Skillshort

Self-Study Preparation Pack

CA FOUNDATION

Paper 3: Quantitative Aptitude

Mock Test 1 – 100 MCQs with Answer Key & Working

Exam pattern: 100 MCQs · 1 mark each · 2 hours · Negative marking 0.25 per wrong answer VERIFY · Original Skillshort questions (answers computed and checked by program)

Part A Maths Q1–40 | Part B Reasoning Q41–60 | Part C Statistics Q61–100 | Answer key with working at the end

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This subject pack has 6 parts

1 Chapter-wise notes
2 Important topics & weightage
3 Past papers: trends & links
4 Mock tests + solutions
5 Chapter practice questions
6 Last-week plan & strategy

Prepared by Skillshort for self-study. Original explanations and questions; not an official ICAI/ICMAI/ICSI publication. Items marked VERIFY should be checked against the latest official material.

Instructions

All 100 questions are compulsory and carry 1 mark each. **0.25 mark is deducted for each wrong answer** VERIFY. Time allowed: **2 hours**. A simple non-programmable calculator may be used. Mark your answers on a separate sheet, then check with the key at the end. Score guide: 70+ excellent · 55–69 safe · 40–54 borderline · below 40 – revise weak chapters in file 05.

Part A – Business Mathematics (Q1–40)

1. The fourth proportional to 3, 5 and 6 is:

(a) 8 (b) 10
(c) 18/5 (d) 5/2

2. Given log 2 = 0.30103, the number of digits in 2^50 is:

(a) 18 (b) 16
(c) 17 (d) 15

3. The value of (64)^(4/3) is:

(a) 256 (b) 1024
(c) 260 (d) 16

4. A can complete a work in 12 days and B in 24 days. Working together, they will complete it in:

(a) 18 days (b) 12 days
(c) 8 days (d) 10 days

5. A started a business with ₹90,000. After some months B joined with ₹81,000. At the year-end the profit was shared in the ratio 4 : 3. B joined after:

(a) 4 months (b) 3 months
(c) 2 months (d) 10 months

6. If α and β are the roots of $x^2 - 5x + 6 = 0$, the equation whose roots are 3α and 3β is:

(a) $x^2 - 15x + 18 = 0$ (b) $x^2 - 5x + 54 = 0$
(c) $x^2 - 15x + 54 = 0$ (d) $x^2 - 15x + 6 = 0$

7. Solve: 4x + y = 36 and x + 3y = 31.

(a) x = 7, y = 9 (b) x = 9, y = 8
(c) x = 7, y = 8 (d) x = 8, y = 7

8. The roots of $x^3 - 6x^2 + 5x + 12 = 0$ are:

(a) 0, 4, 5 (b) 1, -3, -4
(c) -1, 3, 4 (d) -1, 3, -4

9. A father's age is 4 times his son's age. After 10 years, the ratio of their ages will be 46 : 19. The son's present age is:

(a) 11 years (b) 36 years
(c) 19 years (d) 9 years

10. The solution set of $-5 < 4x - 3 \leq 5$ is:

(a) $-1/2 < x \leq 2$ (b) $-1/2 \leq x < 2$
(c) $-5 < x \leq 5$ (d) $-2 < x \leq 1/2$

11. Maximise Z = 5x + 3y subject to x + y ≤ 4, x + 2y ≤ 6, x ≥ 0, y ≥ 0. The maximum value of Z is:

(a) 9 (b) 0
(c) 20 (d) 16

12. The solution of 7x − 1 ≤ 3x − 7 is:

(a) x ≤ -3/2 (b) x ≤ -1/2
(c) x ≤ -2 (d) x ≥ -3/2

13. Compound interest on ₹1,00,000 at 8% p.a. for 3 years (compounded annually) is:

(a) ₹24,000 (b) ₹26,531.90
(c) ₹25,971.20 (d) ₹1,25,971.20

14. The effective annual rate of interest corresponding to a nominal rate of 12% p.a. compounded monthly is:

(a) 13.18% (b) 12.00%
(c) 12.38% (d) 12.68%

15. The present value of ₹2,00,000 receivable after 3 years at 12% p.a. compound interest is (nearest rupee):

(a) ₹1,49,474 (b) ₹1,28,000
(c) ₹1,47,059 (d) ₹1,42,356

16. ₹10,000 is deposited at the beginning of each year for 4 years at 8% p.a. compound interest. The amount at the end of 4 years (annuity due) is (nearest rupee):

