Skillshort

Self-Study Preparation Pack

CA FOUNDATION

Paper 3: Quantitative Aptitude

Chapter-wise Practice Questions with Answers

18 chapters × 10 MCQs = 180 original questions · answers computed and checked by program · key with working after each chapter

180 MCQs | Working for every answer | Target: 8/10 per chapter

Contents

How to practise	2	Chapter 1: Ratio & proportion, indices, logarithms	2
Chapter 2: Equations	3	Chapter 3: Linear inequalities	4
Chapter 4: Mathematics of finance	5	Chapter 5: Permutations & combinations	6
Chapter 6: Sequence & series	7	Chapter 7: Sets, relations, functions, limits	8
Chapter 8: Differential & integral calculus	10	Chapter 9: Number series, coding-decoding, odd man out	11
Chapter 10: Direction tests	12	Chapter 11: Seating arrangements	13
Chapter 12: Blood relations	15	Chapter 13: Statistical description of data & sampling	16
Chapter 14: Central tendency & dispersion	17	Chapter 15: Probability	18
Chapter 16: Theoretical distributions	19	Chapter 17: Correlation & regression	20
Chapter 18: Index numbers	21		

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.

How to practise

Do each chapter set in **12 minutes** (72 seconds a question – the exam speed). Score yourself with the key directly below the set. Below 7/10 → re-read the chapter in file 01 and redo the set after two days. These sets are separate from the three mock tests, so you can use both.

Chapter 1: Ratio & proportion, indices, logarithms

1. An amount of ₹30,000 is divided among P, Q and R in the ratio 3 : 5 : 7. The share of Q is:
(a) ₹20,000 (b) ₹6,000
(c) ₹14,000 (d) ₹10,000

2. The third proportional to 6 and 24 is:
(a) 49 (b) 3/2
(c) 96 (d) 30

3. Given log 2 = 0.30103, the number of digits in 2^40 is:
(a) 15 (b) 12
(c) 14 (d) 13

4. The value of (125)^(2/3) is:
(a) 30 (b) 125
(c) 25 (d) 10

5. A can complete a work in 12 days and B in 24 days. Working together, they will complete it in:
(a) 12 days (b) 18 days
(c) 10 days (d) 8 days

6. A started a business with ₹72,000. After some months B joined with ₹48,000. At the year-end the profit was shared in the ratio 2 : 1. B joined after:
(a) 4 months (b) 3 months
(c) 5 months (d) 9 months

7. An amount of ₹11,000 is divided among P, Q and R in the ratio 2 : 3 : 6. The share of Q is:
(a) ₹3,000 (b) ₹8,000
(c) ₹2,000 (d) ₹6,000

8. The third proportional to 2 and 4 is:
(a) 6 (b) 9
(c) 8 (d) 1

9. If $\log_x(2) + \log_x(8) + \log_x(4) = 3$, then x = ?
(a) 2 (b) 4
(c) 8 (d) 6

10. The value of (64)^(5/3) is:
(a) 1028 (b) 1024
(c) 20 (d) 4096

Answers – Ch 1 Ratio & proportion, indices, logarithms

Q	Ans	Explanation / working
1	(d)	Total parts 15; one part = ₹2,000; Q = 5 × ₹2,000 = ₹10,000.

Q	Ans	Explanation / working
2	(c)	Third proportional = b^2/a = 576/6 = 96.
3	(d)	log 2^40 = 40 × 0.30103 = 12.041; characteristic 12 → 13 digits.
4	(c)	(125)^(1/3) = 5; raised to 2 → 25.
5	(d)	1/12 + 1/24 = 1/8 per day → 8 days.
6	(b)	72,000 × 12 : 48,000 × (12 − m) = 2 : 1 → 12 − m = 9 → m = 3.
7	(a)	Total parts 11; one part = ₹1,000; Q = 3 × ₹1,000 = ₹3,000.
8	(c)	Third proportional = b^2/a = 16/2 = 8.
9	(b)	$\log_x(2^6) = 3 \rightarrow x^n = 2^6$ with n = 3 → x = 2^2 = 4.
10	(b)	(64)^(1/3) = 4; raised to 5 → 1024.

Chapter 2: Equations

11. If α and β are the roots of $x^2 - 6x + 5 = 0$, then $\alpha^2 + \beta^2$ = ?

(a) 26 (b) 46
(c) 27 (d) 36

12. If α and β are the roots of $x^2 - 5x + 4 = 0$, the equation whose roots are 3α and 3β is:

(a) $x^2 - 15x + 12 = 0$ (b) $x^2 - 15x + 4 = 0$
(c) $x^2 - 15x + 36 = 0$ (d) $x^2 - 5x + 36 = 0$

