1. Who invented analytical engine which is deemed as the first mechanical computer ?
   A) Charles Babbage
   B) Blaise Pascal
   C) Gottfried Leibniz
   D) John Napier

2. What is the memory size of a normal DVD ?
   A) 9.4 GB
   B) 700 MB
   C) 750 GB
   D) 4.7 GB

3. Who is the first Indian born CEO of Google ?
   A) Shantanu Narayen
   B) Sundar Pichai
   C) Satya Nadella
   D) Nikesh Arora

4. In the computer memory hierarchy pyramid, which of the following will come in the bottom layer ?
   A) Registers
   B) RAM
   C) Tape Backup
   D) USB

5. What is the expansion of HTTPS ?
   A) Hyper Text Transfer Protocol Server
   B) Hyper Text Transfer Protocol Service
   C) Hyper Text Transfer Protocol Secure
   D) Hyper Text Transfer Protocol System

6. A device driver generally provides a software interface to
   A) hardware devices
   B) users
   C) kernel
   D) public

7. What is the expansion of NIC, which is an important component for establishing computer network ?
   A) Network Interchange Card
   B) Network Interface Card
   C) Network Interchange Centre
   D) Network Interface Centre

8. The external peripherals of a computer can be classified into two main category- input and output devices. Find the odd one in the following.
   A) Modems
   B) Touch Screen
   C) Facsimile (FAX)
   D) Projector

9. In the modern specification of a computer, the CPUs come with more than one core. What do you mean by multi core ?
   A) CPU connected to two or more independent users
   B) CPU with two or more independent processing units
   C) CPU that has an OS with multithreading
   D) CPU connected to two or more independent clouds

10. _____ developed the basic architecture of computer in which the data and the program are stored in the computer's memory in the same address space.
   A) John Von Neumann
   B) Charles Babbage
   C) Blaise Pascal
   D) Garden Moore

11. The Translation Lookaside Buffer (TLB) is most related to
    A) Disk Scheduling
    B) CPU Scheduling
    C) Interrupt Vector Table
    D) Page Table

12. Which of the following is an application of distributed database system ?
    A) MySQL
    B) MS Access
    C) DNS Server
    D) Web Server

13. You have a binary search tree with n nodes. In the following traversals which will help you to print the data in ascending order
    A) Inorder Traversal
    B) Preorder Traversal
    C) Postorder Traversal
    D) BFS

14. What do you mean by interfaces in Object Oriented Analysis and Design ?
    A) GUI design patterns
    B) Both micro and macro components in GUI
    C) GUI available to the public
    D) Public methods in a class

15. Which of the following is true about a linker ?
    A) Linker uses source code as its input
    B) Linker is required to create a load module
    C) Linker is used to link the compiler
    D) Linker is similar to interpreter

16. What is the output of the following C program ?

```
void main()
{
int count = 0;
printf("Welcome to do-while loop:");
do
        printf("%d", count);
 while(count ++<=1);
}
```

    A) Welcome to do-while loop: 0
    B) Welcome to do-while loop: 0 1
    C) Welcome to do-while loop: 0 1 2
    D) Welcome to do-while loop: 0 1 2 3

17. A variable name in C programming cannot start with
    A) underscore
    B) number
    C) small letter alphabet
    D) capital letter alphabet

18. Suppose you have a class, List, for the data structure linked list. While inheriting the List class for implementing the data structure stack, which of the following will be the most appropriate ?
A) class Stack: public List
B) class Stack: private List
C) class Stack: protected List
D) class Stack: List

19. The runtime message passing and method invocation are more closely related to
A) Dynamic linking
B) Dynamic typing
C) Dynamic loading
D) Dynamic binding

20. The total number of pixels in a unit display area of a graphics system can be treated as
A) Resolution
B) Aspect ratio
C) Golden ratio
D) Depth of an image

21. The monthly incomes of P and Q are in the ratio of 5 : 4. Their expenses are in the ratio of 3 : 2. If P saves Rs. 6,000 and Q saves Rs. 5,000 at the end of the month, their monthly incomes respectively are in Rs.
A) 7,500, 5,000 B) 7,500, 6,000 C) 6,000, 5,000 D) 6,000, 4,000

