Skillshort

Self-Study Preparation Pack

CA FOUNDATION

Paper 3: Quantitative Aptitude

Mock Test 2 – 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

Contents

Instructions	2
Part A – Business Mathematics (Q1–40)	2
Part B – Logical Reasoning (Q41–60)	5
Part C – Statistics (Q61–100)	7
Answer Key with Working	11

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. Given log 2 = 0.3010 and log 3 = 0.4771, log 144 = ?

(a) 2.4592 (b) 1.6811
(c) 2.1582 (d) 2.5104

2. The value of (8)^(4/3) is:

(a) 32 (b) 16
(c) 8 (d) 18

3. A can complete a work in 12 days and B in 36 days. Working together, they will complete it in:

(a) 24 days (b) 7 days
(c) 9 days (d) 11 days

4. A started a business with ₹1,68,000. After some months B joined with ₹1,12,000. At the year-end the profit was shared in the ratio 3 : 1. B joined after:

(a) 4 months (b) 6 months
(c) 7 months (d) 8 months

5. An amount of ₹28,000 is divided among P, Q and R in the ratio 5 : 7 : 2. The share of Q is:

(a) ₹14,000 (b) ₹16,000
(c) ₹10,000 (d) ₹4,000

6. Solve: 2x + 3y = 31 and 3x − y = 19.

(a) x = 8, y = 6 (b) x = 8, y = 5
(c) x = 9, y = 4 (d) x = 5, y = 8

7. The roots of $x^3 - 8x^2 + 19x - 12 = 0$ are:

(a) -1, -3, -4 (b) 2, 4, 5
(c) 1, 3, -4 (d) 1, 3, 4

8. A father's age is 3 times his son's age. After 8 years, the ratio of their ages will be 41 : 19. The son's present age is:

(a) 33 years (b) 13 years
(c) 11 years (d) 19 years

9. If α and β are the roots of $x^2 - 2x - 3 = 0$, then $\alpha^2 + \beta^2$ = ?

(a) 11 (b) -2
(c) 10 (d) 4

10. Maximise Z = 5x + 3y subject to x + y ≤ 6, x + 2y ≤ 8, x ≥ 0, y ≥ 0. The maximum value of Z is:

(a) 12 (b) 26
(c) 30 (d) 0

11. The solution of $5x - 3 \leq 2x + 3$ is:

(a) $x \leq 2$ (b) $x \geq 2$
(c) $x \leq 3$ (d) $x \leq 0$

12. The solution set of $-8 < 3x + 3 \leq 8$ is:

(a) $-8 < x \leq 8$ (b) $-11/3 < x \leq 5/3$
(c) $-11/3 \leq x < 5/3$ (d) $-5/3 < x \leq 11/3$

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

(a) 12.00% (b) 12.25%
(c) 12.55% (d) 13.05%

14. 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) ₹1,42,356 (d) ₹1,47,059

15. ₹10,000 is deposited at the beginning of each year for 6 years at 10% p.a. compound interest. The amount at the end of 6 years (annuity due) is (nearest rupee):

(a) ₹77,156 (b) ₹84,872
(c) ₹60,000 (d) ₹93,359

16. The EMI (paid at the end of each month) on a loan of ₹5,00,000 at 12% p.a. compounded monthly for 36 months is approximately:

(a) ₹18,889 (b) ₹13,889
(c) ₹16,607 (d) ₹17,936

17. The present value of a perpetuity of ₹5,000 per year (end of year) at 6% p.a. is:

(a) ₹83,333.33 (b) ₹30,000
(c) ₹50,000 (d) ₹91,666.67

18. A company sets up a sinking fund to accumulate ₹2,00,000 in 10 years at 10% p.a. The annual end-of-year instalment is approximately:

(a) ₹13,804 (b) ₹14,549
(c) ₹12,549 (d) ₹20,000

19. An investment grew from ₹2,00,000 to ₹2,31,525 in 3 years. The CAGR is approximately:

(a) 15.8% (b) 5%
(c) 7% (d) 5.3%

20. A project costs ₹1,00,000 and gives ₹80,000 at the end of each year for 3 years. At 10% the annuity factor is 2.4869. The NPV is approximately:

(a) ₹1,98,948 (b) ₹1,40,000
(c) ₹98,948 (d) ₹−98,948

21. A machine costing ₹1,00,000 depreciates at 15% p.a. on the reducing balance. Its value after 2 years is:

(a) ₹72,250 (b) ₹1,32,250
(c) ₹65,025 (d) ₹70,000

22. A sum amounts to ₹24,800 in 2 years and ₹32,000 in 5 years at simple interest. The rate of interest is:

(a) 14% (b) 11%
(c) 12% (d) 24%

23. The difference between compound interest and simple interest on ₹1,00,000 for 2 years at 20% p.a. is:

(a) ₹2,000 (b) ₹4,000
(c) ₹8,000 (d) ₹6,000

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

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

25. The present value of ₹50,000 receivable after 4 years at 8% p.a. compound interest is (nearest rupee):

(a) ₹36,751 (b) ₹34,000
(c) ₹38,589 (d) ₹37,879

26. The present value of ₹20,000 received at the end of each year for 5 years at 12% p.a. is (nearest rupee):

(a) ₹1,27,057 (b) ₹1,00,000
(c) ₹72,096 (d) ₹80,747

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

(a) 186 (b) 336
(c) 252 (d) 66

28. If ${}^nC_2 = {}^nC_4$, then n = ?

(a) 8 (b) 4
(c) 6 (d) 5

29. There are 15 points in a plane of which 4 are collinear (no other three collinear). The number of triangles that can be formed is:

(a) 165 (b) 455
(c) 449 (d) 451

30. The number of arrangements of the letters of the word "BANANA" is:

(a) 60 (b) 720
(c) 30 (d) 120

31. $1^3 + 2^3 + 3^3 + \ldots + 17^3 = ?$

(a) 28,322 (b) 11,704
(c) 23,409 (d) 1,785

32. If the AM and GM of two positive numbers are 20 and 12, their HM is:

(a) 41/5 (b) 36/5
(c) 20 (d) 72

33. The 16th term of the AP 11, 17, 23, ... is:

(a) 101 (b) 107
(c) 176 (d) 95

34. The sum to infinity of the GP 9, 3, 1, ... is:

(a) 19 (b) 27/2
(c) 29/2 (d) 27/4

35. lim (x^2 − 25)/(x − 5) as x → 5 equals:

(a) 12 (b) 25
(c) 0 (d) 10

36. If n(A) = 29, n(B) = 25 and n(A ∩ B) = 8, then n(A ∪ B) = ?

(a) 46 (b) 62
(c) 38 (d) 54

37. If f(x) = 2x + 1 and g(x) = x^2, then g(f(1)) = ?

(a) 5 (b) 9
(c) 3 (d) 11

38. The revenue function is R(x) = 80x − $4x^2$. Revenue is maximum at x =

(a) 10 (b) 21
(c) 11 (d) 20

39. ∫ x^5 dx = ?

(a) 5x^4 + c (b) x^5/5 + c
(c) x^6/6 + c (d) x^6 + c

40. The total cost function is C(x) = $2x^2$ + 33x + 500. The marginal cost at x = 25 is:

(a) ₹2,575 (b) ₹103
(c) ₹133 (d) ₹83

Part B – Logical Reasoning (Q41–60)

41. Find the odd one out: 165, 66, 121, 33, 90

(a) 121 (b) 66
(c) 90 (d) 165

42. Find the next term: 3, 25, 5, 22, 7, 19, 9, ?

(a) 16 (b) 19
(c) 11 (d) 15

43. If PLANT is written as TNALP, then RIVER is written as:

(a) IVERR (b) REVIR
(c) ULYHU (d) RRIVE

44. Find the odd one out: 27, 64, 343, 729, 144

(a) 729 (b) 64
(c) 144 (d) 27

45. Find the next term: 8, 15, 24, 35, 48, ?

(a) 62 (b) 65
(c) 61 (d) 63

46. If RIVER is coded as QHUDQ, how is PLANT coded?

(a) KZMSO (b) QMBOU
(c) OKZMS (d) SMZKO

47. Rohit walks 3 km west, turns left and walks 8 km, turns right and walks 12 km. In which direction is the person now from the starting point?

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

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

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

49. Ravi walks 12 km north, turns left and walks 4 km, turns left and walks 15 km. How far is the person from the starting point?

(a) 3 km
(b) 31 km
(c) 5 km
(d) 7 km

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

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

51. Meena walks 8 km east, turns left and walks 3 km, turns right and walks 4 km, turns right and walks 12 km. How far is the person from the starting point?