13. Solve: 2x + 3y = 33 and 3x − y = 0.

(a) x = 4, y = 8 (b) x = 9, y = 3
(c) x = 3, y = 10 (d) x = 3, y = 9

14. The roots of $x^3 - 12x^2 + 47x - 60 = 0$ are:

(a) 3, 4, 5 (b) 4, 5, 6
(c) 3, 4, -5 (d) -3, -4, -5

15. A father's age is 4 times his son's age. After 5 years, the ratio of their ages will be 49 : 16. The son's present age is:

(a) 16 years (b) 11 years
(c) 13 years (d) 44 years

16. If α and β are the roots of $x^2 - 3x - 10 = 0$, then $\alpha^2 + \beta^2$ = ?

(a) 29 (b) -11
(c) 9 (d) 30

17. Solve: 3x + 2y = 26 and 2x − 3y = -13.

(a) x = 4, y = 8 (b) x = 5, y = 6
(c) x = 4, y = 7 (d) x = 7, y = 4

18. Solve: 4x + y = 9 and x + 3y = 5.

(a) x = 1, y = 2 (b) x = 2, y = 1
(c) x = 3, y = 0 (d) x = 2, y = 2

19. A father's age is 4 times his son's age. After 5 years, the ratio of their ages will be 37 : 13. The son's present age is:

(a) 8 years (b) 10 years
(c) 13 years (d) 32 years

20. A father's age is 4 times his son's age. After 6 years, the ratio of their ages will be 3 : 1. The son's present age is:

(a) 48 years
(b) 18 years
(c) 12 years
(d) 14 years

Answers – Ch 2 Equations

Q	Ans	Explanation / working
11	(a)	$\alpha + \beta = 6$, $\alpha\beta = 5$; $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = 36 - (10) = 26$.
12	(c)	New sum = $3(\alpha + \beta) = 15$; new product = $9\alpha\beta = 36$.
13	(d)	Substituting x = 3, y = 9: 6 + (27) = 33 ✔ and 9 + (-9) = 0 ✔.
14	(a)	Sum of roots = $-b/a = 12$, product = $-d/a = 60$; each root satisfies the equation.
15	(b)	$(4s + 5)/(s + 5) = 49/16 \rightarrow s = 11$.
16	(a)	$\alpha + \beta = 3$, $\alpha\beta = -10$; $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = 9 - (-20) = 29$.
17	(c)	Substituting x = 4, y = 7: 12 + (14) = 26 ✔ and 8 + (-21) = -13 ✔.
18	(b)	Substituting x = 2, y = 1: 8 + (1) = 9 ✔ and 2 + (3) = 5 ✔.
19	(a)	$(4s + 5)/(s + 5) = 37/13 \rightarrow s = 8$.
20	(c)	$(4s + 6)/(s + 6) = 3/1 \rightarrow s = 12$.

Chapter 3: Linear inequalities

21. The solution of $7x - 1 \leq 3x - 1$ is:

(a) $x \leq 0$
(b) $x \leq 1$
(c) $x \geq 0$
(d) $x \leq -1/2$

22. The solution set of $-3 < 3x + 2 \leq 6$ is:

(a) $-1/3 < x \leq 8/3$
(b) $-5/3 < x \leq 4/3$
(c) $-3 < x \leq 6$
(d) $-5/3 \leq x < 4/3$

23. Maximise $Z = x + 3y$ subject to $x + y \leq 4$, $x + 2y \leq 6$, $x \geq 0$, $y \geq 0$. The maximum value of Z is:

(a) 4
(b) 8
(c) 9
(d) 0

24. The solution of $3x - 5 \leq 5x - 4$ is:

(a) $x \geq -1/2$
(b) $x \leq -1/2$
(c) $x \geq 1/2$
(d) $x \geq 9/2$

25. The solution set of $-10 < 3x + 1 \leq 8$ is:

(a) $-3 < x \leq 3$
(b) $-11/3 < x \leq 7/3$
(c) $-11/3 \leq x < 7/3$
(d) $-10 < x \leq 8$

26. Maximise $Z = 3x + 5y$ subject to $x + y \leq 8$, $x + 2y \leq 10$, $x \geq 0$, $y \geq 0$. The maximum value of Z is:

(a) 24
(b) 25
(c) 0
(d) 28

27. The solution of $7x - 3 \leq 3x + 8$ is:

(a) $x \geq 11/4$
(b) $x \leq 15/4$
(c) $x \leq 11/4$
(d) $x \leq 5/4$

28. The solution set of $-3 < 2x + 1 \leq 9$ is:

(a) $-1 < x \leq 5$ (b) $-3 < x \leq 9$
(c) $-2 < x \leq 4$ (d) $-2 \leq x < 4$

29. Maximise $Z = 5x + 3y$ subject to $x + y \leq 6$, $x + 2y \leq 8$, $x \geq 0$, $y \geq 0$. The maximum value of Z is:

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

30. The solution of $4x - 7 \leq x - 8$ is:

(a) $x \leq -1/3$ (b) $x \geq -1/3$
(c) $x \leq 2/3$ (d) $x \leq -5$

Answers – Ch 3 Linear inequalities

Q	Ans	Explanation / working
21	(a)	$(7 - 3)x \leq -1 - (-1) \rightarrow x \leq 0$.
22	(b)	Subtract 2 and divide by 3: $-5/3 < x \leq 4/3$.
23	(c)	Corner points (0,0), (4,0), (2,2), (0,3) give Z = 0, 4, 8, 9; maximum 9 at (0, 3).
24	(a)	$(3 - 5)x \leq -4 - (-5) \rightarrow x \geq -1/2$ (dividing by a negative number reverses the sign).
25	(b)	Subtract 1 and divide by 3: $-11/3 < x \leq 7/3$.
26	(d)	Corner points (0,0), (8,0), (6,2), (0,5) give Z = 0, 24, 28, 25; maximum 28 at (6, 2).
27	(c)	$(7 - 3)x \leq 8 - (-3) \rightarrow x \leq 11/4$.
28	(c)	Subtract 1 and divide by 2: $-2 < x \leq 4$.
29	(a)	Corner points (0,0), (6,0), (4,2), (0,4) give Z = 0, 30, 26, 12; maximum 30 at (6, 0).
30	(a)	$(4 - 1)x \leq -8 - (-7) \rightarrow x \leq -1/3$.

Chapter 4: Mathematics of finance

31. The amount of ₹40,000 at 12% p.a. simple interest for 3 years is:

(a) ₹56,197 (b) ₹54,400
(c) ₹14,400 (d) ₹59,200

32. The difference between compound interest and simple interest on ₹20,000 for 3 years at 20% p.a. is:

(a) ₹2,560 (b) ₹800
(c) ₹3,840 (d) ₹400

33. The effective annual rate of interest corresponding to a nominal rate of 16% p.a. compounded quarterly is:

(a) 16.69% (b) 17.49%
(c) 16.99% (d) 16.00%

34. The present value of ₹50,000 receivable after 3 years at 8% p.a. compound interest is (nearest rupee):

(a) ₹40,323 (b) ₹41,676
(c) ₹39,692 (d) ₹38,000

35. The future value of an annuity of ₹12,000 payable at the end of each year for 5 years at 5% p.a. compound interest is (nearest rupee):

(a) ₹66,308 (b) ₹69,623
(c) ₹51,954 (d) ₹60,000

36. 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) ₹17,936 (b) ₹18,889
(c) ₹13,889 (d) ₹16,607

37. The present value of a perpetuity of ₹12,000 per year (end of year) at 6% p.a. is:

(a) ₹1,20,000 (b) ₹72,000
(c) ₹2,20,000 (d) ₹2,00,000

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

(a) ₹90,089 (b) ₹81,899
(c) ₹50,000 (d) ₹1,00,000

39. An investment grew from ₹1,00,000 to ₹1,57,352 in 4 years. The CAGR is approximately:

(a) 12% (b) 57.4%
(c) 14% (d) 14.3%

40. A project costs ₹1,50,000 and gives ₹30,000 at the end of each year for 4 years. At 10% the annuity factor is 3.1699. The NPV is approximately:

(a) ₹−30,000 (b) ₹−54,904
(c) ₹95,096 (d) ₹54,904

Answers – Ch 4 Mathematics of finance

Q	Ans	Explanation / working
31	(b)	SI = 40,000 × 12 × 3/100 = ₹14,400; amount = ₹54,400.
32	(a)	For 3 years: $P(r/100)^2(3 + r/100)$ = ₹2,560.
33	(c)	E = (1 + 0.0400)^4 − 1 = 16.99%.
34	(c)	PV = 50,000 ÷ (1 + 0.08)^3 = 50,000 ÷ 1.259712 = ₹39,692.
35	(a)	FV = 12,000 × [(1.05)^5 − 1]/0.05 = 12,000 × 5.5256 = ₹66,308.
36	(d)	i = 12/1200 = 0.0100; EMI = $P{\cdot}i(1 + i)^n/[(1 + i)^n − 1]$ = ₹16,607.
37	(d)	PV = A/i = 12,000/0.06 = ₹2,00,000.
38	(b)	$A = FV{\cdot}i/[(1 + i)^n − 1]$ = 5,00,000 × 0.1/0.61051 = ₹81,899.
39	(a)	CAGR = (1,57,352/1,00,000)^(1/4) − 1 = 12% (the simple average 14.3% is wrong).
40	(b)	NPV = 30,000 × 3.1699 − 1,50,000 = ₹−54,904.

Chapter 5: Permutations & combinations

41. The number of arrangements of the letters of the word "SUCCESS" is:

(a) 5,040 (b) 420
(c) 210 (d) 840

42. In how many ways can 8 persons be seated at a round table?

(a) 2,520 (b) 5,040
(c) 720 (d) 40,320

43. A committee of 5 is to be formed from 8 men and 4 women. In how many ways can it be done if it must include at least 1 woman?

