✓ PDCA

Question Booklet Version : A

Qn. Booklet No. : 25020 **Roll Number :** | | | | | | | | |

INSTRUCTIONS TO CANDIDATES

1. Fill in the OMR sheet carefully as per the instructions given on the back of the OMR Sheet / Admit Card. OMR sheet not correctly filled in will not be valued.
2. Write your Roll Number (all eight digits) and Version as **A** on the Question Booklet and on the left hand side of the OMR sheet (basic data part).
3. The examination consists of 120 Objective type multiple choice questions, which are to be answered in 120 minutes.
4. After opening the Question Booklet ensure that there are 120 Questions and that the printing of all the questions are legible. If there are any missing or illegibly printed questions, the matter may be reported to the Invigilator immediately.
5. There are 4 options (A, B, C & D) for each objective type question. Mark the most appropriate answer to each question by blackening fully the corresponding bubble in the OMR sheet with a black/blue ink ball point pen. **For every correct answer 1 mark will be awarded. No deduction of mark will be made for incorrect answer and unanswered questions.** Marking of more than one bubble against a question number in the OMR sheet shall be considered as an incorrect answer. Erasing, overwriting, partial marking, etc. shall also be treated as incorrect answer.
6. Rough work and calculations can be made in the blank pages attached to the question booklet. Watch, Calculator, Mobile phone, Electronic instruments etc. shall not be allowed in the examination hall.
7. The OMR Sheet and the Hall Ticket should be returned to the Invigilator. The Counterfoil of the Hall Ticket can be retained by the candidate after the examination.
8. Answer keys will be published on the website www.lbscentre.kerala.gov.in after the examination. Complaints, if any, from the candidates regarding the questions, responses / probable answer may be sent to the Email id **lbscentre@gmail.com** before 5.00 p.m. within three calendar days from the date of publication of the answer keys. Complaints not substantiated with supporting documents will not be considered. However the decision of the experts regarding such complaints on the answer keys shall be final.
9. The Answer sheet of candidates who indulge in malpractice in any form shall not be valued.
10. The candidates will be allowed to leave the hall only after the completion of the examination time and after handing over the Answer sheet to the Invigilator.

SEAL

1. The language used to define database structure:
   A) DML B) DDL
   C) DCL D) TCL

2. The SQL command used to remove a table from a database:
   A) DELETE B) REMOVE
   C) DROP D) ERASE

3. Which of the following is a valid SQL constraint?
   A) LIMIT B) BLOCK
   C) UNIQUE D) FIXED

4. What is a primary key?
   A) Duplicate field B) Field with NULLs
   C) Unique identifier D) None of these

5. Which of the following is **not** a type of JOIN?
   A) INNER B) OUTER
   C) LEFT D) UPPER

6. What is normalization?
   A) Data duplication
   B) Organizing data efficiently
   C) Data sorting
   D) Data encryption

7. Which function returns the number of rows in SQL?
   A) SUM( ) B) COUNT( )
   C) AVG( ) D) NUMBER( )

8. The command used to give permission to users in SQL:

A) GRANT
B) ALLOW
C) PERMIT
D) GIVE

9. A database is a collection of:

A) Files
B) Tables
C) Related data
D) Schemas

10. What is a foreign key?

A) Unique field
B) Primary key of another table
C) Random value
D) NULL

11. The keyword used to change data in SQL is:

A) MODIFY
B) CHANGE
C) UPDATE
D) EDIT

12. What does ACID stand for in DBMS?

A) Atomicity, Consistency, Isolation, Durability
B) Add, Check, Integrate, Drop
C) Access, Commit, Integrate, Data
D) Access, Check, Integrate, Data

13. The SQL keyword which sorts the result-set:

A) GROUP BY
B) SORT
C) ORDER BY
D) ARRANGE

14. What is the output of the following code?

```
int main() {
int a = 5, b = 2;
printf("%d", a++ + ++b);
return 0;
}
```

A) 7
B) 8
C) 6
D) 9

15. Which of the following is **not** a valid storage class in C?

A) auto
B) register
C) static
D) dynamic

16. The C library function used to release dynamically allocated memory during runtime:

A) free()
B) NULL
C) remove()
D) empty()