(a) ₹45,061 (b) ₹52,559
(c) ₹48,666 (d) ₹40,000

17. The EMI (paid at the end of each month) on a loan of ₹1,00,000 at 9% p.a. compounded monthly for 24 months is approximately:

(a) ₹4,167 (b) ₹4,917
(c) ₹4,568 (d) ₹4,934

18. A growing perpetuity pays ₹5,000 at the end of year 1, growing at 4% p.a. thereafter. If the discount rate is 12%, its present value is:

(a) ₹31,250 (b) ₹41,666.67
(c) ₹65,000 (d) ₹62,500

19. A company sets up a sinking fund to accumulate ₹10,00,000 in 5 years at 8% p.a. The annual end-of-year instalment is approximately:

(a) ₹80,000 (b) ₹2,00,000
(c) ₹1,70,456 (d) ₹1,84,093

20. An investment grew from ₹1,00,000 to ₹1,40,493 in 3 years. The CAGR is approximately:

(a) 40.5% (b) 13.5%
(c) 14% (d) 12%

21. A project costs ₹1,00,000 and gives ₹30,000 at the end of each year for 4 years. At 12% the annuity factor is 3.0373. The NPV is approximately:

(a) ₹8,880 (b) ₹91,120
(c) ₹−8,880 (d) ₹20,000

22. At 12.5% p.a. simple interest, a sum doubles in:

(a) 5.76 years (b) 8 years
(c) 16 years (d) 4 years

23. The amount of ₹40,000 at 8% p.a. simple interest for 4 years is:

(a) ₹52,800 (b) ₹56,000
(c) ₹12,800 (d) ₹54,420

24. The difference between compound interest and simple interest on ₹50,000 for 2 years at 5% p.a. is:

(a) ₹125 (b) ₹127
(c) ₹250 (d) ₹187.50

25. The present value of ₹2,00,000 receivable after 4 years at 8% p.a. compound interest is (nearest rupee):

(a) ₹1,36,000 (b) ₹1,51,515
(c) ₹1,54,356 (d) ₹1,47,006

26. The present value of ₹2,00,000 receivable after 2 years at 8% p.a. compound interest is (nearest rupee):

(a) ₹1,80,041 (b) ₹1,68,000
(c) ₹1,71,468 (d) ₹1,72,414

27. In how many ways can 5 persons sit around a round table if two particular persons always sit together?

(a) 12 (b) 24
(c) 6 (d) 48

28. A committee of 4 is to be formed from 6 men and 5 women. In how many ways can it be done if it must include at least 2 women?

(a) 360 (b) 65
(c) 215 (d) 330

29. If ${}^nC_4 = {}^nC_6$, then n = ?

(a) 10 (b) 8
(c) 6 (d) 9

30. There are 8 points in a plane of which 3 are collinear (no other three collinear). The number of triangles that can be formed is:

(a) 53 (b) 55
(c) 10 (d) 56

31. The 6th term of the GP 3, 6, 12, ... is:

(a) 30 (b) 192
(c) 48 (d) 96

32. $1^3 + 2^3 + 3^3 + \ldots + 19^3 = ?$

(a) 2,470 (b) 36,100
(c) 18,050 (d) 42,959

33. If the AM and GM of two positive numbers are 17 and 15, their HM is:

(a) 225/2 (b) 242/17
(c) 225/17 (d) 17

34. The 10th term of the AP 11, 13, 15, ... is:

(a) 29 (b) 31
(c) 27 (d) 110

35. If $f(x) = 3x + 4$ and $g(x) = x^2$, then $f(g(1)) = ?$

(a) 49 (b) 7
(c) 9 (d) 3

36. lim $(2^x - 1)/x$ as $x \to 0$ equals:
(a) 2 (b) $\log_e 2$
(c) 1 (d) 0

37. If n(A) = 24, n(B) = 30 and n(A ∩ B) = 11, then n(A ∪ B) = ?
(a) 54 (b) 65
(c) 43 (d) 32

38. Marginal cost MC = 2x + 10 and fixed cost is ₹100. Total cost of producing 8 units is:
(a) ₹308 (b) ₹244
(c) ₹126 (d) ₹144

