PAPER – 3: QUANTITATIVE APTITUDE

All Question are compulsory.

Time: 2 Hours **Marks: 100**

1. A number when divided by 5 leaves remainder 3. When divided by 7 leaves remainder 5. The smallest such number is

   (A) 38

   (B) 33

   (C) 68

   (D) 73

2. If $\frac{mn}{m+n}=14;\frac{np}{n+p}=21;\frac{mp}{m+p}=6,$ then determine (m, n, p)

   (A) $\left(\frac{21}{2},-42,14\right)$

   (B) $\left(-\frac{21}{2},42,-14\right)$

   (C) $\left(14,\frac{21}{2},-42\right)$

   (D) $\left(-14,\frac{-21}{2},42\right)$

3. Column A denotes the system of equations and Column B represents the solutions, then match the right options from Column A to Column B.

A-System of equations	**B-Solutions (X, Y, Z)**
(I) X - Y + Z = 2; X + 2Y + 3Z = 14; 2X + Y + Z = 7	(a) (2, 1, 3)

(II)	X - Y + Z = 4; 2X + Y - Z = 2; X + Y - Z = 0	(b)	(1,2,3)
(III)	2X + 3Y + Z = 14; X + Y + Z = 6; 3X + 2Y + 4Z = 16	(c)	(3, 2, 1)
(IV)	X + Y + Z = 6; 2X + 3Y + Z = 13; X + 4Y + 5Z = 16	(d)	(2, 3, 1)

(A) (1)-(c), (II)-(a), (III)-(d), (IV)-(b)

(B) (1)-(a), (II)-(b), (III)-(d), (IV)-(c)

(C) (1)-(b), (II)-(a), (III)-(d), (IV)-(c)

(D) (1)-(b), (II)-(c), (III)-(a), (IV)-(d)

4. The difference between the compound interest and the simple interest on a certain sum of money at 5% per annum for 2 years is 15. Find the sum.

(A) ₹ 8,000

(B) ₹ 10,000

(C) ₹ 4,000

(D) ₹ 6,000

5. Future value of ₹ 10,000 deposited annually for 4 years at 10% is

(A) ₹ 46,000

(B) ₹ 46,410

(C) ₹ 46,641

(D) ₹ 47,000

6. A sum of ₹ 3,90,625 is invested at 4% per annum compound interest, compounded annually. In how many years will the investment grow to ₹ 4,56,976?

(A) 6 years

(B) 5 years

(C) 4 years

(D) 7 years

7. The compound interest on a sum of money for 2 years at 10% per annum is ₹ 420. Find the simple interest considering the same rate and same time.

(A) ₹ 400

(B) ₹ 800

(C) ₹ 600

(D) ₹ 300

8. The effective rate of interest corresponding a nominal rate of 8% per annum compounded quarterly is

(A) 8.10%

(B) 8.16%

(C) 8.24%

(D) 8.30%

9. A computer loses 15% of its value every year. If its value after five year is ₹ 44,370, then what was its original cost?

(A) ₹ 90,000

(B) ₹ 1,25,000

(C) ₹ 1,20,000

(D) ₹ 1,00,000

10. Match the following projects with their respective Net Present Value (NPV) when the cost of capital is 10% per annum. (All cash flows are given in ₹ thousands)

	Projects	Year 0	Year 1	Year 2	Year 3
(1)	Project P	50	30	35	25
(2)	Project Q	90	50	60	55
(3)	Project R	60	40	30	25
(4)	Project S	70	45	50	35

(NPV's in ₹ thousands):

(a) 14.46

(b) 38.36

(c) 5.86

(d) 24.98

Match the correct pairs:

(A) (1)-(a); (2)-(b); (3)-(c); (4)-(d)

(B) (1)-(a); (2)-(c); (3)-(d); (4)-(b)

(C) (1)-(d); (2)-(b); (3)-(a); (4)-(c)

(D) (1)-(c); (2)-(b); (3)-(a); (4)-(d)

11. A company wants to accumulate ₹ 5,00,000 in 5 years by depositing equal annual amounts in a sinking fund earning 8% annually. The annual approximate deposit required is [Given that $(1.08)^5 = 1.4693$]

(A) ₹ 85,233

(B) ₹ 27,230

(C) ₹ 3,40,300

(D) ₹ 34,030

12. Five people are to be seated in a row. In how many ways can they be arranged so that two particular people X and Y, never sit together.