22. How many times an hour hand and a minute hand of a clock are at right angles during their motion from 1.00 p.m. to 10.00 p.m. ?
A) 9 B) 10 C) 18 D) 20

23. How many letters of the English alphabet (capitals) appear the same when looked at in a mirror ?
A) 9 B) 10 C) 11 D) 12

24. Out of 150 students appearing in an examination, 72 failed in English, 62 failed in Mathematics, whereas 34 failed in both English and Mathematics. The number of students who passed in the examination is
A) 50 B) 40 C) 45 D) 55

25. In a family, a couple has a son and a daughter. The age of the father is three times that of his daughter and the age of the son is half of his mother. The wife is nine years younger to her husband and the brother is seven years older than his sister. The age of the mother is
A) 50 B) 60 C) 65 D) 58

26. If the 3rd day of a month is Friday, which one of the following will be the fifth day from 21st of that month ?
A) Monday B) Tuesday C) Wednesday D) Saturday

27. In how many different ways can 5 books A, B, C, D and E be arranged on a shelf so that two particular books A and B are always kept together ?
A) 24 B) 36 C) 12 D) 48

28. P runs faster than Q, R runs slower than S, S runs slower than Q. Who is the slowest runner ?
A) P B) Q C) R D) S

29. Product of 7825 and 9999999 is
A) 78249992175 B) 78259992175 C) 7825999175 D) 7824999275

30. The unit's digit in the product $7^{71} \times 3^{100}$ is
A) 3 B) 7 C) 2 D) 9

31. The perimeter of a rectangle is 100 m. Which one of the following is the maximum area of the rectangle ?
A) 100 sq.m. B) 600 sq.m. C) 625 sq.m. D) 2500 sq.m.

32. There is an order of 38000 quantity of a particular product from a customer. The firm produces 1000 quantity of that product per day out of which 5% are unfit for sale. In how many days will the order be completed ?
A) 39 B) 38 C) 40 D) 44

33. A class starts at 8 a.m. and lasts till 12 noon. Five periods of equal duration are held during this interval. After every period, a rest of 5 minutes is given to the students. The exact duration of each period is
A) 44 minutes B) 46 minutes C) 43 minutes D) 45 minutes

34. Anu ate grapes and pineapples; Balu ate grapes and oranges; Carlin ate oranges, pineapple and apple; Dina ate grapes, apple and pineapple. After taking the fruits, Balu and Carlin fell sick. In the light of the above facts, it can be said that the cause of sickness was
A) Apple B) Pineapple C) Grapes D) Oranges

35. The sum of the ages of 5 members of a family 3 years ago was 100 years. The average age of the family today is the same as it was 3 years ago since a baby was adopted by the family during this period. How old is the baby ?
A) 3 years B) 5 years
C) 2 years D) None of these

36. A person allows a 10% discount for cash payment from the marked price of a toy and still he makes a 10% gain. What is the cost price of the toy which is marked Rs. 1,540 ?
A) Rs. 1,210 B) Rs. 1,240 C) Rs. 1,260 D) Rs. 1,280

37. A and B can complete a work together in 5 days. If A works at twice his speed and B at half his speed, this work can be finished in 4 days. How many days would it take for A alone to complete the job ?
A) 10 B) 12 C) 15 D) 18

38. A and B decide to travel from place X to place Y by bus. A has Rs. 20 with him and he finds that it is 80% of the bus fare for two persons. B finds that he has Rs. 6 with him and hands it over to A. In this context, which one of the following statements is correct ?
A) The money A has is just enough to buy two tickets
B) A still needs Rs. 2 for buying tickets
C) After buying tickets A will be left with Re.1
D) The money A now has is still not sufficient to buy two tickets

39. Mouse is to cat as fly is to
A) Rat B) Animal C) Spider D) Horse

40. A person travels 12 km to the North, then 15 km to the East, after that 15 km to the West and then 18 km to the South. How far is he from the starting point ?
A) 6 km B) 12 km C) 33 km D) 60 km

41. Let a = SD (10, 20, 30,..., 100) and b = (16, 26, 36,....., 106). Then which one of the following statements is true ?
A) $a < b$ B) $a = b$ C) $b^2 = a^2 + 6$ D) $b = a + 6$