(a) 21 km
(b) 17 km
(c) 27 km
(d) 15 km

52. 6 persons A, C, F, G, J, K sit in a row facing north. F sits at one of the ends; C sits immediately to the left of J; exactly one person sits between G and F; exactly one person sits between C and G; exactly one person sits between K and A; A sits second to the right of K. Who sits at the extreme right end?

(a) J
(b) A
(c) G
(d) F

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

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

54. 5 persons F, G, H, K, L sit in a row facing north. Exactly one person sits between L and G; exactly one person sits between H and F; K sits immediately to the left of G; F sits second to the right of K. Who sits at the extreme right end?

(a) G
(b) H
(c) L
(d) K

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

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

56. 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) Mother
(c) Sister
(d) Daughter

57. Rita's brother's son is Rita's:

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

58. 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) Husband
(b) Son
(c) Nephew
(d) Brother

59. Rohan's father's brother's son is Rohan's:

(a) Uncle
(b) Nephew
(c) Cousin
(d) Brother

60. Vivek's mother's sister is Vivek's:

(a) Grandmother
(b) Aunt
(c) Cousin
(d) Niece

Part C – Statistics (Q61–100)

61. Classification of data by geographical area is called:

(a) Qualitative classification
(b) Spatial classification
(c) Quantitative classification
(d) Chronological classification

62. In a pie chart, the angle of a component equals:

(a) Component × 360°
(b) (Total ÷ Component) × 360°
(c) (Component ÷ Total) × 360°
(d) (Component ÷ Total) × 100

63. Census means:

(a) Study of a random group
(b) Study of a sample
(c) Complete enumeration of all units
(d) Study of secondary data