(A) 24

(B) 72

(C) 48

(D) 96

13. Five men and four women are seated in a row, such that 4 women are always together. In how many ways they can be seated?

(A) 27,280 ways

(B) 37,590 ways

(C) 51,270 ways

(D) 17,280 ways

14. Find the number of ways of arranging 4 letters chosen from 8 distinct letters of the word "SPLENDOR" (no letter repeated)

(A) 1,680

(B) 336

(C) 840

(D) 512

15. How many numbers greater than 2,000 and less than 7,000 can be made with the digits 0, 1, 2, 3, 4, 5, 7 and 9; provided that the repetition of digit in the number is not allowed?

(A) 480

(B) 220

(C) 840

(D) 640

16. An A.P. has first term 7 and common difference 3. The minimum number of terms whose sum exceeds 500 is

(A) 17

(B) 16

(C) 15

(D) 18

17. Evaluate $\lim_{x\to\infty} \frac{x^2+2x+2}{3x^2+x+1}$

(A) 2/3

(B) 1/4

(C) 2

(D) 1/3

18. Given $X = m+\frac{1}{m}$ and $Y = m-\frac{1}{m}$. The value of $\frac{dY}{dX}$ at m = 1 is

(A) 0

(B) ∞

(C) - 3/5

(D) 5/3

19. If $f(X) = 1-\frac{1}{X}$, then the value of $f\left(f\left(\frac{1}{X}\right)\right)$ is

(A) $\frac{X+2}{X+1}$

(B) $\frac{X-2}{X-1}$

(C) $\frac{-X}{X+1}$

(D) X

20. If $X^2Y - Y^2 + 4X = 7$, then $\frac{dY}{dX}$ is equal to

(A) $(2XY + 4) / (2Y - X^2)$

(B) $-(2XY + 4) / (2Y - X^2)$

(C) $(2XY - 4) / (X^2 - 2Y)$

(D) $(2X + 4) / (2Y + X)$

21. In a certain language "TWENTY" is written as "863985" and "ELEVEN" is written as "323039", then how will "TWELVE" be written in that code?

(A) 863063

(B) 863903

(C) 863584

(D) 863203

22. A man walked 30 m towards south, then turned to his right and walked 30 m. Then, turned to his left and walked 20 m. Again, he turned to his left, walked 30 m. How far is he from his initial position?

(A) 30 m

(B) 50 m

(C) 20 m

(D) 80 m

23. In a certain code "CH4IR" is written as "GL8MV". How is "1N5T4GR4M" is written in that code?

(A) 5R9X8KV8Q

(B) 4HFID8LE8N

(C) 4P8W7JU8O

(D) 5KF2E4GR4

24. Mr. X started walking towards East. After moving a distance of 1 km; he turned southward and walked 5 km. Again, he turned to east and walked 2 km. Finally, he turned to the north and walked 9 km. How far is he from his starting point?

(A) 3 km

(B) 7 km

(C) 5 km

(D) 4 km

25. Five people A, B, C, D and E are seated about a round table facing outside the centre but not necessary in the same order. A sits immediate right of E. C sits third to the left of D. Who sits at the immediate right of A and how many persons are sitting between C and D?

(A) D is immediate right of A and 2 persons between C and D

(B) E is immediate right of A and 2 persons between C and D

(C) E is immediate right of A and 1 person between C and D

(D) D is immediate right of A and 1 person between C and D

26. In a group of discussion, six people A, B, C, D, E and F are sitting around a rectangular table.

A is sitting on a side alone.