17. The output of the expression 5 * 2 + 3 * 4 will be:

A) 26
B) 23
C) 22
D) 18

18. The operator which has the highest precedence in C:

A) ++
B) *
C) ()
D) &&

19. What is a dangling pointer in C?

A) Pointer that is NULL
B) Pointer that refers to freed memory
C) Pointer pointing to another pointer
D) Pointer not declared

20. The header file needed for 'printf' function:

A) conio.h
B) stdio.h
C) stdlib.h
D) math.h

21. Which loop is guaranteed to execute at least once?

A) for
B) while
C) do-while
D) None of these

22. What does 'break' keyword do in a loop?

A) Skips current iteration
B) Exits loop
C) Exits program
D) Restarts loop

23. The data type used to store a single character in C:

A) int
B) char
C) float
D) string

24. How do you declare a constant in C?

A) #define PI 3.14
B) const float PI = 3.14
C) Both A & B
D) None of these

25. What is the output of:

printf("%d", 10 > 5 && 5 < 3);

A) 1
B) 0
C) True
D) False

26. The function used to write a string to the standard output:

A) scanf()
B) gets()
C) puts()
D) display()

27. What will be the output of the logic expression: !(1 && 0) || (1 && 1) ?

A) 0
B) 1
C) 11
D) Undefined

28. The binary equivalent of decimal 13 is:

A) 1101
B) 1011
C) 1110
D) 1001

29. The number system which has a base of 16:

A) Binary
B) Octal
C) Decimal
D) Hexadecimal

30. The result of 1 AND 0 is:

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

31. Which gate is called a universal gate?

A) AND
B) OR
C) NAND
D) XOR

32. What is the two's complement of 0101?

A) 1010
B) 1101
C) 1011
D) 1110

33. The minimum number of flip-flops required to store one byte is:

A) 4 B) 8

C) 2 D) 1

34. A full adder has _____ inputs and _____ outputs.

A) 2, 1 B) 3, 2

C) 3, 1 D) 2, 2

35. The output of XOR gate when both inputs are 1 is:

A) 0 B) 1

C) 2 D) Undefined

36. The flip-flop known as a basic latch:

A) SR B) JK

C) T D) D

37. The ASCII code stands for:

A) American Standard Code for Information Interchange

B) Advanced System Code for Input Interchange

C) Analog Signal Coding Interface

D) American Standard Code for Information Interface

38. Which of the following is a volatile memory?

A) ROM B) PROM

C) RAM D) EPROM

39. Which of the following converts digital signals to analog?

A) Modulator B) Demodulator

C) Multiplexer D) Decoder

40. Which of the following best describes pipelining in CPUs?

A) Executing multiple processes simultaneously

B) Using cache memory to speed up access

C) Executing multiple instructions in overlapping stages

D) Increasing clock speed

41. Which register holds the address of the next instruction to be executed?

A) IR
B) PC
C) MAR
D) MBR

42. In SQL, which keyword is used for pattern matching with wildcards?

A) FIND
B) LIKE
C) MARK
D) SEARCH

43. Cache memory is used to:

A) Store permanent data
B) Speed up memory access
C) Backup data
D) None of these

44. How many different input combinations are possible for a 4-input logic gate?

A) 8
B) 4
C) 16
D) 32

45. The basic unit of a digital computer is:

A) Processor
B) Transistor
C) Flip-Flop
D) Bit

46. Which of the following uses the stack?

A) Subroutines
B) Loops
C) Variables
D) Pointers

47. Which of the following is the fastest memory?

A) RAM
B) ROM
C) Cache
D) Hard Disk

48. Which among the following is **not** a type of interrupt?

A) Software
B) Hardware
C) Manual
D) Internal

49. The time required to access a storage location is called:

A) Throughput
B) Latency
C) Bandwidth
D) Response time

50. The full form of DBMS is:

A) Database Management System
B) Data Business Management Software
C) Database Manipulation System
D) Data Backup Management System

51. Domain of the real valued function $f(x) = log(x^2 - 10x + 9)$ is:

A) $(9, \infty)$
B) $(-\infty, 1)$
C) $(1, 9)$
D) $(-\infty, 1) \cup (9, \infty)$