(a) 792 (b) 456
(c) 1,320 (d) 736

44. If ⁿC2 = ⁿC4, then n = ?

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

45. The number of diagonals of a polygon with 6 sides is:

(a) 9 (b) 10
(c) 18 (d) 15

46. In how many ways can 5 persons be seated at a round table?

(a) 12 (b) 24
(c) 6 (d) 120

47. In how many ways can 7 persons be seated at a round table?

(a) 360 (b) 120
(c) 720 (d) 5,040

48. A committee of 5 is to be formed from 7 men and 5 women. In how many ways can it be done if it must include at least 3 women?

(a) 36 (b) 792
(c) 246 (d) 360

49. If ⁿC5 = ⁿC7, then n = ?

(a) 7 (b) 10
(c) 11 (d) 12

50. There are 10 points in a plane of which 4 are collinear (no other three collinear). The number of triangles that can be formed is:

(a) 20 (b) 116
(c) 114 (d) 120

Answers – Ch 5 Permutations & combinations

Q	Ans	Explanation / working
41	(b)	7 letters with repeats (S×3, C×2) → 7! ÷ 12 = 420.
42	(b)	Circular: (n − 1)! = 7! = 5,040.
43	(d)	Sum over j = 1 … 4 women of 4Cj × 8C(5 − j) = 736.
44	(d)	$^nC_r = {}^nC_s$ (r ≠ s) ⇒ r + s = n → n = 2 + 4 = 6.
45	(a)	$^nC_2$ − n = 15 − 6 = 9.
46	(b)	Circular: (n − 1)! = 4! = 24.
47	(c)	Circular: (n − 1)! = 6! = 720.
48	(c)	Sum over j = 3 … 5 women of 5Cj × 7C(5 − j) = 246.
49	(d)	$^nC_r = {}^nC_s$ (r ≠ s) ⇒ r + s = n → n = 5 + 7 = 12.
50	(b)	10C3 − 4C3 = 120 − 4 = 116.

Chapter 6: Sequence & series

51. The sum of the first 23 terms of the AP 8, 14, 20, … is:

(a) 1,694 (b) 3,220
(c) 1,840 (d) 1,702

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

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

53. $1^3 + 2^3 + 3^3 + ... + 18^3 = ?$

(a) 2,109 (b) 29,241
(c) 14,620 (d) 35,073

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

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

55. The sum of the first 23 terms of the AP 7, 9, 11, ... is:

(a) 713 (b) 667
(c) 1,173 (d) 660

56. The sum to infinity of the GP 8, 4, 2, ... is:

(a) 18 (b) 16
(c) 16/3 (d) 17

57. The sum of all numbers from 10 to 99 that are divisible by 4 is:

(a) 1,176 (b) 2,376
(c) 1,284 (d) 1,188

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

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

59. The 23rd term of the AP 5, 11, 17, ... is:

(a) 143 (b) 131
(c) 115 (d) 137

60. The sum of all numbers from 10 to 99 that are divisible by 3 is:

(a) 3,330 (b) 1,764
(c) 1,665 (d) 1,653

Answers – Ch 6 Sequence & series

Q	Ans	Explanation / working
51	(d)	$S_n = n/2\ [2a + (n - 1)d] = 23/2 \times [16 + 132] = 1{,}702$.
52	(c)	$S\infty = a/(1 - r) = 9/(1 - (1/3)) = 27/2$.
53	(b)	$[n(n + 1)/2]^2 = 171^2 = 29{,}241$.
54	(b)	$GM^2 = AM \times HM \rightarrow HM = 225/17 = 225/17$.
55	(b)	$S_n = n/2\ [2a + (n - 1)d] = 23/2 \times [14 + 44] = 667$.
56	(b)	$S\infty = a/(1 - r) = 8/(1 - (1/2)) = 16$.
57	(d)	First 12, last 96, n = 22; $S = n/2\ (a + l) = 1{,}188$.
58	(a)	$GM^2 = AM \times HM \rightarrow HM = 144/20 = 36/5$.
59	(d)	$t_n = a + (n - 1)d = 5 + 22 \times 6 = 137$.
60	(c)	First 12, last 99, n = 30; $S = n/2\ (a + l) = 1{,}665$.