B and C are sitting on the same side.

F is facing A.

D is sitting immediate left of F.

C is facing D.

Who is between B and F?

(A) D

(B) C

(C) A

(D) E

27. Five people A, B, C, D and E are standing in a row. A is between B and D. E is not at the start of row. C is just before D. Who is in the middle of the row?

(A) C

(B) B

(C) A

(D) E

28. Anay is son of Aarti, Rajat is Aarti's brother, Kashika is the daughter of Ranjana and Ranjana is Rajat's sister. How is Anay related with Kashika?

(A) Nephew

(B) Cousin

(C) Brother

(D) Uncle

29. If A is the brother of B, B is the son of C, C is the daughter of D, and D is the wife of E, how is E related to B?

(A) Uncle

(B) Mother

(C) Grand Mother

(D) Grand Father

30. A is the son of C; C and Q are sisters; Z is the mother of Q. P is the son of Z. Which of the following statement is true?

(A) Q is the maternal grandfather of A

(B) P and A are cousins

(C) P is the maternal uncle of A

(D) C and P are sisters

31. Class boundaries may be defined as

(A) The actual class limit of a class interval

(B) The minimum value of the class interval

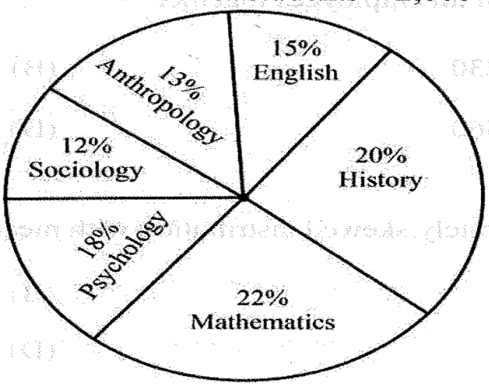
(C) The maximum value of the class interval

(D) The average of maximum and minimum value of class interval

32. The following pic-charts show the percentage-wise distribution of students admitted to six different post graduate level programmes in universities P and Q.

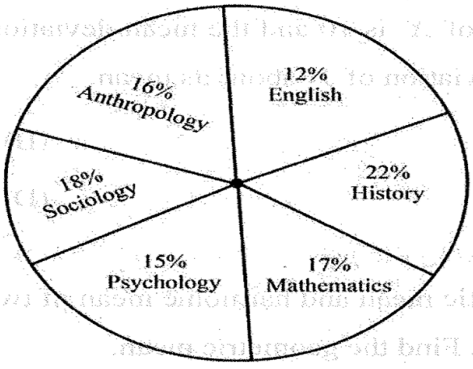
University P

Total number of students = 2,000



University Q

Total number of students = 3,000



The number of students in Mathematics in both the universities is how much more than the number of students in sociology in both the universities?

(A) 170

(B) 200

(C) 100

(D) 250

33. A company has 80 engineers with an average salary of ₹ 60,000 and a standard deviation of ₹ 5,000. It also has 20 managers with an average salary of ₹ 90,000 and a standard deviation of ₹ 8,000. Calculate the standard deviation of salaries of all employees together.

(A) ₹ 15,230

(B) ₹ 13,296.60

(C) ₹ 12,560

(D) ₹ 14,110

34. For a moderately skewed distribution with mean 24 and mode 18, the median is

(A) 64

(B) 16

(C) 18

(D) 22

35. In a manufacturing process, two variable X and Y are related by Y=3X+5. If the mean of X is 10 and the mean deviation about the mean of X is 4, find the mean deviation of Y about its mean.

(A) 0.786

(B) 0.928

(C) 0.343

(D) 0.107

36. The arithmetic mean and harmonic mean of two positive numbers are 25 and 16 respectively. Find the geometric mean.

(A) 20

(B) 12

(C) 15

(D) 30

37. The standard deviation of a data set is 12. If each observation in the data set is increased by 8, what will be the standard deviation of the new data set?