64. Frequency density of a class is:

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

65. The class mark of the class 10–30 is:

(a) 20
(b) 30
(c) 10
(d) 22

66. In a pie chart showing a total expenditure of ₹1,200, the angle for an item costing ₹300 is:

(a) 90°
(b) 25°
(c) 120°
(d) 45°

67. Sampling errors can be reduced by:

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

68. The most suitable diagram to show the break-up of a total into components is a:

(a) Histogram
(b) Scatter diagram
(c) Pie chart
(d) Ogive

69. The standard deviation of the two numbers 10 and 37 is:

(a) 27/2
(b) 729/4
(c) 47/2
(d) 27

70. Marks 84, 82, 67 carry weights 5, 2, 4 respectively. The weighted mean is:

(a) 852/11 (b) 863/11
(c) 233/3 (d) 233/11

71. Marks 60, 54, 48 carry weights 4, 2, 4 respectively. The weighted mean is:

(a) 55 (b) 56
(c) 81/5 (d) 54

72. If the standard deviation of x is 6, the standard deviation of y = 4 + 4x is:

(a) 96 (b) 24
(c) 28 (d) 6

73. The median of 34, 56, 47, 11, 24, 25, 33, 68 is:

(a) 47 (b) 149/4
(c) 67/2 (d) 25

74. If Q_1 = 38 and Q_3 = 55, the coefficient of quartile deviation is:

(a) 8.5000 (b) 0.1828
(c) 0.3091 (d) 5.4706

75. Marks 80, 59, 61 carry weights 4, 5, 4 respectively. The weighted mean is:

(a) 859/13 (b) 872/13
(c) 200/13 (d) 200/3

76. If the mean is 50 and the standard deviation is 10, the coefficient of variation is:

(a) 20% (b) 2%
(c) 200% (d) 500%

77. If Q_1 = 22 and Q_3 = 65, the coefficient of quartile deviation is:

(a) 21.5000 (b) 0.6615
(c) 0.4943 (d) 2.0233

78. For a moderately skewed distribution, mean = 28 and median = 56. The mode is approximately:

(a) 43 (b) -28
(c) 112 (d) 84

79. The median of 13, 71, 49, 20, 34, 24, 58 is:

(a) 20 (b) 34
(c) 49 (d) 269/7

80. The variance of the first 11 natural numbers is:

(a) 61/6 (b) 6
(c) 10 (d) 20

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

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

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

(a) 12/5 (b) 2
(c) 22/5 (d) 2/5

83. A and B are independent events with P(A) = 2/5 and P(B) = 1/2. The probability that at least one of them occurs is:

(a) 1/5
(b) 7/10
(c) 3/10
(d) 3/4

84. A card is drawn from a well-shuffled pack of 52 cards. The probability that it is a queen or a spade is:

(a) 1/52
(b) 6/13
(c) 17/52
(d) 4/13

85. If the odds in favour of an event are 3 : 5, its probability is:

(a) 3/8
(b) 5/8
(c) 3/5
(d) 3/16

86. If P(B) = 1/2 and P(A ∩ B) = 1/10, then P(A/B) = ?

(a) 4/5
(b) 1/20
(c) 2/5
(d) 1/5

87. A and B are independent events with P(A) = 1/5 and P(B) = 1/2. The probability that at least one of them occurs is:

(a) 13/20
(b) 3/5
(c) 2/5
(d) 1/10

88. A fair coin is tossed 6 times. The probability of getting exactly 2 heads is:

(a) 15/64
(b) 1/3
(c) 1/4
(d) 17/64

89. The mean and variance of a binomial distribution are 4 and 3 respectively. The number of trials n is:

(a) 16
(b) 18
(c) 8
(d) 20

90. X is normal with mean 50 and SD 10. The area between z = 0 and z = 2.5 is 0.4938. P(X > 75) is:

(a) 0.0062
(b) 0.5062
(c) 0.9938
(d) 0.4938

91. The mean and variance of a binomial distribution are 5 and 5/2 respectively. The number of trials n is:

(a) 14
(b) 5
(c) 8
(d) 10

92. The correlation between x and y is 0.45. If u = 2x + 5 and v = 3y − 7, the correlation between u and v is:

(a) 0.45
(b) 2.7
(c) -0.45
(d) 0.3

93. For 6 pairs of ranks without ties, $\Sigma d^2 = 10$. The rank correlation coefficient is:

(a) 13/18
(b) 5/7
(c) 20/21
(d) -5/7

94. If r = 0.6, the coefficient of determination is:

(a) 0.36
(b) 0.64
(c) 0.6
(d) 0.77

95. For 5 pairs of ranks without ties, $\Sigma d^2 = 14$. The rank correlation coefficient is:

(a) 3/10
(b) 41/125
(c) 53/60
(d) -3/10

96. Mean of x = 29, mean of y = 41 and b_yx = 4/5. The estimated value of y when x = 21 is:

(a) 173/5
(b) 213/5
(c) 289/5
(d) 168/5

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

Item	p_0	p_1	q_0
A	5	10	6
B	6	8	2
C	5	8	8

(a) 170.73
(b) 162.50
(c) 61.54
(d) 158.50

98. A worker's money wage is ₹30,000 and the consumer price index is 150 (base = 100). The real wage is:

(a) ₹45,000
(b) ₹200
(c) ₹15,000
(d) ₹20,000

99. Laspeyres' price index uses as weights the:

(a) Current-year quantities
(b) Average quantities
(c) Current-year prices
(d) Base-year quantities