Chapter 7: Sets, relations, functions, limits

61. If A has 3 elements and B has 4 elements, the number of relations from A to B is:

(a) 12 (b) 4,096
(c) 128 (d) 64

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

(a) 9 (b) 81
(c) 16 (d) 17

63. lim $(x^3 - 8)/(x - 2)$ as $x \to 2$ equals:

(a) 8 (b) 6
(c) 12 (d) 0

64. The number of proper subsets of a set with 6 elements is:

(a) 64 (b) 36
(c) 32 (d) 63

65. The inverse of $f(x) = 4x + 6$ is:

(a) $(x - 6)/4$ (b) $x/4 - 6$
(c) $4x - 6$ (d) $(x + 6)/4$

66. lim $(2x^2 + 3x)/(5x^2 - 5)$ as $x \to \infty$ equals:

(a) 3/5 (b) 0
(c) ∞ (d) 2/5

67. The number of proper subsets of a set with 3 elements is:

(a) 4 (b) 8
(c) 9 (d) 7

68. The inverse of $f(x) = 5x + 7$ is:

(a) $x/5 - 7$ (b) $5x - 7$
(c) $(x - 7)/5$ (d) $(x + 7)/5$

69. lim $(6x^2 + 5x)/(2x^2 - 1)$ as $x \to \infty$ equals:

(a) 5 (b) ∞
(c) 3 (d) 0

70. If $n(A) = 28$, $n(B) = 35$ and $n(A \cap B) = 7$, then $n(A \cup B) = ?$

(a) 56 (b) 63
(c) 49 (d) 70

Answers – Ch 7 Sets, relations, functions, limits

Q	Ans	Explanation / working
61	(b)	Relations = subsets of A × B = 2^(3×4) = 4,096.
62	(d)	g(2) = 4; f(4) = 17.
63	(c)	Standard form $n \cdot a^{n-1} = 3 \times 2^2 = 12$.
64	(d)	Subsets 2^6 = 64; proper subsets 2^6 − 1 = 63.
65	(a)	$y = 4x + 6 \to x = (y - 6)/4$.
66	(d)	Divide numerator and denominator by $x^2 \to 2/5 = 2/5$.
67	(d)	Subsets 2^3 = 8; proper subsets 2^3 − 1 = 7.
68	(c)	$y = 5x + 7 \to x = (y - 7)/5$.
69	(c)	Divide numerator and denominator by $x^2 \to 6/2 = 3$.

Q	Ans	Explanation / working
70	(a)	n(A ∪ B) = 28 + 35 − 7 = 56.

Chapter 8: Differential & integral calculus

71. The total cost function is $C(x) = 2x^2 + 21x + 500$. The marginal cost at $x = 40$ is:

(a) ₹4,540 (b) ₹101
(c) ₹181 (d) ₹113.50

72. ∫ x^2 dx = ?

(a) x^3/3 + c (b) x^2/2 + c
(c) 2x^1 + c (d) x^3 + c

73. The total cost function is $C(x) = 1/2x^2 + 10x + 500$. The marginal cost at $x = 27$ is:

(a) ₹37 (b) ₹1,134.50
(c) ₹23.50 (d) ₹42.02

74. ∫ x^3 dx = ?

(a) x^3/3 + c (b) 3x^2 + c
(c) x^4/4 + c (d) x^4 + c

75. The total cost function is $C(x) = 1/2x^2 + 17x + 500$. The marginal cost at $x = 32$ is:

(a) ₹48.62 (b) ₹1,556
(c) ₹33 (d) ₹49

76. ∫ from 0 to 2 of $(3x^2 + 12x)$ dx = ?

(a) 16 (b) 24
(c) 34 (d) 32

77. The total cost function is $C(x) = 2x^2 + 40x + 500$. The marginal cost at $x = 18$ is:

(a) ₹1,868 (b) ₹112
(c) ₹103.78 (d) ₹76

78. The total cost function is $C(x) = x^2 + 11x + 500$. The marginal cost at $x = 43$ is:

(a) ₹97 (b) ₹54
(c) ₹2,822 (d) ₹65.63

79. The revenue function is $R(x) = 120x − 2x^2$. Revenue is maximum at x =

(a) 31 (b) 60
(c) 30 (d) 61

80. ∫ from 0 to 2 of $(9x^2 + 8x)$ dx = ?

(a) 42 (b) 44
(c) 40 (d) 20

Answers – Ch 8 Differential & integral calculus

Q	Ans	Explanation / working
71	(c)	MC = dC/dx = 4x + 21 = 181 at x = 40.
72	(a)	Power rule: $\int x^n dx = x^{n+1}/(n+1) + c$.
73	(a)	MC = dC/dx = x + 10 = 37 at x = 27.
74	(c)	Power rule: $\int x^n dx = x^{n+1}/(n+1) + c$.

Q	Ans	Explanation / working
75	(d)	MC = dC/dx = x + 17 = 49 at x = 32.
76	(d)	$[x^3 + 6x^2]$ from 0 to 2 = 32.
77	(b)	MC = dC/dx = 4x + 40 = 112 at x = 18.
78	(a)	MC = dC/dx = 2x + 11 = 97 at x = 43.
79	(c)	MR = 120 − 4x = 0 → x = 30; R″ = −4 < 0 (maximum R = 1800).
80	(c)	$[3x^3 + 4x^2]$ from 0 to 2 = 40.