39. If $y = 2x^3 + 4x^2 + 15$, then dy/dx at x = 2 is:
(a) 20 (b) 40
(c) 32 (d) 47

40. ∫ from 0 to 3 of $(3x^2 + 6x)\,dx$ = ?
(a) 54 (b) 18
(c) 24 (d) 57

Part B – Logical Reasoning (Q41–60)

41. If TRAIN is coded as USBJO, how is APPLE coded?
(a) ZOOKD (b) BQQMF
(c) FMQQB (d) QQMFB

42. Find the odd one out: 59, 17, 53, 21, 71
(a) 17 (b) 21
(c) 59 (d) 71

43. Find the next term: 7, 12, 18, 25, 33, ?
(a) 43 (b) 42
(c) 44 (d) 41

44. If SMILE is coded as VPLOH, how is CLOUD coded?
(a) ZILRA (b) GXROF
(c) FORXG (d) ORXGF

45. Find the odd one out: 70, 84, 91, 35, 71
(a) 71 (b) 35
(c) 70 (d) 84

46. Find the next term: 8, 15, 24, 35, 48, ?
(a) 63 (b) 62
(c) 61 (d) 65

47. A man is facing west. He turns 45° clockwise and then 135° anticlockwise. Which direction is he facing now?
(a) West (b) South-east
(c) South (d) North

48. Arjun walks 5 km north, turns right and walks 12 km, turns left and walks 10 km, turns left and walks 4 km. How far is the person from the starting point?

(a) 17 km
(b) 19 km
(c) 23 km
(d) 31 km

49. A man is facing west. He turns 180° anticlockwise and then 45° anticlockwise. Which direction is he facing now?

(a) South-west
(b) North-east
(c) North
(d) South-east

50. Rohit walks 3 km north, turns left and walks 12 km, turns left and walks 8 km. How far is the person from the starting point?

(a) 15 km
(b) 13 km
(c) 23 km
(d) 17 km

51. A man is facing east. He turns 135° anticlockwise and then 90° clockwise. Which direction is he facing now?

(a) South-east
(b) South-west
(c) North-east
(d) North

52. Six friends A, B, C, D, G, H sit around a circular table facing the centre. A sits opposite D; G is to the immediate left of B; H is not a neighbour of D; H is to the immediate right of C. Who sits opposite C?

(a) B
(b) D
(c) G
(d) A

53. 5 persons A, G, H, P, T sit in a row facing north. H sits immediately to the left of G; G sits second to the right of A; G does not sit next to T; A does not sit next to P; T sits immediately to the left of A; A sits second to the right of P. Who sits at the extreme right end?

(a) T
(b) G
(c) H
(d) A

54. Six friends A, D, E, F, G, H sit around a circular table facing the centre. A is to the immediate right of G; E is to the immediate right of H; G sits opposite E; F sits opposite H. Who sits opposite D?

(a) H
(b) E
(c) A
(d) G

55. 5 persons D, J, L, R, T sit in a row facing north. R sits second to the right of T; L sits immediately to the left of J; D sits second to the right of J. Who sits at the extreme right end?

(a) R
(b) T
(c) L
(d) J

56. Neha's brother's son is Neha's:

(a) Nephew
(b) Brother-in-law
(c) Cousin
(d) Son

57. Pointing to a man, Anita said, "His mother is the only daughter of my mother." How is Anita related to the man?

(a) Grandmother
(b) Aunt
(c) Mother
(d) Sister

58. Pooja's husband's sister is Pooja's:

(a) Aunt
(b) Niece
(c) Cousin
(d) Sister-in-law

59. If P + Q means P is the husband of Q, P − Q means P is the sister of Q, and P × Q means P is the son of Q, then in "A − B × C", how is A related to C?