(A) 4

(B) 12

(C) 20

(D) 96

38. Stratified sampling is advisable if

(A) The population is not large

(B) Some prior information is not available

(C) There is not much heterogeneity among the units of population

(D) The population is large and heterogeneous

39. If the relationship between X and Y is given by 4X+6Y=20 and the range of X is 30, what would be the range of Y?

(A) ₹ 25

(B) ₹ 30

(C) ₹ 20

(D) ₹ 35

40. From a pack of 52 cards, 4 cards are drawn. What is the probability that it has all four kings?

(A) $\frac{1}{270725}$

(B) $\frac{1}{38912}$

(C) $\frac{1}{22475}$

(D) $\frac{1}{54145}$

41. For a expected value of a random variable, which statement is not correct?

(A) Expectation of a constant K is K

(B) Expectation of sum of two random variables is not the sum of their expectations

(C) Expectation of the product of a constant and a random variable is the product of the constant and the expectation of the random variable

(D) Expectation of the product of two random variables is the product of the expectation of the two random variables, provided the two variables are independent

42. In a box carrying one dozen of mangoes, one third has become bad. If three mangoes are taken out from the box at random, what is the probability that at least one mango out of three mangoes picked up is good?

(A) $\frac{54}{55}$

(B) $\frac{1}{55}$

(C) $\frac{1}{12}$

(D) $\frac{1}{3}$

43. The value of K for the probability distribution of a random variable X, is

X:	0	1	2	3	4	5	6
P(X):	K	2K	4K	6K	7K	8K	11K

(A) $\frac{1}{40}$

(B) $\frac{1}{13}$

(C) $\frac{1}{39}$

(D) $\frac{1}{49}$

44. The two regression lines are 2X + 3Y = 10 and 4X + Y = 12. The mean values $\left(\overline{X}, \overline{Y}\right)$ are

(A) (3,0)

(B) (2, 2)

(C) (1.6, 2.6)

(D) (2.6, 1.6)

45. For 10 students, Spearman's rank correlation coefficient is 0.70. Find the sum of the squares of the differences between the ranks $\left(\sum d_i^2\right)$

(A) 45.5

(B) 49.5

(C) 52.5

(D) 55.5

46. Consider the statements

S_1 Correlation does not necessarily imply causation.

S_2 If both regression coefficients are greater than one, the correlation is still valid.

(A) Both true

(B) S_1 false S_2 false

(C) S_1 true S_2 false

(D) S_1 false S_2 true

47. The regression coefficients of Y on X and X on Y are respectively - 0.72 and -0.50, then what is the correlation coefficient between X and Y?

(A) -0.60

(B) +0.60

(C) +0.70

(D) -0.66

48. The link relatives of three consecutive years are given below:

Year :	2022	2023	2023
Link Relatives :	108	115	125

If the chain index for 2021 taken as 100, what will be the chain index number for 2024 ?

(A) 148.50

(B) 155.25

(C) 151.20

(D) 162.00

49. Which statement is false?

(A) For Construction of index number, the choice of base period which should be normal and relatively recent is essential

(B) The index number is a special type of average

(C) Theoretically, geometric mean is the best average in the construction of index numbers but in practice, mostly the arithmetic mean is used

(D) There is no such things as unweighted index numbers

50. Which test does not satisfy the Fisher's index number?

(A) Unit test

(B) Time reversal

(C) Circular test

(D) Factor reversal

51. Determine the correct proportion from the given expression: $\frac{X}{2}=\frac{Y}{3}=\frac{Z}{4}$

(A) $\frac{X+2}{X-2}=\frac{Y-3}{Y+3}$

(B) $\frac{Y+3}{Y-3}=\frac{Z+4}{Z-4}$

(C) $\frac{X-2}{X+2}=\frac{Z+4}{Z-4}$

(D) $\frac{Y+3}{Y-3}=\frac{Z-4}{Z+4}$

52. Based on the given expression: $3^X=\left[\frac{10}{3}\right]^Y=10^Z$, identify the correct condition that satisfies the relation

(A) $\frac{1}{X}+\frac{1}{Y}+\frac{1}{Z}=1$

(B) $\frac{1}{X}-\frac{1}{Y}+\frac{1}{Z}=1$

(C) $\frac{1}{X}-\frac{1}{Y}+\frac{1}{Z}=0$

(P) $\frac{1}{X}+\frac{1}{Y}+\frac{1}{Z}=0$

53. If the ratio of income of A and B is 7:9 and each saves ₹ 2,000, their expenditures are in the ratio 3: 4. Find their income respectively.