Chapter 9: Number series, coding-decoding, odd man out

81. Find the next term: 3, 8, 15, 24, 35, ?

(a) 43 (b) 50
(c) 48 (d) 47

82. If HAT = 29 (sum of alphabet positions), then CUP = ?

(a) 43 (b) 40
(c) 41 (d) 38

83. Find the odd one out: 125, 343, 729, 8, 144

(a) 144 (b) 343
(c) 125 (d) 8

84. If SUN = 54 (sum of alphabet positions), then CUP = ?

(a) 41 (b) 38
(c) 40 (d) 43

85. Find the odd one out: 67, 11, 41, 51, 29

(a) 67 (b) 11
(c) 29 (d) 51

86. Find the odd one out: 29, 67, 77, 53, 41

(a) 41 (b) 77
(c) 67 (d) 29

87. Find the next term: 4, 9, 17, 28, 42, ?

(a) 62 (b) 56
(c) 63 (d) 59

88. If BOX = 41 (sum of alphabet positions), then PEN = ?

(a) 33 (b) 38
(c) 35 (d) 36

89. Find the odd one out: 43, 41, 49, 67, 59

(a) 41 (b) 59
(c) 67 (d) 49

90. Find the next term: 1, 3, 3, 7, 13, 23, ?

(a) 45 (b) 43
(c) 36 (d) 44

Answers – Ch 9 Number series, coding-decoding, odd man out

Q	Ans	Explanation / working
81	(c)	Terms are $n^2 - 1$ for n = 2, 3, ...; next = $7^2 - 1 = 48$.
82	(b)	CUP: 3 + 21 + 16 = 40.
83	(a)	All except 144 are perfect cubes.
84	(c)	CUP: 3 + 21 + 16 = 40.
85	(d)	All except 51 are prime numbers (51 is composite).
86	(b)	All except 77 are prime numbers (77 is composite).
87	(d)	Differences 5, 8, 11, 14 rise by 3; next difference 17 → 59.
88	(c)	PEN: 16 + 5 + 14 = 35.
89	(d)	All except 49 are prime numbers (49 is composite).
90	(b)	Each term = sum of the previous three → 7 + 13 + 23 = 43.

Chapter 10: Direction tests

91. Kavya walks 5 km west, turns left and walks 12 km, turns left and walks 10 km. How far is the person from the starting point?

(a) 27 km
(b) 15 km
(c) 13 km
(d) 17 km

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

(a) North
(b) South-west
(c) West
(d) East

93. Ravi walks 6 km west, turns left and walks 5 km, turns right and walks 6 km. In which direction is the person now from the starting point?

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

94. A man is facing south. He turns 45° clockwise and then 45° anticlockwise. Which direction is he facing now?

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

95. Sana walks 8 km east, turns left and walks 5 km, turns right and walks 4 km. How far is the person from the starting point?

(a) 11 km
(b) 17 km
(c) 15 km
(d) 13 km

96. A man is facing west. He turns 135° clockwise and then 135° clockwise. Which direction is he facing now?

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

97. Arjun walks 5 km north, turns right and walks 3 km, turns right and walks 9 km. How far is the person from the starting point?

(a) 5 km
(b) 3 km
(c) 17 km
(d) 7 km

98. A man is facing south. He turns 135° anticlockwise and then 90° anticlockwise. Which direction is he facing now?

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

99. Rohit walks 6 km west, turns right and walks 5 km, turns right and walks 3 km, turns right and walks 9 km. In which direction is the person now from the starting point?

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

100. A man is facing west. He turns 45° clockwise and then 45° clockwise. Which direction is he facing now?

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

Answers – Ch 10 Direction tests

Q	Ans	Explanation / working
91	(c)	Net displacement: 5 km east and 12 km south → √(25 + 144) = 13 km.
92	(c)	Net rotation = 270° (clockwise positive) from north → West.
93	(c)	Net displacement: 12 km west and 5 km south → South-west.
94	(b)	Net rotation = 0° (clockwise positive) from south → South.
95	(d)	Net displacement: 12 km east and 5 km north → √(144 + 25) = 13 km.
96	(a)	Net rotation = 270° (clockwise positive) from west → South.
97	(a)	Net displacement: 3 km east and 4 km south → √(9 + 16) = 5 km.
98	(c)	Net rotation = -225° (clockwise positive) from south → North-west.
99	(b)	Net displacement: 3 km west and 4 km south → South-west.
100	(a)	Net rotation = 90° (clockwise positive) from west → North.

Chapter 11: Seating arrangements

101. 5 persons B, E, P, R, T sit in a row facing north. T does not sit next to R; B sits second to the right of E; exactly one person sits between P and T; E sits immediately to the left of P; B sits immediately to the left of T. Who sits in the middle?

(a) B
(b) P
(c) E
(d) R

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

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

103. 5 persons E, F, J, M, T sit in a row facing north. F sits second to the right of T; M sits second to the right of E; J does not sit next to F; T sits second to the right of J. Who sits immediately to the left of M?