(a) Niece
(b) Sister
(c) Daughter
(d) Mother

60. Pooja's brother's son is Pooja's:

(a) Brother-in-law
(b) Nephew
(c) Cousin
(d) Son

Part C – Statistics (Q61–100)

61. Sampling errors can be reduced by:

(a) Reducing the sample size
(b) Using secondary data
(c) Increasing the sample size
(d) Using a smaller questionnaire

62. Frequency density of a class is:

(a) Frequency × class width
(b) Cumulative frequency ÷ N
(c) Class width ÷ frequency
(d) Frequency ÷ class width

63. The class mark of the class 50–60 is:

(a) 10
(b) 60
(c) 55
(d) 50

64. The standard deviation of the sampling distribution of a statistic is called its:

(a) Probable error
(b) Standard error
(c) Mean deviation
(d) Sampling error

65. A table that classifies data according to two characteristics is a:

(a) Simple table
(b) Two-way table
(c) Manifold table of five characteristics
(d) One-way table

66. In a pie chart showing a total expenditure of ₹18,000, the angle for an item costing ₹3,000 is:

(a) 16°
(b) 60°
(c) 90°
(d) 30°

67. A class of width 8 has frequency 24. Its frequency density is:

(a) 192
(b) 8
(c) 4
(d) 3

68. The number of possible samples of size 2 from a population of 6 units with replacement is:

(a) 15
(b) 12
(c) 30
(d) 36

69. For a moderately skewed distribution, mean = 39 and median = 33. The mode is approximately:

(a) 27
(b) 51
(c) 21
(d) 37

70. The median of 11, 32, 36, 68, 62, 19, 51 is:

(a) 51
(b) 279/7
(c) 19
(d) 36

71. The standard deviation of the two numbers 7 and 24 is:

(a) 17
(b) 31/2
(c) 17/2
(d) 289/4

72. For a moderately skewed distribution, mean = 60 and median = 59. The mode is approximately:

(a) 60
(b) 57
(c) 62
(d) 58

73. The harmonic mean of 4 and 12 is:

(a) 6.93
(b) 6
(c) 3
(d) 8

74. If $Q_1 = 23$ and $Q_3 = 67$, the coefficient of quartile deviation is:

(a) 0.6567
(b) 2.0455
(c) 22.0000
(d) 0.4889

75. For a moderately skewed distribution, mean = 41 and median = 48. The mode is approximately:

(a) 45
(b) 62
(c) 55
(d) 27

76. For a moderately skewed distribution, mean = 60 and median = 48. The mode is approximately:

(a) 24
(b) 84
(c) 55
(d) 36

77. The variance of the first 7 natural numbers is:

(a) 6
(b) 8
(c) 4
(d) 25/6

78. If $Q_1 = 25$ and $Q_3 = 70$, the coefficient of quartile deviation is:

(a) 0.6429
(b) 22.5000
(c) 0.4737
(d) 2.1111

79. The standard deviation of the two numbers 13 and 38 is:

(a) 625/4
(b) 25/2
(c) 51/2
(d) 25

80. If the mean is 80 and the standard deviation is 12, the coefficient of variation is:

(a) 15%
(b) 1.50%
(c) 180%
(d) 666.67%

81. Two fair dice are thrown. The probability that the sum is 11 is:

(a) 1/11
(b) 1/18
(c) 1/6
(d) 1/12

82. A card is drawn from a well-shuffled pack of 52 cards. The probability that it is a face card or a club is:

(a) 3/52
(b) 25/52
(c) 11/26
(d) 23/52

83. X takes values 1, 2, 3 with probabilities 1/4, 1/2, 1/4. Var(X) = ?

(a) 2
(b) 9/2
(c) 5/2
(d) 1/2

84. A and B are independent events with P(A) = 4/5 and P(B) = 3/4. The probability that at least one of them occurs is:

(a) 1/20
(b) 1
(c) 3/5
(d) 19/20

85. The probability that a leap year selected at random contains 53 Sundays is:

(a) 1/52
(b) 1/7
(c) 2/7
(d) 53/366

86. X takes values 1, 2, 3 with probabilities 1/5, 1/2, 3/10. Var(X) = ?

(a) 49/10
(b) 49/100
(c) 14/5
(d) 21/10

87. Two fair dice are thrown. The probability that the sum is 5 is:

(a) 5/36
(b) 1/5
(c) 1/9
(d) 1/3

88. A fair coin is tossed 6 times. The probability of getting exactly 3 heads is:

(a) 5/16
(b) 21/64
(c) 1/2
(d) 1/8

89. A fair coin is tossed 5 times. The probability of getting exactly 2 heads is:

(a) 5/16
(b) 1/4
(c) 2/5
(d) 11/32

90. The mean and variance of a binomial distribution are 4 and 16/5 respectively. The number of trials n is:

(a) 20
(b) 10
(c) 8
(d) 24

91. The Poisson distribution is a limiting form of the binomial when:

(a) n is small and p is large
(b) n is large and p is small with np finite
(c) n = 1
(d) p = q = 1/2

92. The correlation between x and y is 0.7. If u = 2x + 5 and v = 3y − 7, the correlation between u and v is:

(a) 0.7
(b) 4.2
(c) 0.47
(d) -0.7

93. If r = 0.5, the coefficient of determination is:

(a) 0.75
(b) 0.5
(c) 0.71
(d) 0.25

94. The correlation between x and y is 0.7. If u = 4x + 5 and v = -5y − 7, the correlation between u and v is:

(a) -0.7
(b) 0.7
(c) 0.56
(d) -14.0

95. Mean of x = 45, mean of y = 50 and b_yx = 3/10. The estimated value of y when x = 57 is:

(a) 283/5
(b) 263/5
(c) 671/10
(d) 268/5

96. If r = 0.7, the coefficient of determination is:

(a) 0.49
(b) 0.7
(c) 0.51
(d) 0.84

97. A worker's money wage is ₹24,000 and the consumer price index is 120 (base = 100). The real wage is:

(a) ₹28,800
(b) ₹200
(c) ₹12,000
(d) ₹20,000

98. Fisher's ideal index number satisfies:

(a) Both time reversal and factor reversal tests
(b) Only the factor reversal test
(c) Neither test
(d) Only the time reversal test

99. From the data below, the simple aggregative price index is (approx.):

Item	p_0	p_1	q_0
A	5	8	7
B	9	12	10
C	6	10	9

(a) 66.67
(b) 148.60
(c) 146.00
(d) 150.00

100. A worker's money wage is ₹50,000 and the consumer price index is 125 (base = 100). The real wage is:

(a) ₹62,500
(b) ₹37,500
(c) ₹40,000
(d) ₹400

Answer Key with Working

EXAM TIP Scoring

Score = correct answers − 0.25 × wrong answers VERIFY. Note every wrong question in your mistake log with its chapter; revise that chapter's formulas from file 01 before the next mock.