(A) ₹ 14,000 and ₹ 18,000

(B) ₹ 7,000 and ₹ 9,000

(C) ₹ 27,000 and ₹ 27,000

(D) ₹ 28,000 and ₹ 36,000

54. If $\log_3(x-2)+\log_3(x+2)=2$ then the value of x is :

(A) $\sqrt{11}$

(B) $\sqrt{15}$

(C) $\sqrt{13}$

(D) 5

55. The sum of the ages of father and his son is 60 years. Five years ago, father's age was four times that of his son. The present age of father is

(A) 40 years

(B) 35 years

(C) 50 years

(D) 45 years

56. Consider a system defined by a linear inequality $X \geq 0$, $Y \geq 0$, $X + Y \geq 6$. Based on the above, which of the following statement is correct?

(A) The feasible region is bounded

(B) The feasible region is unbounded

(C) The feasible region contains exactly one point

(D) No feasible region exists

57. For a company, the cost and revenue functions are given as C(x) = 1000 + 5x, R(x) = 9x, where x is the number of items produced and sold. Match Column A with Column B.

A-Value of x,	B-Corresponding value in ₹
(a) x = 250	(i) Profit = ₹ 200
(b) x = 150	(ii) Break-even point
(c) x = 300	(iii) Profit= ₹ 100
(d) x = 275	(iv) Loss = ₹ 400

(A) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)

(B) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

(C) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)

(D) (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

58. If the discount rate is 15% per annum, how much (in nearest) should a company pay today to receive 3,000 in the first year, growing at 8% annually,

(A) ₹ 50,000

(B) ₹ 45,000

(C) ₹ 40,000

(D) ₹ 42,857

59. A perpetuity of ₹ 2,000 is purchased for ₹ 25,000. The implied annual rate is

(A) 6%

(B) 8%

(C) 7%

(D) 10%

60. The following table shows the number of male and female students enrolled in the data science department of a postgraduate program over five years

Year	Male	Female
2020	20	60
2021	28	72
2022	39	90
2023	55	108
2024	38	135

For the Compound Annual Growth Rate (CAGR) of male and female students during the period 2020-2024, which gender shows a higher growth rate and what is the growth percentage of that gender?

(A) Male with 35.8%

(B) Female with 22.5%

(C) Female with 35.8%

(D) Male with 22.5%

61. The number of mobile app users is currently 2,00,000 in a city. If the user base grows at a Compound Annual Growth Rate (CAGR) of 18% for 5 years, find the number of users (approximate) after 5 years in the city. [Given that $(1.18)^5 = 2.2878$]

(A) 6,90,000

(B) 4,57,560

(C) 8,20,000

(D) 5,50,000

62. A project requires an initial investment of ₹ 1,20,000 and generates ₹ 35,000 annually for 5 years. Cost of capital is 10%. [Given P (5, 0.10) = 3.7908]. Compute Net Present Value (NPV) and decide.

(A) NPV = ₹ 5,000 reject

(B) NPV = ₹ 10,000 accept

(C) NPV = ₹ 15,000 accept

(D) NPV = ₹ 12,678 accept

63. A machine costing ₹ 2,00,000 is proposed to be leased out for 5 years at an annual rent of ₹ 56,000 payable at year end, with compound interest at 12% per annum. Which one of the following statement is correct in this case? [Given P(5, 0.12) = 3.6048].

