PART – A

1. Arrange the given words in alphabetical order and choose the one that comes first.
   A) Qualify   B) Quarter   C) Quarrel   D) Quarry

Direction Q. 2: A foreign expression and four English phrases are given. Identify the meaning of the foreign expression from the choices.

2. ex officio
   A) Unofficial   B) By virtue of official
   C) A retired official   D) Make public

Direction Q. 3: Identify the meaning of underlined word as used in the sentence, from among four alternatives.

3. As the result came in, all the party workers were in a jubilant mood and began to <u>rejoice</u>.
   A) propagate   B) exclaim
   C) applaud   D) celebrate

Direction Q. 4: An idiom and four possible meanings are given, identify the correct meaning of the idiom from among the answer choices.

4. Cut no ice
   A) feel uncomfortable   B) come to nothing
   C) to fail   D) have no influence or effect

Direction Q. 5: Fill in the blanks in the given sentence to make it logically and grammatically correct.

5. A lot of people believe that perspiration _____ body odour.
   A) promotes   B) results in   C) makes   D) causes

Direction Q. 6 : A sentence is written in four different forms. Only one of them is grammatically correct. Choose the correct sentence as your answer.

6. A) This problem affects each and everyone of us.
   B) This problem affects each and every one of us.
   C) This problem affects each one of us.
   D) This problems affects each and everyone of us.

Direction Q. 7: Four alternative substitutes are given for the underline portion. Identify the choice that replace the underline part to form a logical and grammatically correct statement.

7. The course is <u>going to start on</u> January 20th.
   A) is going to start by
   B) is going to be started on
   C) starts on
   D) starting on

Direction Q. 8: A word and four jumbled choices are given. One of the choices, when properly arranged, give the meaning of the word. Identify the correct choice.

8. FANTASTIC
   A) TIAIRLSIC
   B) BDCINREILE
   C) ALCER
   D) YNIMIAGAR

Direction Q. 9: From the choices, select the most suitable synonym for the main word.

9. SURROGATE
   A) influence
   B) nourish
   C) substitute
   D) indicate

Direction Q. 10: From the choices, select the most suitable antonym for the main word.

10. DOCILE
    A) painful
    B) hesitant
    C) obdurate
    D) silent

Direction Q. 11: There is a certain relation between two given words on one side of : : and one word is given on another side of : : while another word is to be found from the given alternatives , having the same relation with this word as the given pair has. Select the best alternative.

11. Gun : Bullet : : Chimney : ?
    A) Ground
    B) House
    C) Roof
    D) Smoke

Direction Q. 12: There is a certain relation between two given numbers on one side of : : and one number is given on another side of : : while another number is to be found from the given alternatives , having the same relation with this number as the given pair has. Select the best alternative.

12. 21 : 3 : : 574 : ?
    A) 23
    B) 82
    C) 97
    D) 113

Direction Q. 13: In the given question, four words have been given, out of which three are alike in some manner and the fourth one is different. Choose out the odd one.

13. A) Snake   B) Whale   C) Crocodile   D) Lizard

Direction Q. 14: In the given question, four numbers are given. Out of these, three are alike in a certain way but the rest one is different. Choose the one which is different from the rest three.
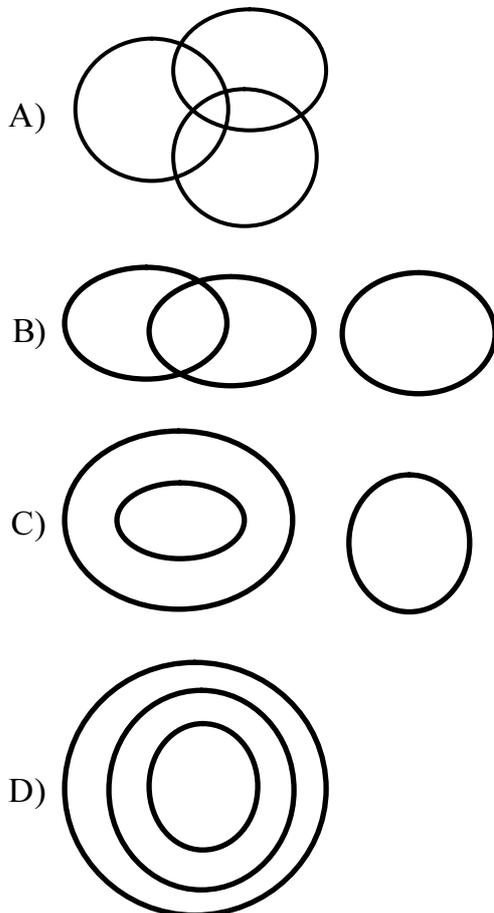
14. A) 51   B) 144   C) 64   D) 121