Answer key – Mock Test 1

Q	Ans	Explanation / working
1	(b)	a : b = c : x → x = bc/a = 30/3 = 10.
2	(b)	log 2^50 = 50 × 0.30103 = 15.052; characteristic 15 → 16 digits.
3	(a)	(64)^(1/3) = 4; raised to 4 → 256.
4	(c)	1/12 + 1/24 = 1/8 per day → 8 days.
5	(c)	90,000 × 12 : 81,000 × (12 − m) = 4 : 3 → 12 − m = 10 → m = 2.
6	(c)	New sum = 3(α + β) = 15; new product = 9αβ = 54.
7	(c)	Substituting x = 7, y = 8: 28 + (8) = 36 ✔ and 7 + (24) = 31 ✔.
8	(c)	Sum of roots = −b/a = 6, product = −d/a = -12; each root satisfies the equation.
9	(d)	(4s + 10)/(s + 10) = 46/19 → s = 9.
10	(a)	Subtract -3 and divide by 4: -1/2 < x ≤ 2.
11	(c)	Corner points (0,0), (4,0), (2,2), (0,3) give Z = 0, 20, 16, 9; maximum 20 at (4, 0).
12	(a)	(7 − 3)x ≤ -7 − (-1) → x ≤ -3/2.
13	(c)	A = 1,00,000 × (1.08)^3 = ₹1,25,971.20; CI = ₹25,971.20.
14	(d)	E = (1 + 0.0100)^12 − 1 = 12.68%.
15	(d)	PV = 2,00,000 ÷ (1 + 0.12)^3 = 2,00,000 ÷ 1.404928 = ₹1,42,356.
16	(c)	FV(due) = FV(regular) × (1 + i) = ₹45,061 × 1.08 = ₹48,666.
17	(c)	i = 9/1200 = 0.0075; EMI = P·i(1 + i)^n/[(1 + i)^n − 1] = ₹4,568.
18	(d)	PV = A/(i − g) = 5,000/(0.12 − 0.04) = ₹62,500.
19	(c)	A = FV·i/[(1 + i)^n − 1] = 10,00,000 × 0.08/0.46933 = ₹1,70,456.
20	(d)	CAGR = (1,40,493/1,00,000)^(1/3) − 1 = 12% (the simple average 13.5% is wrong).
21	(c)	NPV = 30,000 × 3.0373 − 1,00,000 = ₹−8,880.
22	(b)	Doubling: SI = P → T = 100/12.5 = 8 years.
23	(a)	SI = 40,000 × 8 × 4/100 = ₹12,800; amount = ₹52,800.
24	(a)	For 2 years: P(r/100)^2 = ₹125.
25	(d)	PV = 2,00,000 ÷ (1 + 0.08)^4 = 2,00,000 ÷ 1.360489 = ₹1,47,006.
26	(c)	PV = 2,00,000 ÷ (1 + 0.08)^2 = 2,00,000 ÷ 1.166400 = ₹1,71,468.
27	(a)	Treat the pair as one: (n − 2)! × 2! = 3! × 2 = 12.
28	(c)	Sum over j = 2 … 4 women of 5Cj × 6C(4 − j) = 215.
29	(a)	$^nC_r = {}^nC_s$ (r ≠ s) ⇒ r + s = n → n = 4 + 6 = 10.
30	(b)	8C3 − 3C3 = 56 − 1 = 55.
31	(d)	$t_n = ar^{n-1}$ = 3 × 2^5 = 96.
32	(b)	[n(n + 1)/2]^2 = 190^2 = 36,100.
33	(c)	GM^2 = AM × HM → HM = 225/17 = 225/17.
34	(a)	t_n = a + (n − 1)d = 11 + 9 × 2 = 29.
35	(b)	g(1) = 1; f(1) = 7.
36	(b)	Standard limit: lim (a^x − 1)/x = $\log_e$ a.
37	(c)	n(A ∪ B) = 24 + 30 − 11 = 43.