42. Let X be a discrete random variable having moment generating function,
$M(t) = \left(\frac{1}{3} + \frac{2}{3}e^t\right)^2$
Then $E(2 - X)$ is
A) $\frac{2}{3}$ B) $\frac{4}{3}$ C) $\frac{2}{9}$ D) $\frac{4}{9}$

43. To find out the mean yield per plant, 100 plants were selected at random from a field. The mean yield and standard deviation were found to be 15 and 4 respectively. For $\alpha = 0.05$ and 99 degrees of freedom, the critical value of t is 2, what is the 95% confidence interval for the population mean ?
A) (14.6, 15.4) B) (14.8, 15.2) C) (14, 16) D) (13.5, 16.5)

44. Let X and Y be independent Poisson distributions with parameters 1 and 2 respectively. The conditional expectation of X will be: (given $X + Y = 10$)
A) 20 B) 10 C) $\frac{10}{3}$ D) $\frac{20}{3}$

45. If $Y = aX + 6$ and $X = 3Y - 1$ are regression lines of Y on X and X on Y respectively, then which one of the following is correct ?
A) $0 \le a \le \frac{1}{3}$ B) $a > 1$ C) $0 \le a \le 0.5$ D) $a \ge \frac{1}{3}$

46. Let X be a continuous random variable with distribution function F(.) satisfies the condition

$1 - F(x + y) = [(1 - F(x)(1 - F(y)]$ for $x, y > 0$. Then $P(X = 2)$ is

A) $2e^{-4}$ B) $2e^{-2}$ C) e^{-2} D) 0

47. The standard deviation between the sample observations, x_1 and x_2 is

A) $\frac{|x_1 - x_2|}{2}$ B) $x_1 - x_2$ C) $|x_1 - x_2|$ D) $x_2 - x_1$

48. If X and Y are independent Chi-square distribution with respective parameter values 2 and 3, then the distribution of $\frac{3X}{2Y}$ is

A) F(3, 2) B) F(3, 3) C) F(2, 2) D) F(2, 3)

49. Consider the 2 × 2 contingency table on two attributes A and B

	A_1	A_2
B_1	5	10
B_2	15	20

What is the value of χ^2 for testing the independence of the attributes A and B ?

A) 0.395 B) 0.405 C) 0.415 D) 0.425

50. Let A, B,C be any three events with following probabilities

P(A) = P(B) = P(C) = 0.3,

P(AB) = P(BC) = P(AC) = 0.2, P(ABC) = 0.1.

Then P(A – B – C) is

A) 0.2 B) 0.1 C) 0.3 D) 0

51. How many three digit even numbers can be formed using the integers 1, 2, 3, 4 and 6 ?

A) 75 B) 60 C) 48 D) 30

52. How many different five letter words can be formed using the letters in the word 'TRUST' ?

A) 120 B) 240 C) 60 D) 30

53. How many different four member committees can be formed from a delegation of 7 members ?

A) 24 B) 71 C) 840 D) 35

54. The remainder when 825432619 is divided by 3 is

A) 0 B) 1 C) 2 D) 3

55. Let $a > 0$ and $b > 0$ be integers. Then which of the following is true ?

A) $\sqrt{ab} \leq \frac{a+b}{2}$ B) $\frac{a+b}{2} < \sqrt{ab}$

C) $\frac{2ab}{a+b} > \sqrt{ab}$ D) $\sqrt{ab} > \sqrt{\frac{a^2+b^2}{2}}$

56. The greatest common divisor of 720 and 168 is

A) 48 B) 24 C) 12 D) 1

57. If $\frac{x-3}{x+5} > 0$, then which of the following is true ?

A) $x < 3$ B) $x > 3$

C) $x > -5$ D) None of these

58. The remainder when 2^{501} is divided by 17 is

A) 1 B) 5 C) 7 D) 15

59. The remainder when $1 + 1 \times 2 + 1 \times 2 \times 3 + - - - + 1 \times 2 \times 3 \times - - - \times 100$ is divided by 15 is