Direction Q. 15: In the given question, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern.

15. 3,9,27,81, (…)

     A) 324   B) 243   C) 210   D) 162

16. If in a certain language, COMPUTER is coded as RFUVQNPC, how is MEDICINE coded in that code ?

     A) EOJDJEFM   B) EOLDEJFM   C) MFEJDJOE   D) MFEDJJOE

17. Which of the following diagrams correctly represents Judge, Thief, Criminal ?

A)

B)

C)

D)

18. A number is doubled and 9 is added. If the resultant is trebled, it becomes 75.
    What is that number ?
    A) 3.5   B) 6   C) 8   D) none of these

19. 40% of 1640 + ? = 35% of 980 + 150% of 850
    A) 372   B) 842   C) 962   D) 1052

20. If a : b : c = 4 : 1 : 2 and (a + b + c) = 14 , then the value of c is
    A) 6   B) 7   C) 8   D) 4

21. In what time, will a train 100 meters long cross an electric pole, if its speed be
    144 km/hr ?
    A) 2.5 seconds   B) 4.25 seconds   C) 5 seconds   D) 12.5 seconds

22. Who has clinched the 2017 women's singles India Super Series Badminton Tournament ?
    A) Sung-Ji-Hyuan   B) P. V. Sindhu
    C) Saina Nehawal   D) Carolina Marin

23. Which Institute has topped the 2017 National Institutional Ranking Framework (NIRF)
    ratings for higher standards institutions ?
    A) Indian Institute of Science, Bangalore
    B) Indian Institute of Technology, Chennai
    C) Indian Institute of Technology, Mumbai
    D) Indian Institute of Technology, Kharagpur

24. The National Girl Child Day is observed every year on
    A) 26th January
    B) 24th January
    C) 22nd January
    D) 20th January

25. Koteshwar Hydro Electric Project is located in
    A) Kerala
    B) Uttar Pradesh
    C) Uttrakhand
    D) Rajasthan

26. Concept of Impact Factor was given by
    A) Jorge Hirsch
    B) Eugene Garfield
    C) Henry Maxwell
    D) None

27. Plagiarism is
    A) using the ideas and words of someone else as my own work
    B) result of a new experiments
    C) calculation of the H-index
    D) conducting filed level experiments

28. Which one is not an example of Applied Research ?
    A) curing a specific disease
    B) improving agricultural crop production
    C) determination of boiling point of a liquid
    D) improving the energy efficiency of cars

29. Bibliography is
    A) A list of chemicals used in research
    B) A list of references cited in a research paper
    C) Affiliations of the authors in a research paper
    D) None of the above

30. H-index can be calculated for
    A) an individual researcher
    B) a university department
    C) whole university
    D) all of the above

31. A researcher reproduces a 50 word passage from a cited work but replaces 10 words
    from the original passage with synonyms. This is an example of
    A) Secondary data   B) H-index
    C) Paraphrasing   D) Impact factor

32. Which of the following is not considered to be an example of scientific misconduct ?
    A) Fabrication of data
    B) Authorship on a project that you did not work
    C) Plagiarism
    D) Publishing a table of data with a typographical error

33. Which one of the following tools is used for quantitative research ?
    A) Open ended questions
    B) Check list
    C) Focus depth interviews
    D) Observations

34. Which of the following is non-parametric test ?
    A) t-test
    B) ANOVA
    C) Chi-square test
    D) All of the above