(A) PV = ₹ 1,95,000 not favourable to lessor

(B) PV = ₹ 1,90,000 not favourable to lessor

(C) PV = ₹ 2,01,868 favourable to lessor

(D) PV = ₹ 2,05,000 favourable to lessor

64. The sum of infinite G.P. 12, 4, $\frac{4}{3}, \frac{4}{9}$..... is

(A) 16

(B) 18

(C) 20

(D) 24

65. The sum of the first two terms of a geometric progression (G.P.) is 12, and the sum of the third and fourth terms is 48. Then 6th term of the G.P. is

(A) 64

(B) 72

(C) 96

(D) 128

66. On the set of all integers, the relation R defined by "aRb if and only if a-b is divisible by 3" is

(A) Only reflexive

(B) An equivalence relation

(C) Only symmetric

(D) Only transitive

67. Three number in G.P. have a sum 38 and a product 1728. The numbers are

(A) 9, 12, 16

(B) 6, 12, 24

(C) 8, 12, 18

(D) 4, 12, 36

68. In a survey of 250 people, 140 like Brand A, 150 like Brand B, and 100 like Brand C. 60 like both A and B, 70 like B and C, 50 like both A and C, and 30 like all three. Find the number of people who like none of the Brands.

(A) 10

(B) 40

(C) 210

(D) 240

69. A firm's marginal cost function is MC = 12 - 4X + 3X ^ 2 and its fixed cost is 500. The total cost function C(X) is:

(A) $X^3 + 2X^2 + 12X + 500$

(B) $3X^3 - 2X^2 + 12X + 500$

(C) $2X + 300$

(D) $X^3 - 2X^2 + 12X + 500$

70. Find the odd man out from the following:

3, 10, 29, 66, 127, 220, 345

(A) 220

(B) 127

(C) 29

(D) 345

71. Evaluate integrate $\int_0^1 e^x dX$

(A) e + 1

(B) e

(C) e - 1

(D) 1

72. Find the missing number of the series 8, 6, 9, 23, 87.....

(A) 429

(B) 128

(C) 226

(D) 324

73. In a certain code language, "REFRIGERATOR" is coded "ROTAREGIRFER" which word would be coded as "NOITINUMMA" as

(A) AMNTOMUIN

(B) NMMUNITIOA

(C) AMMUNITION

(D) ANMOMIUTNI

74. A child is looking out his father. He went 90 meters in the East before turning to his right. He went 20 meters before turning to his right again to look for his father at his uncle's place which is 30 meters from his point. His father was not there. From there, he went 100 meters to his North before meeting his father in a street. How far the son from his starting point?

(A) 110 m

(B) 90 m

(C) 80 m

(D) 100 m

75. Four persons A, B, C and D live in a same society. The house of B is in the East of A's house but in the north of C's house. The house of C is in the West of D's house. D's house is in which direction of A's house?

(A) North-East

(B) South-East

(C) East

(D) West

76. Poru starts walking facing west. He turns 90° anticlockwise, then 180° clockwise, and finally 90° clockwise, which direction is he facing now?

(A) He is facing East

(B) He is facing South

(C) He is facing North

(D) He is facing West

77. Six Girls are sitting in a circle facing to the centre of the circle. They are P, Q, R, S, T and V. T is not between Q and S but some other one. P is immediate next to the left of V. R is 4th to the right of P. If P and R interchange their positions then which of the following pair will sit together?

(A) RT

(B) PV

(C) VT

(D) QV

78. If 'P x Q' $\Rightarrow$ P is mother of Q

'P+Q' $\Rightarrow$ P is father of Q;

'P-Q $\Rightarrow$ P is brother of Q;

Then 'M + N- O x P', how M is related to P?

(A) Uncle

(B) Brother

(C) Father

(D) Grand father

79. P, Q, R, S, T, U, V and W are sitting round the circle and are facing the centre.

P is second to the right of T, who is the neighbour of R and V.

S is not neighbour of P.

V is the neighbour of U.

Q is not between S and W.

W is not between U and S.