(a) M
(b) J
(c) T
(d) F

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

(a) B
(b) E
(c) D
(d) C

105. 5 persons B, D, G, H, M sit in a row facing north. B does not sit next to D; B sits at one of the ends; B does not sit next to H; G sits immediately to the left of B; M sits immediately to the left of G; H sits at one of the ends. Who sits in the middle?

(a) M (b) B
(c) H (d) D

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

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

107. 5 persons F, K, L, P, R sit in a row facing north. L does not sit next to R; P does not sit next to R; K sits immediately to the left of R; exactly one person sits between P and L; P sits immediately to the left of F. Who sits at the extreme right end?

(a) K (b) F
(c) R (d) P

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

(a) D (b) B
(c) E (d) C

109. 5 persons F, H, J, M, P sit in a row facing north. M does not sit next to F; exactly one person sits between F and H; F sits second to the right of H; exactly one person sits between J and M; F sits at one of the ends. Who sits at the extreme right end?

(a) F (b) P
(c) M (d) J

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

(a) C (b) B
(c) D (d) E

Answers – Ch 11 Seating arrangements

Q	Ans	Explanation / working
101	(b)	The only arrangement satisfying all clues (left → right): R E P B T.
102	(a)	Unique arrangement going to each person's left (clockwise when viewed from above): A → F → C → D → B → H; opposite C is H.
103	(c)	The only arrangement satisfying all clues (left → right): J E T M F.
104	(b)	Unique arrangement going to each person's left (clockwise when viewed from above): A → C → B → E → D → G; opposite A is E.
105	(a)	The only arrangement satisfying all clues (left → right): H D M G B.
106	(d)	Unique arrangement going to each person's left (clockwise when viewed from above): A → E → G → H → D → C; opposite G is C.
107	(c)	The only arrangement satisfying all clues (left → right): P F L K R.
108	(a)	Unique arrangement going to each person's left (clockwise when viewed from above): B → D → F → E → G → C; opposite G is D.
109	(a)	The only arrangement satisfying all clues (left → right): P M H J F.
110	(c)	Unique arrangement going to each person's left (clockwise when viewed from above): A → B → D → C → E → F; opposite F is D.

Chapter 12: Blood relations

111. Pointing to a boy, Tarun said, "He is the son of the only son of my father." How is the boy related to Tarun?

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

112. Rohan's mother's sister is Rohan's:

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

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

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

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

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

116. Neha's husband's sister is Neha's:

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

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

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

118. Sneha's brother's son is Sneha's:

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

119. Anita's brother's son is Anita's:

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

120. Raj's mother's sister is Raj's:

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

Answers – Ch 12 Blood relations

Q	Ans	Explanation / working
111	(b)	The only son of Tarun's father is Tarun himself → the boy is Tarun's son.
112	(a)	Mother's sister = (maternal) aunt.
113	(b)	A − B: A is B's sister; B × C: B is C's son → A is C's daughter.
114	(d)	Brother's son = nephew.
115	(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.

Q	Ans	Explanation / working
116	(d)	Husband's sister = sister-in-law.
117	(c)	Mother's sister = (maternal) aunt.
118	(b)	Brother's son = nephew.
119	(b)	Brother's son = nephew.
120	(d)	Mother's sister = (maternal) aunt.

Chapter 13: Statistical description of data & sampling

121. A measure computed from a sample is called a:

(a) Parameter
(b) Attribute
(c) Variable
(d) Statistic

122. Errors that arise even in complete enumeration are:

(a) Sampling errors
(b) Non-sampling errors
(c) Standard errors
(d) Errors of estimation only

123. Sampling errors can be reduced by:

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

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

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

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

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

126. A sample survey is the only practical method when:

(a) Testing is destructive
(b) Time and money are unlimited
(c) The population is small
(d) Every unit must be studied

127. Which sampling method divides the population into homogeneous groups and draws a sample from each?

(a) Stratified sampling
(b) Systematic sampling
(c) Cluster sampling
(d) Quota sampling

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

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

129. The class mark of the class 20–40 is:

(a) 32
(b) 20
(c) 40
(d) 30

130. Frequency density of a class is:

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

Answers – Ch 13 Statistical description of data & sampling

Q	Ans	Explanation / working
121	(d)	Population measure = parameter; sample measure = statistic.
122	(b)	Non-sampling errors (response, recording, processing) occur in a census too.
123	(a)	Sampling error falls as the sample size rises.
124	(d)	Class mark = (50 + 60)/2 = 55.
125	(b)	Pie charts show parts of a whole.
126	(a)	Destructive testing (bulbs, crackers) rules out a census.
127	(a)	Strata are homogeneous within; units are drawn from every stratum.
128	(b)	Frequency density = 24/8 = 3.
129	(d)	Class mark = (20 + 40)/2 = 30.
130	(d)	Used to draw histograms with unequal class widths.