A) 1 B) 2 C) 3 D) 5

60. The sum of the first three terms of a geometric progression is 16 and the sum of the next three terms is 128. Then the sum of the first 50 terms of the geometric progression is

A) $2^{50} - 1$ B) $\frac{2^{50}-1}{7}$ C) $16(2^{50}-1)$ D) $\frac{16}{7}(2^{50}-1)$

61. If the roots of the equation $4x^3 - 24x^2 + 23x + 18 = 0$ are in an arithmetic progression, then its solution is

A) $2, \frac{9}{2}, \frac{-1}{2}$ B) $2, \frac{7}{2}, \frac{1}{2}$ C) $2, \frac{5}{2}, \frac{3}{2}$ D) $2, \frac{11}{2}, \frac{-3}{2}$

62. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$, then $A^2 - 5A + 7I =$

A) 0 B) 3 C) 1 D) 2

63. If $A = \begin{bmatrix} 1 & 4 & 5 \\ 2 & 6 & 7 \\ 0 & 0 & 8 \end{bmatrix}$, then det A is

A) 16 B) −16 C) −8 D) 8

64. In the experiment of rolling a die, what is the probability of rolling a number greater than 1 ?

A) $\frac{1}{6}$ B) $\frac{5}{6}$ C) $\frac{1}{3}$ D) $\frac{2}{3}$

65. If three persons are chosen at random from a set of 5 men and 6 women, what is the probability that 3 women are chosen ?

A) $\frac{1}{33}$ B) $\frac{2}{33}$ C) $\frac{4}{33}$ D) $\frac{6}{33}$

66. The value of $\frac{1-i}{2+3i}$ is

A) $-\frac{(1+5i)}{13}$ B) $\frac{(1+5i)}{13}$ C) $\frac{(-1+5i)}{13}$ D) $\frac{(1-5i)}{13}$

67. Let A, B and C be subsets of a universal set U . Then which of the following is not true.

A) $A \cup B = B \cup A$

B) $A \cap (B \cup A) = A$

C) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

D) $\overline{(A \cup B)} = \overline{A} \cup \overline{B}$, where $\overline{A}$ is the complement of A

68. The number of functions from a set {a, b, c} into itself is

A) 6 B) 21 C) 27 D) 8

69. Let $\rho = \{(1, 1), (2, 2), (1, 3), (3, 3), (2, 3), (3, 2)\}$ be a relation on a set $A = \{1, 2, 3\}$. Then

A) ρ is reflexive B) ρ is symmetric

C) ρ is transitive D) None of the above

70. The equation $3x^2 - 6xy + 3y^2 + 2x - 7 = 0$ represents a

A) parabola B) ellipse C) hyperbola D) circle

71. Eccentricity of the hyperbola $9x^2 - 16y^2 - 144 = 0$ is

A) $\frac{4}{5}$ B) $\frac{5}{4}$ C) $\frac{3}{4}$ D) $\frac{4}{3}$

72. $\sin 15° =$

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

73. A solution of the equation $\cos x - \frac{1}{2} = 0$ is

A) $\pi + \frac{\pi}{6}$ B) $2\pi + \frac{\pi}{6}$ C) $\pi + \frac{\pi}{3}$ D) $2\pi + \frac{\pi}{3}$

74. If the 17th and 18th terms of the expansion $(2+a)^{50}$ are equal, then the value of a is

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

75. $\lim_{x \to 2} \frac{x^3 - 4x^2 + 4x}{x^2 - 4} =$

A) 0 B) 2 C) -2 D) 4

76. $\lim_{x \to 0} \frac{\sin 4x}{\sin 2x} =$

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

77. Which of the following is true ?

A) $f(x) = |x-2|$ is a continuous and differentiable at $x = 2$

B) $f(x) = |x-2|$ is a continuous at $x = 2$, but not differentiable at $x = 2$

C) $f(x) = |x-2|$ is not continuous at $x = 2$, but differentiable at $x = 2$

D) $f(x) = |x-2|$ is neither continuous nor differentiable at $x = 2$

78. The derivative of $\sqrt{x}$ is

A) $\sqrt{x}$ B) $\frac{1}{\sqrt{x}}$ C) $\frac{1}{2\sqrt{x}}$ D) $\frac{2}{3}x^{3/2}$

79. The derivative of 2^x is

A) $\log 2$ B) 2^x C) $2^x \log 2$ D) $2^{x \log 2}$

80. The radius of a circle is increasing uniformly at the rate of 2 cm/s. If the radius is 8 cm, then the area of the circle is increasing at the rate of _____ cm^2/s.