Which of the following are not neighbours?

(A) US

(B) RT

(C) RQ

(D) QW

80. While introducing a man, a woman said, he is the only son of my mother's mother. How is woman related to man?

(A) Niece

(B) Mother

(C) Aunt

(D) Sister

81. In a statistical table, which part contains the description of rows placed on the left part of table?

(A) Caption

(B) Stub

(C) Main body

(D) Box-head

82. The following table shows a less than cumulative frequency distribution of marks.

Marks less than	Cumulative frequency
10	4
20	9
30	15
40	22
50	30

What is the frequency of the class interval 20-30?

(A) 4

(B) 5

(C) 7

(D) 6

83. The curve which starts with a minimum frequency and then gradually reaches its maximum frequency at the other extremity?

(A) Bell shaped

(B) U shaped curve

(C) J-shaped curve

(D) Mixed curve

84. A population of 1,000 people contains 600 people who support a certain policy. A Simple Random Sample (SRS) of size 50 is drawn with replacement. What will be the Standard Error (S.E.) percentage of the proportion for this sample?

(A) 3.93 %

(B) 6.93%

(C) 4.76%

(D) 5.67%

85. For a data set consisting of positive observations, which of the following inequalities among the three averages is always true?

(A) H.M. $\geq$ G.M. $\geq$ A.M.

(B) G.M. $\geq$ A.M. $\geq$ H.M.

(C) G.M. $\geq$ H.M. $\geq$ A.M.

(D) A.M. $\geq$ G.M. $\geq$ H.M.

86. As the sample size increases, the standard error of the sample mean is also

(A) Increases

(B) Becomes zero always

(C) Decreases

(D) Remains constant

87. A company has 4,800 employees. A sample of 240 employees is selected systematically. If the position of the first employee chosen at random is 5, then what is the position of the 25th employee in the sample?

(A) 485

(B) 465

(C) 475

(D) 495

88. The mean and variance of 8 observations are 6 and 8 respectively. If some of observations are 3, 5, 6, 8, 9, 10, then the remaining two observations are

(A) 1, 5

(B) 1, 6

(C) 2, 6

(D) 3, 5

89. The frequency distribution of students marks of a university are:

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	5	8	15	20	10	7

Calculate the mode of students marks.

(A) 32.50

(B) 32.67

(C) 35.33

(D) 33.33

90. The marks obtained by 11 students are 25, 32, 28, 40, 36, 30, 42, 34, 38, 44 and 46. Find the quartile deviation of marks.

(A) 3

(B) 18

(C) 6

(D) 12

91. The following frequency distribution has mean 11.

Y:	5	10	15	20
f:	4	X	6	2

The missing frequency X is

(A) 18

(B) 8

(C) 10

(D) 12

92. A bag contains 6 green balls and 8 yellow balls. Two balls are drawn successively without replacement. What is the probability that the first ball drawn is green and the second ball drawn is yellow?

(A) 20/91

(B) 24/91

(C) 48/196

(D) 3/7

93. A disease affects 1% of a population. A test is 90% accurate (both ways). If a person tests positive, the probability they have the disease is

(A) 0.90

(B) 0.50

(C) 0.009

(D) 0.083

94. In a school, 40% of the students have brown eyes, 45% have green eyes, and remaining 15% have hazel eyes. For an inter-house competition:

- 70% of the brown-eyed students were selected,
- 80% of the green-eyed students were selected; and
- 60% of the hazel-eyed students were selected.

If a student is chosen at random from the school and it is known that the student was not selected what is the probability that the student has green eyes?

(A) 1/2

(B) 1/4

(C) 1/3

(D) 2/3

95. If X and Y are two independent binomial variates with parameters $\left[2 \text{ and } \frac{1}{2}\right], \left[3 \text{ and } \frac{1}{2}\right]$ respectively, what is P(X+Y ≥ 1) ?