52. For what value/s of a real number p, the quadratic equation $px^2 - 2x + 3 = 0$ lies above the x axis?

A) $p < \frac{1}{3}$
B) $p > \frac{1}{3}$
C) $p = \frac{1}{3}$
D) $p \leq \frac{1}{3}$

53. The number of terms in the expansion of $(a + b + c)^{10}$ is:

A) 45
B) 55
C) 66
D) 78

54. The sum of first n terms of an AP is $4n^2 + 3n$. Then the 10^{th} term is:

A) 80
B) 78
C) 77
D) 79

55. The sum of all the three-digit numbers (repetition of digits not allowed) formed using the digits 1, 2, 3, 4 is:

A) 6660
B) 1110
C) 5550
D) 4440

56. Value of the expression $\frac{1}{sin\ 10^\circ} - \frac{\sqrt{3}}{cos\ 10^\circ}$ is:

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

57. The area enclosed by the line segment joining the points (1, 2), (3, 4) with the co-ordinate axes is _____ (sq.units).

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

58. Let G be a square matrix of order 4 with $|G| = 10$. Then $|adj(G)|$ is _____, where $adj(G)$ is the adjoint matrix of G.

A) 10^4 B) 10^3

C) 10^2 D) 10

59. Which among the following data set is consistent?

A) (10, 20) B) (5, 15)

C) (11, 9) D) (8, 12)

60. Let a, b, c, d be non - negative real numbers with $a + b + c + d = 1$. Then the maximum value of $(1 - a)(1 - b)(1 - c)(1 - d)$ is:

A) $\left(\frac{3}{4}\right)^4$ B) $\left(\frac{1}{2}\right)^4$

C) $\left(\frac{2}{3}\right)^4$ D) 1

61. Let the perimeter of a rectangle be given as 40 cm. Then the maximum area (sq.cm) of the rectangle is:

A) 96 B) 99

C) 100 D) 75

62. The value of the integral $\int_0^2 |x^2 - x| dx$ is:

A) $\frac{8}{3}$ B) $\frac{7}{3}$

C) $\frac{5}{3}$ D) 1

63. The probability that a leap year will have 53 Sundays and 53 Mondays is:

A) $\frac{2}{7}$ B) $\frac{3}{7}$

C) $\frac{1}{7}$ D) $\frac{4}{7}$

64. Out of 21 students appeared a test only 11 have passed and their marks are found to be 50, 49, 47, 46, 44, 47, 52, 48, 51, 55, 54 respectively. The median mark of 21 students is:

A) 40 B) 44

C) 47 D) 46

65. There are two variables X and Y. X takes values $1, 2, \ldots, 10$ and Y takes values $101, 102, \ldots, 110$. Which of the following is true in the case of standard deviation?

A) $SD(X) < SD(Y)$
B) $SD(X) > SD(Y)$
C) $SD(X) = SD(Y)$
D) None of these

66. Mean deviation is least when deviations are taken from:

A) mean
B) median
C) mode
D) geometric mean

67. For what value of θ, the vectors $i + 2j + 3k, -i + 5j - \theta k, i - 2k$ are coplanar vectors?

A) $\frac{29}{2}$
B) $\frac{29}{3}$
C) $-\frac{29}{3}$
D) $-\frac{29}{2}$

68. Let $\bar{a}$, $\bar{b}$ be any two vectors in the plane. Then the projection of $\bar{b}$ on $\bar{a}$ is:

A) $\frac{\bar{a}.\bar{b}}{|\bar{a}|}$
B) $\frac{\bar{a}.\bar{b}}{|\bar{b}|}$
C) $\frac{\bar{a} \times \bar{b}}{|\bar{a}|}$
D) $\frac{\bar{a} \times \bar{b}}{|\bar{b}|}$

69. If $i = \sqrt{(-1)}$, then the value of i^i is:

A) $e^{-\frac{\pi}{2}}$
B) $e^{\frac{\pi}{2}}$
C) $\frac{\pi}{2}$
D) $-\frac{\pi}{2}$