100. From the data below, Laspeyres' price index is (approx.):

Item	p_0	p_1	q_0
A	4	8	5
B	9	13	8
C	4	7	3

(a) 158.65
(b) 63.03
(c) 163.65
(d) 164.71

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 2

Q	Ans	Explanation / working
1	(c)	144 = 2^4 × 3^2 → 4(0.3010) + 2(0.4771) = 2.1582.
2	(b)	(8)^(1/3) = 2; raised to 4 → 16.
3	(c)	1/12 + 1/36 = 1/9 per day → 9 days.
4	(b)	1,68,000 × 12 : 1,12,000 × (12 − m) = 3 : 1 → 12 − m = 6 → m = 6.
5	(a)	Total parts 14; one part = ₹2,000; Q = 7 × ₹2,000 = ₹14,000.
6	(b)	Substituting x = 8, y = 5: 16 + (15) = 31 ✔ and 24 + (-5) = 19 ✔.
7	(d)	Sum of roots = −b/a = 8, product = −d/a = 12; each root satisfies the equation.
8	(c)	(3s + 8)/(s + 8) = 41/19 → s = 11.
9	(c)	α + β = 2, αβ = -3; $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = 4 - (-6) = 10$.
10	(c)	Corner points (0,0), (6,0), (4,2), (0,4) give Z = 0, 30, 26, 12; maximum 30 at (6, 0).
11	(a)	(5 − 2)x ≤ 3 − (-3) → x ≤ 2.
12	(b)	Subtract 3 and divide by 3: -11/3 < x ≤ 5/3.
13	(c)	E = (1 + 0.0300)^4 − 1 = 12.55%.
14	(c)	PV = 2,00,000 ÷ (1 + 0.12)^3 = 2,00,000 ÷ 1.404928 = ₹1,42,356.
15	(b)	FV(due) = FV(regular) × (1 + i) = ₹77,156 × 1.1 = ₹84,872.
16	(c)	i = 12/1200 = 0.0100; $EMI = P \cdot i(1+i)^n/[(1+i)^n - 1]$ = ₹16,607.
17	(a)	PV = A/i = 5,000/0.06 = ₹83,333.33.
18	(c)	$A = FV \cdot i/[(1+i)^n - 1]$ = 2,00,000 × 0.1/1.59374 = ₹12,549.
19	(b)	CAGR = (2,31,525/2,00,000)^(1/3) − 1 = 5% (the simple average 5.3% is wrong).
20	(c)	NPV = 80,000 × 2.4869 − 1,00,000 = ₹98,948.
21	(a)	V = 1,00,000 × (1 − 0.15)^2 = ₹72,250.
22	(c)	SI for 3 years = ₹7,200 → 1 year ₹2,400; P = ₹24,800 − 2 × ₹2,400 = ₹20,000; R = 2,400 × 100/20,000 = 12%.
23	(b)	For 2 years: $P(r/100)^2$ = ₹4,000.
24	(c)	E = (1 + 0.0100)^12 − 1 = 12.68%.
25	(a)	PV = 50,000 ÷ (1 + 0.08)^4 = 50,000 ÷ 1.360489 = ₹36,751.
26	(c)	PV = 20,000 × [1 − (1.12)^−5]/0.12 = 20,000 × 3.6048 = ₹72,096.
27	(a)	Sum over j = 2 … 4 women of 4Cj × 6C(5 − j) = 186.
28	(c)	${}^nC_r = {}^nC_s$ ($r \neq s$) ⇒ r + s = n → n = 2 + 4 = 6.
29	(d)	15C3 − 4C3 = 455 − 4 = 451.
30	(a)	6 letters with repeats (A×3, N×2) → 6! ÷ 12 = 60.
31	(c)	$[n(n+1)/2]^2 = 153^2$ = 23,409.
32	(b)	$GM^2 = AM \times HM$ → HM = 144/20 = 36/5.
33	(a)	$t_n = a + (n-1)d = 11 + 15 \times 6 = 101$.
34	(b)	$S\infty = a/(1-r) = 9/(1-(1/3)) = 27/2$.
35	(d)	Standard form $n \cdot a^{n-1} = 2 \times 5^1 = 10$.
36	(a)	$n(A \cup B) = 29 + 25 - 8 = 46$.
37	(b)	f(1) = 3; g(3) = 9.