35. An independent t-test can be used to assess which of the following ?
    A) It assesses goodness of fit
    B) It assesses relationships between two interval data sets
    C) It assesses how many factors there are in questionnaire data
    D) All of the above

36. Class of variable which can accept only values from set of integers is classified as
    A) Discrete random variable
    B) Continuous random variable
    C) Posterior random variable
    D) All of the above

37. 10^{-12} is called as
    A) Mega   B) Terra
    C) Pica   D) Giga

38. Chi-square curve ranges from
    A) $-\infty$ to $+\infty$ B) 0 to ∞
    C) $-\infty$ to 0   D) 0 to 1

39. The straight line graph of the linear equation $Y = a + bX$, slope will be upward if:
    A) b = 0   B) b < 0
    C) b > 0   D) b ≠ 0

40. Histogram is a graph of
    A) Time series   B) Frequency distribution
    C) Qualitative data   D) Ogive

41. A circle in which sectors represents various quantities is called
    A) Histogram   B) Frequency Polygon
    C) Component Bar chart   D) Pie Chart

42. SPSS is a
    A) Computer hardware used in mouse
    B) Software package used for data analysis
    C) Chemical used in experiments
    D) International organization

43. The correlation coefficient is used to determine
    A) A specific value of the y-variable given a specific value of the x-variable
    B) A specific value of the x-variable given a specific value of the y-variable
    C) The strength of the relationship between the x and y variables
    D) None of these

44. When regression line passes through the origin then
    A) Regression coefficient is zero
    B) Correlation is zero
    C) Association is zero
    D) Intercept is zero

45. In a set of observations, unusual lower and higher values are called as
    A) Outliers   B) Central liners
    C) Median liners   D) Free liners

46. The median value for the below given data set :
    (13, 18, 13, 14, 13, 16, 14, 21, 13) is
    A) 9   B) 13   C) 14   D) 15

47. The probability of an event cannot be
    A) 0.3   B) 0.5   C) – 0.5   D) 1.0

48. Normal distribution is
    A) Platykurtic   B) Mesokurtic
    C) Leptocurtic   D) All of the above

49. Which of the following is an example of a secondary source of information ?
    A) Experiment   B) Survey
    C) Journal   D) Questionnaire

50. Hypothesis tests are designed so that the _____ hypothesis will be rejected.
    A) null   B) alternative
    C) alpha   D) beta

PART B

51. A partial ordered relation is transitive, reflexive and
    A) antisymmetric   B) bisymmetric
    C) antireflexive   D) asymmetric

52. The function f: N → N defined by f(x) = x² is
    A) one to one   B) onto
    C) one to one and onto   D) none of these

53. The grammar used for specifying the syntax of the programming language construct is
    A) context sensitive   B) right linear
    C) left linear   D) context free

54. Which of the following regular expression denotes all possible strings over an alphabet {a,b}
    A) a/b   B) (ab)*   C) (a/b)*   D) a*/b

55. The language generated by the context free grammar S → aSa | bSb | a | b over an alphabet {a,b} is the set of
    A) all palindromes
    B) all odd length palindromes
    C) strings that begin and end with the same symbol
    D) all even length palindromes

56. $(1217)_8$ is equivalent to
    A) $(4C1)_{16}$ B) $(28F)_{16}$ C) $(2297)_{10}$ D) $(B17)_{16}$

57. How many flip-flops are needed to divide the input clock frequency by 64
    A) 4   B) 5   C) 8   D) 6

58. Which one of the following is not a combinational circuit ?
    A) full adder   B) multiplexer
    C) demultiplexer   D) shift register

59. In propositional logic, which one of the following is equivalent to P → Q ?
    A) ~ P → Q   B) ~ P V Q
    C) ~ P → ~ Q   D) P → ~ Q

60. The output of the following program is

    A) 24   B) 11   C) 10   D) 9

```c
void main()
  {
        int fact(int n);
        int n=4, r;
        r=fact(n);
        printf("%d",r);
  }
int fact(int n)
  {
        int f =1;
        if (n==1) return (1);
        else
        f=n+fact(n-1);
        return(f);
  }
```