70. A fair coin is tossed thrice. Expected number of heads obtained is:

A) $\frac{7}{2}$
B) $\frac{5}{2}$
C) $\frac{9}{2}$
D) $\frac{3}{2}$

71. The solution of the differential equation $\frac{dy}{dx} + \frac{y}{x} = \log x$, given that $y(0) = 0$ is:

A) $y = \frac{x}{4}(2\,logx - 1)$
B) $y = \frac{x}{4}(1 - 2\,logx)$
C) $y = \frac{x}{2}(\,logx - 1)$
D) $y = \frac{x}{2}(\,logx + 1)$

72. A square is chosen at random from a chess board of dimension 8×8. The probability that the chosen square is of dimension 6 units is:

A) $\frac{1}{64}$ B) $\frac{3}{68}$

C) $\frac{3}{17}$ D) $\frac{2}{17}$

73. If x is any positive real number, then the equation $cos\theta = x + \frac{1}{x}$ has _____ real solution (/s).

A) unique B) infinite

C) finite D) no

74. The number of distinct elements in a skew symmetric matrix of order p is:

A) $\frac{(p(p-1))}{2}$ B) $\frac{(p(p+1))}{2}$

C) $p^2 + p + 1$ D) $p^2 - p + 1$

75. There are 4 letters and 4 addressed envelopes. In how many ways these letters can be put in to four envelopes so that only three letters go in to correct envelopes.

A) 3 B) 6

C) 0 D) 9

Direction (**76-77**): Study the following information and answer the questions given below:

Eight friends – P, Q, R, S, T, U, V & W are sitting around a circle facing the center. V is third to the right of Q and second to the left of R. Q is second to the left of T and immediate right of S. U is between Q and T. P is not at the left of R.

76. Who is exactly at left of S?

A) Q B) P

C) U D) V

77. Who is second to right of T?

A) R B) P

C) W D) V

78. What is the maximum number of identical pieces a cube can be cut using 8 cuts?

A) 48
B) 64
C) 27
D) 36

79. What is the angle between the minute hand and hour hand of a clock when the time is 6.15 pm?

A) 90°
B) 95.5°
C) 93.5°
D) 97.5°

80. If the calendar of 1996 AD is kept safe, which year it can be used again?

A) 2003 AD
B) 2016 AD
C) 2024 AD
D) None of these

81. Among M, N, O and P, N is heavier than M and O but O is taller than N. P is not as tall as O, while M is the shortest. O is not as heavy as M. P is heavier than N but shorter than him. Who is the heaviest?

A) M
B) N
C) O
D) P

Directions for **(82-83)** : Study the following information and answer the questions given below:

Dr. Raman, Dr. David, Dr. Bose, Dr. Sulfi and Dr. George are professors who teach five different subjects Zoology, Physics, Botany, Geology and History in four Universities Delhi, Gujarat, Bombay and Calcutta.

Dr. Sulfi teaches Zoology in Bombay University.

Dr. Bose is neither in Calcutta University nor in Delhi University and he neither teaches Geology nor History.

Dr. George teaches Physics but neither in Bombay University nor in Calcutta University.
Dr. Raman teaches History in Delhi University.

Two professors are from Gujarat University.

82. Who teaches Geology?

A) Dr. Bose
B) Dr. Sulfi
C) Dr. David
D) Dr. Raman

83. Dr. George teaches in which University?

A) Gujarat
B) Bombay
C) Delhi
D) Calcutta

84. David walks 10 km north from house and takes a right turn and walks 5 km. Then he turns left and walks 6 km. Finally, he turns left and walks 5 km. Where is he from home when he started walking?

A) 16 km East
B) 16 km North
C) 12 km North
D) 15 km East

85. Identify the odd one:

A) 8
B) 216
C) 81
D) 125

86. Pointing to a photograph, a man says he is the son of my father's only son. How is the man related to the person in the photo?

