or 110 or 011 or 101
(B) 010 or 100 or 110 or 101
(C) 000 or 010 or 110 or 100
(D) 100 or 111 or 101 or 001

88. Which algorithm is used for solving temporal probabilistic reasoning ?
(A) Hill climbing search
(B) Hidden Markov model
(C) Depth-First search
(D) Breadth-First search

89. Why is the XOR problem exceptionally interesting to neural network researchers ?
(A) Because it can be expressed in a way that allows you to use a neural network
(B) Because it is complex binary operation that cannot be solved using neural network
(C) Because it can be solved by single layer perception
(D) Because it is the simplest inseparable problem that exist

90. An auto-associative network is
(A) A neural network that contains no loop
(B) A neural network that contains feedback
(C) A neural network that has only one loop
(D) A single layer feed forward neural network with preprocessing

91. The language recognized by the finite automaton
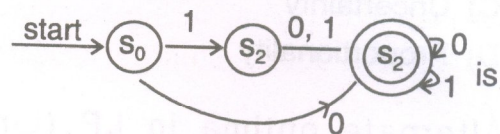
(A) $\{0, 10, 11\} \cup \{0, 1\}^*$
(B) {string of 0s and 1s}
(C) $\{0, 10, 11\} \{0, 1\}^+$
(D) $\{0, 10, 11\} \{0, 1\}^*$

92. The regular expression for the set of strings with either no. 1 preceding a 0 or no. 0 preceding a 1 is
(A) $\{0, 1\} \cup \{10\}^*$
(B) $\{0, 1\}^* \cup \{1, 10\}^*$
(C) $0^*1^* \cup 1^*0^*$
(D) None of the above

93. The regular expression for the set of all strings of 0's and 1's beginning with 0 and ending with 1 is
(A) $0 \{0 \cup 1\}^*1$
(B) $0 \cup 1^* \cup \{0 \cup 1\}$
(C) $1^* 0 \{0 \cup 1\}^*$
(D) None of the above

94. If a grammar G has three productions $S \rightarrow a S a | b s b | c$, then
(A) abcba and bacab $\in$ L(G)
(B) abcba and abcab $\in$ L(G)
(C) acccb and bccca $\in$ L(G)
(D) accca and bcccb $\in$ L(G)