61. The output of the following program is

    A) 234   B) 222   C) 111   D) 123

```c
void main()
  {
        void func();
        func();
        func();
        func();
  }
void func()
  {
        static int i=1;
        printf("%d",++i);
  }
```

62. The output of the following program is

A) 5665   B) 6565

C) 6556   D) 5656

```c
#include <stdio.h>
void main()
    {
        void swap(int a, int b);
        int a=5,b=6;
        swap(a,b);
        printf("%d%d\n",a,b);
    }
  void swap(int a, int b)
    {
        int t;
        t=a; a=b; b=t;
        printf("%d%d",a,b);
    }
```

63. The scope resolution operator connects the following two entities reading from left to right

A) class and member of that class

B) class member and a class object

C) class object and class member

D) class and class object

64. Which one of the following is not a valid declaration in C++ ?

A) int a   B) int * a

C) int **a   D) none of these

65. Which normal form is considered adequate for normal relational database design ?

A) 5NF   B) 2NF

C) 3NF   D) BCNF

66. A prime attribute of a relation scheme R is an attribute that appears
    A) in all candidate keys of R
    B) in some candidate key of R
    C) in a foreign keys of R
    D) only in the primary key of R

67. An index is clustered, if
    A) it is on a set of fields that form a candidate key
    B) it is on a set of fields that include the primary key
    C) the data records of the file are organized in the same order as the data entries of the index
    D) the data records of the file are organized not in the same order as the data entries of the index

68. Given the basic ER and relational models, which of the following is incorrect ?
    A) An attribute of an entity can have more than one value
    B) An attribute of an entity can be composite
    C) In a row of a relational table, an attribute can have more than one value
    D) None of the above

69. Which of the following is not a type of SQL constraint ?
    A) index key   B) primary key
    C) foreign key   D) unique

70. The height of a tree is the length of the longest root-to-leaf path in it. The maximum and minimum number of nodes in a binary tree of height 5 is
    A) 63 and 6, respectively
    B) 64 and 5, respectively
    C) 32 and 6, respectively
    D) 31 and 5, respectively

71. The following postfix expression with single digit operands is evaluated using a stack
    8 2 3 ^ / 2 3 * + 5 1 * −

    Note that ^ is the exponentiation operator. The top two elements of the stack after the first * is evaluated are

    A) 3, 2   B) 5, 7   C) 6, 1   D) 1, 5

72. Given a hash table T with 25 slots that stores 2000 elements, the load factor α for T is

   A) 800
   B) 80
   C) 0.0125
   D) 1.25

73. B+ trees are preferred to binary trees in databases because

   A) Disk access is much slower than memory access
   B) Disk capacities are greater than memory capacities
   C) Disk data transfer rates are much less than memory data transfer rates
   D) Disks are more reliable than memory

74. In the index allocation scheme of blocks to a file, the maximum possible size of the file depends on

   A) the size of the blocks and the size of the address of the blocks
   B) the size of the blocks, the number of blocks used for the index and the size of the address of the blocks
   C) the number of blocks used for the index and the size of the blocks
   D) none of the above

75. What is the output of following function for start pointing to first node of following linked list ?
   $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6$
   voidfun(structnode* start)
   {
   if(start == NULL)
   return;
   printf("%d ", start–>data);
   if(start–>next != NULL)
   fun(start–>next–>next);
   printf("%d ", start–>data);
   }
   A) 1 4 6 6 4 1
   B) 1 3 5 1 3 5
   C) 1 2 3 5
   D) 1 3 5 5 3 1

76. ALOHA

    A) is used for channel allocation problem

    B) is a mechanism used for buffering

    C) is used for data transfer

    D) all of the above

77. A router operates at

    A) the data link layer   B) the application layer

    C) the transport layer   D) the network layer

78. Hamming distance between 001111 and 010011 is

    A) 1   B) 3   C) 2   D) 4

79. In the IPv4 addressing format, the number of networks allowed under Class C addresses is

    A) 2^{14} B) 2^7 C) 2^{21} D) 2^{24}

80. Which one of the following is a top-down parser ?

    A) Recursive descent parser   B) Operator precedence parser

    C) LR(k) parser   D) LALR(k) parser

81. Which data structure in a compiler is used for managing information about variables and their attributes ?

    A) Abstract syntax tree   B) Parse table

    C) Semantic stack   D) Symbol table

82. 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 code optimizer in other compliers