A) Father
B) Son
C) Grandfather
D) Uncle

87. Find the wrong number in the given series. 8, 27, 125, 343, 1381

A) 27
B) 8
C) 343
D) 1381

88. Rs. 10000 is divided among three workers in the ratio 2:3:5. The share of the second worker is:

A) 2560
B) 3000
C) 3200
D) 3840

89. In a mixture of 60 litres, the ratio of milk and water is 2:1. If the ratio of milk and water has to become 1:2, the quantity of water to be further added is:

A) 20 ltr
B) 30 ltr
C) 40 ltr
D) 60 ltr

90. A man's age was five times his son's age 5 years ago and will be three times his son's age after 3 years. The ratio of their present age is:

A) 5:2
B) 45:13
C) 10:3
D) 11:5

91. The monthly incomes of A and B are in the ratio 3:2 and their monthly expenses are in the ratio 5:3. If each of them saves Rs. 1000 per month then A's income is:

A) 3000 B) 6000

C) 4000 D) 9000

92. The ratio of boys and girls in a class is 3:2. When 6 more girls join the class, this ratio becomes 6:7. How many boys are there in the school?

A) 24 B) 30

C) 12 D) 20

93. The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% interest per annum is Re.1. The sum (in Rs.) is:

A) 625 B) 630

C) 640 D) 650

94. A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?

A) 12 days B) 15 days

C) 16 days D) 14 days

95. A man completes a journey in 10 hours. He travels first half of the journey at the rate of 21 km/hr and second half at the rate of 24 km/hr. Find the total distance of the journey in km.

A) 220 km B) 224 km

C) 230 km D) 225 km

96. What is the probability of getting a sum 9 from two throws of a dice?

A) 1/6 B) 1/8

C) 1/9 D) 1/12

97. The sum of the digits of a 2-digit number is 11. If we add 45 to the number, the new number obtained is a number formed by interchange of the digits. What is the number?

A) 38 B) 47

C) 48 D) 54

98. A number $18567332145x$ is divisible by 8. What can be the minimum value of x?

A) 9 B) 8

C) 4 D) 6

99. In a zoo there are rabbits and pigeons. If their heads are counted, they are 90 while their legs are 224. Find the number of pigeons in the zoo?

A) 50 B) 68

C) 60 D) 65

100. If 40% of 50 = x % of 80. What is the value of x?

A) 20 B) 25

C) 30 D) 40

Questions (**101- 115**). Fill in the blanks using the correct options :

101. Communication through television is _____ communication.

A) Interpersonal B) Public

C) Mass D) Mass Media

102. _____ is the agency of central government that gives information regarding government policies and projects.

A) PIB B) PTI

C) AIR D) PCI

103. _____ is **not** a social network.

A) Linkedin B) Instagram

C) Twitter D) Ebay

104. They _____ here for 10 years.

A) are living B) have been living

C) has been living D) has lived

105. He _____ Tennis every day.

A) play B) is playing

C) has played D) plays

106. She discussed it _____ others.

A) from B) to

C) with D) among

107. They reached Guruvayoor _____ 12 pm.

A) at B) on

C) from D) to

108. He _____ for a movie yesterday.

A) goes B) go

C) went D) gone

109. When I reached the railway station, the train _____ already.

A) left B) had left

C) has left D) is leaving

110. He is smarter than _____ boys in the class.

A) many other B) any other

C) no other D) none of these

111. Principal as well as the faculty members _____ present.

A) are B) were

C) have D) is

112. Fire force _____ the fire to avoid huge loss.

A) put up B) put out

C) put up with D) put on

113. Don't argue _____ that mad lady.

A) from B) at

C) against D) with

114. _____ are the pillars of communication.

1. listening and speaking
2. listening and helping
3. helping and speaking
4. reading and writing

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

115. He sits _____ his friend and his wife.

A) on
B) among
C) at
D) between

116. India's first quantum computing village is to be set up in:

A) Hyderabad
B) Amaravati
C) Mysore
D) Chikmagalur

117. The smallest country in Asia by land area:

A) Cypress
B) Singapore
C) Maldives
D) Thailand

118. Pahalgam, one of the famous health resorts of Jammu & Kashmir where the brutal terrorist attack happened is in the District of:

A) Anantnag
B) Amarnath
C) Pulwama
D) Bandipore

119. The youngest player to score a century in T20 Cricket is:

A) Sachin Tendulkar
B) Yashasvi Jaiswal
C) Vaibhav Suryavanshi
D) Sai Sudharsan

120. The world computer day is celebrated on:

A) 2nd December
B) 12th December
C) 15th February
D) 5th February