A) 16π B) 32π C) 8π D) 64π

81. The slope of the tangent to the curve $x^2 + y^2 - 2x - 4y + 1 = 0$ at (1, 4) is

A) 0 B) $\frac{2}{3}$ C) $\frac{1}{3}$ D) 4

82. The function $f(x) = x^3 - 12x - 5$ is decreasing on

A) $(-\infty, -2)$ B) $(-2, 2)$ C) $(2, 3)$ D) $(3, \infty)$

83. The maximum value of the function $\sin x + \cos x$ is

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

84. The radius of curvature of the parabola $y = x^2$ at the origin is

A) $\frac{1}{2}$ B) 2 C) 1 D) 4

85. The evolute of the circle $x^2 + y^2 = 1$ is the point

A) (1, 0) B) (0, 1) C) (–1, 0) D) (0, 0)

86. $\int \frac{\sin x}{1+\cos x}\, dx =$

A) $\log(1 + \cos x)$ B) $\log(1 + \sin x)$

C) $\log\left(\frac{1}{1+\cos x}\right)$ D) $\log\left(\frac{1}{1+\sin x}\right)$

87. The area of the region bounded by the line $y = 2x$, the line $y = 2$ and the y–axis is

A) 4 sq. units B) 8 sq. units

C) 6 sq. units D) 2 sq. units

88. Which of the following is not a solution to the differential equation ?

$$\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = 0$$

A) e^x B) e^{-x} C) xe^x D) $2 + 3xe^x$

89. The angle between the vectors $i - 2j + 3k$ and $3i - 2j + k$ is

A) $\cos^{-1}\left(\frac{5}{7}\right)$ B) $\cos^{-1}\left(\frac{1}{7}\right)$ C) $\sin^{-1}\left(\frac{5}{7}\right)$ D) $\sin^{-1}\left(\frac{1}{7}\right)$

90. If $(2i + 6j + 27k) \times (i + 3j + \alpha k) = 0$, then $\alpha =$

A) $\frac{27}{2}$ B) $\frac{2}{27}$

C) 27 D) None of these

91. If the line through the points (4, 3) and (12, 7) is perpendicular to the line through the points (b, 8) and (6, 10), then the value of b is

A) 6 B) 7 C) –7 D) 5

92. The angle between the plains $3x - 6y + 2z = 7$ and $2x + 2y - 2z = 5$ is

A) $\cos^{-1}\left(\frac{\sqrt{3}}{21}\right)$ B) $\cos^{-1}\left(\frac{5\sqrt{3}}{21}\right)$ C) $\sin^{-1}\left(\frac{\sqrt{3}}{21}\right)$ D) $\sin^{-1}\left(\frac{5\sqrt{3}}{21}\right)$

93. A harmonic conjugate of $u = 2x(1 - y)$ is

A) $x^2 + 2y + 4$ B) $x^2 + 2y - y^2 + 4$
C) $x^2 - y^2 + 4$ D) $2y - y^2 + 4$

94. The residues of the function $\frac{z^2}{(z^2+1)^2}$ at the pole $z = i$ is

A) $\frac{-i}{4}$ B) $\frac{i}{4}$ C) $\frac{-i}{2}$ D) $\frac{i}{2}$

95. $\int_C \frac{e^z}{z^2(z^2-9)}\,dz =$ _____, where C is the circle $|z| = 1$.