    D) improve the register allocation

83. The graph that shows the basic blocks and their successor relationship is called

   A) DAG

   B) Flow graph

   C) Control graph

   D) Hamiltonian graph

84. Which of the following is not indicated on a data flow diagram ?

   A) processing

   B) source

   C) timing

   D) data storage

85. Waterfall model is not suitable for

   A) accommodating change

   B) small projects

   C) complex projects

   D) none of these

86. Win32 program utilizes a central function called

   A) Main()

   B) WinApp()

   C) Win32Main()

   D) WinMain()

87. Interaction Diagram is a combined term for

   A) Sequence Diagram + Collaboration Diagram

   B) Activity Diagram + State Chart Diagram

   C) Deployment Diagram + Collaboration Diagram

   D) None of the above

88. A process executes the code

         fork ();
         fork ();
         fork ();

   The total number of child processes created is

   A) 3   B) 8   C) 4   D) 7

89. Thrashing occurs when

    A) When a page fault occurs

    B) Processes on system frequently access pages not in memory

    C) Processes on system are in running state

    D) Processes on system are in waiting state

90. Which of the following is not true in deadlock prevention and deadlock avoidance schemes ?

    A) In deadlock prevention, the request for resources is always granted if the resulting state is safe

    B) In deadlock avoidance, the request for resources is always granted if the result state is safe

    C) Deadlock avoidance is less restrictive than deadlock prevention

    D) Deadlock avoidance requires knowledge of resource requirements a priori

91. The shell command

    find -name passwd -print

    is executed in /etc directory of a computer system running Unix. Which of the following shell commands will give the same information as the above command when executed in the same directory ?

    A) ls passwd   B) cat passwd

    C) grep print passwd   D) grep name passwd

92. At a particular time of computation the value of a counting semaphore is 7. Then 20 P operations and 15 V operations were completed on this semaphore. The resulting value of the semaphore is

    A) 42   B) 2   C) 7   D) 12

93. VoLTE stands for

    A) Voice over Long Time Evolution

    B) Voice over Long Term Evolution

    C) Video over Long Time Evolution

    D) Video over Long Term Evolution

94. In k-nearest neighbor algorithm, k stands for
   A) number of neighbors that are investigated
   B) number of iterations
   C) number of features
   D) number of training data

95. The full form of OLAP is
   A) Online Analytical Performance
   B) Online Advanced Processing
   C) Online Advanced Preparation
   D) Online Analytical Processing

96. Which one of the following is not a valid instruction in 8085 microprocessor ?
   A) MOV A,B   B) ORA B   C) XOR B   D) RLC

97. The transformation function used to obtain a negative gray image (pixel gray value y) from a positive gray image (pixel gray value x) is
   A) y= 255-x   B) y=256-x   C) y=128-x   D) y=127-x

98. What are the following sequence of steps taken in designing a fuzzy logic system ?
   A) Fuzzification $\rightarrow$ Rule evaluation $\rightarrow$ Defuzzification
   B) Fuzzification $\rightarrow$ Defuzzification $\rightarrow$ Rule evaluation
   C) Rule evaluation $\rightarrow$ Fuzzification $\rightarrow$ Defuzzification
   D) Rule evaluation $\rightarrow$ Defuzzification $\rightarrow$ Fuzzification

99. In 2D-translation, a point (x, y) can move to the new position (x', y') using the equation
   A) x'=x+dy and y'=y+dx
   B) x'=x+dx and y'=y+dy
   C) x'=x+dx and y'=y-dy
   D) x'=x–dx and y'=y+dy

100. Time complexities of binary search and quicksort are _____ and _____, respectively.
   A) $O(n), O(n^2)$ B) $O(n), O(n\log_2 n)$
   C) $O(\log_2 n), O(n^2)$ D) $O(\log_2 n), O(n\log_2 n)$

_____

SPACE FOR ROUGH WORK