Q	Ans	Explanation / working
38	(b)	C = ∫MC dx + F = x^2 + 10x + 100 = ₹244 at x = 8.
39	(b)	dy/dx = $6x^2$ + 8x = 40 at x = 2.
40	(a)	[x^3 + $3x^2$] from 0 to 3 = 54.
41	(b)	Each letter is moved +1 place(s) in the alphabet: APPLE → BQQMF.
42	(b)	All except 21 are prime numbers (21 is composite).
43	(b)	Differences 5, 6, 7, 8 rise by 1; next difference 9 → 42.
44	(c)	Each letter is moved +3 place(s) in the alphabet: CLOUD → FORXG.
45	(a)	All except 71 are divisible by 7.
46	(a)	Terms are n^2 − 1 for n = 3, 4, ...; next = 8^2 − 1 = 63.
47	(c)	Net rotation = -90° (clockwise positive) from west → South.
48	(a)	Net displacement: 8 km east and 15 km north → √(64 + 225) = 17 km.
49	(b)	Net rotation = -225° (clockwise positive) from west → North-east.
50	(b)	Net displacement: 12 km west and 5 km south → √(144 + 25) = 13 km.
51	(c)	Net rotation = -45° (clockwise positive) from east → North-east.
52	(c)	Unique arrangement going to each person's left (clockwise when viewed from above): A → H → C → D → B → G; opposite C is G.
53	(b)	The only arrangement satisfying all clues (left → right): P T A H G.
54	(c)	Unique arrangement going to each person's left (clockwise when viewed from above): A → G → F → D → E → H; opposite D is A.
55	(a)	The only arrangement satisfying all clues (left → right): L J T D R.
56	(a)	Brother's son = nephew.
57	(c)	The only daughter of Anita's mother is Anita herself → she is his mother.
58	(d)	Husband's sister = sister-in-law.
59	(c)	A − B: A is B's sister; B × C: B is C's son → A is C's daughter.
60	(b)	Brother's son = nephew.
61	(c)	Sampling error falls as the sample size rises.
62	(d)	Used to draw histograms with unequal class widths.
63	(c)	Class mark = (50 + 60)/2 = 55.
64	(b)	SE = SD of the sampling distribution (SE of mean = σ/√n).
65	(b)	Two characteristics = two-way (double) table.
66	(b)	3,000/18,000 × 360° = 60°.
67	(d)	Frequency density = 24/8 = 3.
68	(d)	N^n = 6^2 = 36.
69	(c)	Mode = 3 Median − 2 Mean = 99 − 78 = 21.
70	(d)	Arranged: 11, 19, 32, 36, 51, 62, 68 → median = 36.
71	(c)	For two numbers SD = |a − b|/2 = 17/2.
72	(b)	Mode = 3 Median − 2 Mean = 177 − 120 = 57.
73	(b)	HM = 2ab/(a + b) = 96/16 = 6.
74	(d)	$(Q_3 - Q_1)/(Q_3 + Q_1)$ = 44/90 = 0.4889.
75	(b)	Mode = 3 Median − 2 Mean = 144 − 82 = 62.
76	(a)	Mode = 3 Median − 2 Mean = 144 − 120 = 24.
77	(c)	Variance = (n^2 − 1)/12 = 48/12 = 4.
78	(c)	$(Q_3 - Q_1)/(Q_3 + Q_1)$ = 45/95 = 0.4737.
79	(b)	For two numbers SD = |a − b|/2 = 25/2.
80	(a)	CV = σ/x̄ × 100 = 12/80 × 100 = 15%.

Q	Ans	Explanation / working
81	(b)	2 favourable outcomes out of 36 → 1/18.
82	(c)	P = (12 + 13 − 3)/52 = 11/26.
83	(d)	E(X) = 2, E(X^2) = 9/2 → Var = 9/2 − 4 = 1/2.
84	(d)	1 − P(A′)P(B′) = 1 − 1/5 × 1/4 = 19/20.
85	(c)	366 days = 52 weeks + 2 days → 2/7.
86	(b)	E(X) = 21/10, E(X^2) = 49/10 → Var = 49/10 − 441/100 = 49/100.
87	(c)	4 favourable outcomes out of 36 → 1/9.
88	(a)	6C3 × (1/2)^6 = 20/64 = 5/16.
89	(a)	5C2 × (1/2)^5 = 10/32 = 5/16.
90	(a)	q = variance/mean = 4/5 → p = 1/5 → n = mean/p = 20.
91	(b)	Used for rare events.
92	(a)	r is unaffected in magnitude by change of origin and scale; the signs of 2 and 3 are the same → 0.7.
93	(d)	r^2 = 0.25: 25% of the variation in y is explained by x.
94	(a)	r is unaffected in magnitude by change of origin and scale; the signs of 4 and -5 are opposite → -0.7.
95	(d)	$y - \bar{y} = b_{yx}(x - \bar{x})$ → y = 50 + 3/10(57 − 45) = 268/5.
96	(a)	r^2 = 0.49: 49% of the variation in y is explained by x.
97	(d)	Real wage = 24,000 ÷ 120 × 100 = ₹20,000.
98	(a)	Fisher = √(L × P) satisfies both tests.
99	(d)	$\Sigma p_1/\Sigma p_o \times 100$ = 30/20 × 100 = 150.00.
100	(c)	Real wage = 50,000 ÷ 125 × 100 = ₹40,000.