A) $\frac{-2\pi i}{9}$ B) $\frac{2\pi i}{9}$ C) $\frac{\pi i}{9}$ D) $\frac{-\pi i}{9}$

96. Which of the following series is convergent ?

A) $\sum_{n=1}^{\infty} \frac{5}{5n-1}$ B) $\sum_{n=1}^{\infty} \frac{(2n)!}{n!\,n!}$ C) $\sum_{n=1}^{\infty} \frac{2^n}{n^2}$ D) $\sum_{n=1}^{\infty} \frac{n^2}{2^n}$

97. The value of 5.232323 . . . . is

A) $\frac{518}{99}$ B) $\frac{518}{98}$ C) $\frac{517}{97}$ D) $\frac{517}{99}$

98. Which of the following is true about the sequence $\left\{2 - \frac{1}{n}\right\}$?

A) converges to 1 B) converges to 2
C) converges to 0 D) diverges

99. The series $x - \frac{x^2}{2} + \frac{x^3}{3} - \ldots$ converges absolutely in the interval

A) $(-1, 1)$ B) $(1, 2)$
C) $(-3, -1)$ D) $(3, 4)$

100. If the system of equations
$2x + ay = 4$
$4x + y = -2$
Has solution $x = -1, y = 2$, then the value of a is
A) -3 B) 3 C) -2 D) 2

101. How long _____ English ?
A) is he learning B) does he learn
C) he is learning D) has he been learning

102. I usually go to work _____ car.
A) by B) in C) in a D) on

103. Which of the given options arranges the following words as a correct sentence ?

never	Thomas	morning	anything	eats	the	in
1	2	3	4	5	6	7

A) 7, 6, 3, 5, 2, 1, 4 B) 2, 5, 1, 4, 7, 6, 3
C) 2, 1, 5, 4, 7, 6, 3 D) 7, 6, 3, 1, 5, 2, 4

104. Choose the odd pair from the following.
A) manservant-maidservant B) hero-heroin
C) nephew-niece D) donkey-jenny

105. Identify the wrongly spelt word.
A) playwright B) accommodate C) wiered D) supersede

106. There was _____ to help me, so I had to type the document myself.
A) everyone B) anybody C) somebody D) no one

107. _____ in the family went to the film but _____ liked it very much.
A) Everyone/nobody B) Someone/no one
C) Everyone/somebody D) Nobody/everybody

108. Complete the following sentence with the appropriate question tag.
You closed the door, _____ ?
A) did you B) didn't you C) isn't it D) aren't you

109. Unfortunately, I haven't got _____ time for reading books.
A) few B) no C) much D) little

110. Choose the word that is nearly opposite in meaning to LAX.
A) luxurious B) loose C) clear D) strict

111. In the Protection of Children from Sexual Offences Act 2012 (POCSO), 'child' means any person below the age of _____ years.
A) 18 B) 16 C) 14 D) 10

112. The Kanha Tiger Reserve is in which State in India ?
A) Uttar Pradesh
B) West Bengal
C) Madhya Pradesh
D) Karnataka

113. *Alveoli* are related to which part or organ of the human body ?
A) Brain
B) Lungs
C) Liver
D) Kidney

114. Roger Federer won the 2017 Australian Open Tennis Championship by beating _____ in the finals.
A) Novak Djokovic
B) Stan Wawrinka
C) Andy Murray
D) Rafael Nadal

115. Name the low cost regional air connectivity scheme recently launched by the Government of India.
A) UDAN Yojana
B) Akas Yatra
C) Vayudoot
D) Udaan

116. Who among the following sports persons has never won a medal at the Olympic Games ?
A) Leander Paes
B) Saina Nehwal
C) Sushil Kumar
D) P.T. Usha

117. The South Asian Satellite launched by India is intended for
A) Weather forecasting
B) Telecommunication and broadcasting
C) Space studies
D) Defence

118. "Darkness cannot drive out darkness : only light can do that. Hate cannot drive out hate : only love can do that" whose words are these ?
A) Martin Luther King Jr.
B) Mahatma Gandhi
C) Mother Theresa
D) Malala Yousafzai

119. Abandoning the concept of Five Year Plans that India has been following since 1951, NITI Aayog has recently decided to come up with a ———— year vision document for economic growth.
A) 20
B) 15
C) 10
D) 7

120. Name the Malayalam film which was adjudged as the best feature film in regional languages at the 64th National Film Awards 2016 ?
A) *Maheshinte Prathikaram*
B) *Manhole*
C) *Kammatipaadam*
D) *Kaadu Pookkunna Neram*