Q	Ans	Explanation / working
38	(a)	MR = 80 − 8x = 0 → x = 10; R″ = −8 < 0 (maximum R = 400).
39	(c)	Power rule: $\int x^n\,dx = x^{n+1}/(n+1) + c$.
40	(c)	MC = dC/dx = 4x + 33 = 133 at x = 25.
41	(c)	All except 90 are divisible by 11.
42	(a)	Two alternate series: 3, 5, ... (+2) and 25, 22, ... (−3) → 16.
43	(b)	The word is written in reverse: REVIR.
44	(c)	All except 144 are perfect cubes.
45	(d)	Terms are $n^2 - 1$ for n = 3, 4, ...; next = $8^2 - 1$ = 63.
46	(c)	Each letter is moved -1 place(s) in the alphabet: PLANT → OKZMS.
47	(a)	Net displacement: 15 km west and 8 km south → South-west.
48	(c)	Net rotation = 45° (clockwise positive) from north → North-east.
49	(c)	Net displacement: 4 km west and 3 km south → √(16 + 9) = 5 km.
50	(c)	Net rotation = -225° (clockwise positive) from west → North-east.
51	(d)	Net displacement: 12 km east and 9 km south → √(144 + 81) = 15 km.
52	(a)	The only arrangement satisfying all clues (left → right): F K G A C J.
53	(a)	Unique arrangement going to each person's left (clockwise when viewed from above): A → H → E → C → F → B; opposite C is A.
54	(b)	The only arrangement satisfying all clues (left → right): K G F L H.
55	(d)	Unique arrangement going to each person's left (clockwise when viewed from above): A → H → G → E → F → C; opposite C is G.
56	(d)	A − B: A is B's sister; B × C: B is C's son → A is C's daughter.
57	(d)	Brother's son = nephew.
58	(b)	A × B: A is B's son; B + C: B is C's husband → C is A's mother → A is C's son.
59	(c)	Father's brother = uncle; uncle's son = cousin.
60	(b)	Mother's sister = (maternal) aunt.
61	(b)	By place = spatial or geographical classification.
62	(c)	Angles are proportional to values out of 360°.
63	(c)	Every unit of the population is studied.
64	(a)	Used to draw histograms with unequal class widths.
65	(a)	Class mark = (10 + 30)/2 = 20.
66	(a)	300/1,200 × 360° = 90°.
67	(a)	Sampling error falls as the sample size rises.
68	(c)	Pie charts show parts of a whole.
69	(a)	For two numbers SD = $\lvert a - b \rvert/2$ = 27/2.
70	(a)	$\Sigma wx/\Sigma w$ = 852/11 = 852/11.
71	(d)	$\Sigma wx/\Sigma w$ = 540/10 = 54.
72	(b)	SD(y) = $\lvert b \rvert$ × SD(x) = 4 × 6 = 24; the constant 4 has no effect.
73	(c)	Arranged: 11, 24, 25, 33, 34, 47, 56, 68 → median = 67/2.
74	(b)	$(Q_3 - Q_1)/(Q_3 + Q_1)$ = 17/93 = 0.1828.
75	(a)	$\Sigma wx/\Sigma w$ = 859/13 = 859/13.
76	(a)	CV = $\sigma/\bar{x}$ × 100 = 10/50 × 100 = 20%.
77	(c)	$(Q_3 - Q_1)/(Q_3 + Q_1)$ = 43/87 = 0.4943.
78	(c)	Mode = 3 Median − 2 Mean = 168 − 56 = 112.
79	(b)	Arranged: 13, 20, 24, 34, 49, 58, 71 → median = 34.
80	(c)	Variance = $(n^2 - 1)/12$ = 120/12 = 10.

Q	Ans	Explanation / working
81	(b)	366 days = 52 weeks + 2 days → 2/7.
82	(d)	E(X) = 2, E(X²) = 22/5 → Var = 22/5 − 4 = 2/5.
83	(b)	1 − P(A′)P(B′) = 1 − 3/5 × 1/2 = 7/10.
84	(d)	P = (4 + 13 − 1)/52 = 4/13.
85	(a)	P = m/(m + n) = 3/8.
86	(d)	P(A/B) = P(A ∩ B)/P(B) = 1/10/1/2 = 1/5.
87	(b)	1 − P(A′)P(B′) = 1 − 4/5 × 1/2 = 3/5.
88	(a)	6C2 × (1/2)^6 = 15/64 = 15/64.
89	(a)	q = variance/mean = 3/4 → p = 1/4 → n = mean/p = 16.
90	(a)	z = (75 − 50)/10 = 2.5; P = 0.5 − 0.4938 = 0.0062.
91	(d)	q = variance/mean = 1/2 → p = 1/2 → n = mean/p = 10.
92	(a)	r is unaffected in magnitude by change of origin and scale; the signs of 2 and 3 are the same → 0.45.
93	(b)	R = 1 − 6Σd²/[n(n² − 1)] = 1 − 60/210 = 5/7.
94	(a)	r² = 0.36: 36% of the variation in y is explained by x.
95	(a)	R = 1 − 6Σd²/[n(n² − 1)] = 1 − 84/120 = 3/10.
96	(a)	y − ȳ = b_yx (x − x̄) → y = 41 + 4/5(21 − 29) = 173/5.
97	(b)	$\Sigma p_1/\Sigma p_o \times 100 = 26/16 \times 100 = 162.50$.
98	(d)	Real wage = 30,000 ÷ 150 × 100 = ₹20,000.
99	(d)	$L = \Sigma p_1 q_o/\Sigma p_o q_o \times 100$.
100	(a)	$\Sigma p_1 q_o/\Sigma p_o q_o \times 100 = 165/104 \times 100 = 158.65$.