(A) $\frac{1}{32}$

(B) $\frac{1}{2}$

(C) $\frac{5}{8}$

(D) $\frac{31}{32}$

96. For a certain types of mobiles, the length of time between charges of the battery is normally distributed with a mean of 50 hours and a standard deviation of 15 hours. A person owns of these mobiles and wants to know the probability that the length of time will be between 50 and 70 hours is:

[Given that P(Z ≤ 1.33) = 0.9082]

(A) 0.0918

(B) 0.4082

(C) 0.5

(D) 0.54082

97. A call centre receives an average of 3 calls per hour. Assuming that the number of calls follows a Poisson distribution, what is the probability of receiving exactly 2 calls in a given hour?

[Given that e^{-3} = 0.0498]

(A) 0.2241

(B) 0.1494

(C) 0.4482

(D) 0.0747

98. The original price index of various years is as follows:

Year:	1980	1981	1982	1983	1984
Original Price Index:	100	104	107	110	112

What will be the splicing price index for the year 1981 if the base shifted to year 1984?

(A) 89.28

(B) 104.67

(C) 116.48

(D) 92.86

99. The two lines of regression is given by 9X+12Y=36 and 3X+6Y=12 respectively. The correlation coefficient between X and Y is

(A) 1.225

(B) $+\sqrt{\frac{2}{3}}$

(C) $-\sqrt{\frac{2}{3}}$

(D) 0.92

100. The weighted aggregative price index numbers for 2001 with 2000 as the base year using Fisher's ideal index number is

Commodity	**Price (in ₹)**		**Quantities**	
	2000	2001	2000	2001
A	10	18	20	22
B	8	8	16	18
C	5	6	10	11
D	4	4	7	8

(A) 112.26

(B) 112.40

(C) 112.50

(D) 112.38

Answer Key

1.	**(B)**	2.	**(A)**	3.	**(C)**	4.	**(D)**	5.	**(B)**
6.	**(C)**	7.	**(A)**	8.	**(C)**	9.	**(D)**	10.	**()***
11.	**(A)**	12.	**(B)**	13.	**(D)**	14.	**(A)**	15.	**(C)**
16.	**(A)**	17.	**(D)**	18.	**(B)**	19.	**()***	20.	**(A)**
21.	**(D)**	22.	**(B)**	23.	**(A)**	24.	**(C)**	25.	**(A) &(D)**
26.	**(B)**	27.	**(C)**	28.	**(B)**	29.	**(D)**	30.	**(C)**
31.	**(A)**	32.	**(A)**	33.	**(B)**	34.	**(D)**	35.	**()***
36.	**(A)**	37.	**(B)**	38.	**(D)**	39.	**(C)**	40.	**(A)**
41.	**(B)**	42.	**(A)**	43.	**(C)**	44.	**(D)**	45.	**(B)**
46.	**(C)**	47.	**(A)**	48.	**(B)**	49.	**(D)**	50.	**(C)**
51.	**(B)**	52.	**(D)**	53.	**(A)**	54.	**(C)**	55.	**(D)**
56.	**(B)**	57.	**(A)**	58.	**(D)**	59.	**(B)**	60.	**(A)**
61.	**(B)**	62.	**(D)**	63.	**(C)**	64.	**(B)**	65.	**(D)**
66.	**(B)**	67.	**(C)**	68.	**(A)**	69.	**(D)**	70.	**(A)**
71.	**(C)**	72.	**(A)**	73.	**(C)**	74.	**(D)**	75.	**(B)**
76.	**(A)**	77.	**(C)**	78.	**(D)**	79.	**(C)**	80.	**(A)**
81.	**(B)**	82.	**(D)**	83.	**(C)**	84.	**(B)**	85.	**(D)**
86.	**(C)**	87.	**(A)**	88.	**(B)**	89.	**(D)**	90.	**(C)**
91.	**(A)**	92.	**(B)**	93.	**(D)**	94.	**(C)**	95.	**(D)**
96.	**(B)**	97.	**(A)**	98.	**(D)**	99.	**(C)**	100	**(A)**

None of the options were correct*