Chapter 14: Central tendency & dispersion

131. The standard deviation of the two numbers 12 and 47 is:

(a) 59/2 (b) 35
(c) 35/2 (d) 1225/4

132. If the standard deviation of x is 6, the standard deviation of y = 9 + 2x is:

(a) 24 (b) 21
(c) 12 (d) 6

133. If the standard deviation of x is 4, the standard deviation of y = 7 + 5x is:

(a) 4 (b) 27
(c) 20 (d) 100

134. If the mean is 60 and the standard deviation is 9, the coefficient of variation is:

(a) 1.50% (b) 15%
(c) 135% (d) 666.67%

135. The variance of the first 13 natural numbers is:

(a) 7 (b) 85/6
(c) 28 (d) 14

136. Marks 47, 65, 45 carry weights 4, 2, 2 respectively. The weighted mean is:

(a) 51 (b) 157/3
(c) 157/8 (d) 52

137. Group A has 20 items with mean 65 and group B has 30 items with mean 57. The combined mean is:

(a) 306/5 (b) 309/5
(c) 301/5 (d) 61

138. Group A has 20 items with mean 46 and group B has 30 items with mean 59. The combined mean is:

(a) 269/5 (b) 256/5
(c) 105/2 (d) 274/5

139. The standard deviation of the two numbers 16 and 42 is:

(a) 13 (b) 26
(c) 29 (d) 169

140. For a moderately skewed distribution, mean = 22 and median = 59. The mode is approximately:

(a) 41 (b) 133
(c) 96 (d) -52

Answers – Ch 14 Central tendency & dispersion

Q	Ans	Explanation / working
131	(c)	For two numbers SD = $\|a - b\|/2$ = 35/2.
132	(c)	SD(y) = $\|b\|$ × SD(x) = 2 × 6 = 12; the constant 9 has no effect.
133	(c)	SD(y) = $\|b\|$ × SD(x) = 5 × 4 = 20; the constant 7 has no effect.
134	(b)	CV = $\sigma/\bar{x} \times 100$ = 9/60 × 100 = 15%.
135	(d)	Variance = $(n^2 - 1)/12$ = 168/12 = 14.
136	(a)	$\Sigma wx/\Sigma w$ = 408/8 = 51.
137	(c)	(20×65 + 30×57)/50 = 301/5.
138	(a)	(20×46 + 30×59)/50 = 269/5.
139	(a)	For two numbers SD = $\|a - b\|/2$ = 13.
140	(b)	Mode = 3 Median − 2 Mean = 177 − 44 = 133.

Chapter 15: Probability

141. A and B are independent events with P(A) = 4/5 and P(B) = 1/4. The probability that at least one of them occurs is:

(a) 1/5 (b) 3/20
(c) 17/20 (d) 9/10

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

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

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

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

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

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

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

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

146. A and B are independent events with P(A) = 1/5 and P(B) = 3/4. The probability that at least one of them occurs is:

(a) 3/20 (b) 1/5
(c) 17/20 (d) 4/5

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

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

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

(a) 22/5 (b) 9/5
(c) 21/10 (d) 2

149. If the odds in favour of an event are 4 : 3, its probability is:

(a) 4/7 (b) 2/7
(c) 3/7 (d) 4/3

150. The probability that a non-leap year selected at random contains 53 Sundays is:

(a) 2/7 (b) 53/365
(c) 1/52 (d) 1/7

Answers – Ch 15 Probability

Q	Ans	Explanation / working
141	(c)	1 − P(A′)P(B′) = 1 − 1/5 × 3/4 = 17/20.
142	(b)	366 days = 52 weeks + 2 days → 2/7.
143	(c)	2 favourable outcomes out of 36 → 1/18.
144	(b)	E(X) = 2, E(X²) = 22/5 → Var = 22/5 − 4 = 2/5.
145	(b)	P = (4 + 13 − 1)/52 = 4/13.
146	(d)	1 − P(A′)P(B′) = 1 − 4/5 × 1/4 = 4/5.
147	(b)	P = m/(m + n) = 3/8.
148	(d)	E(X) = Σxp = 2.
149	(a)	P = m/(m + n) = 4/7.
150	(d)	365 days = 52 weeks + 1 day → 1/7.

Chapter 16: Theoretical distributions

151. The points of inflexion of the normal curve are at:

(a) μ ± σ (b) μ ± 3σ
(c) μ ± 2σ (d) μ

152. X follows a Poisson distribution with mean 3 (take e^−3 = 0.0498). P(X ≥ 1) is:

(a) 0.9502 (b) 0.0498
(c) 0.8506 (d) 0.1494

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

(a) 25 (b) 29
(c) 10 (d) 12

154. In a normal distribution, about 95.45% of the values lie within:

(a) μ ± σ (b) μ ± 3σ
(c) μ ± 2σ (d) μ ± 1.5σ

155. X follows a Poisson distribution with mean 2 (take e^−2 = 0.1353). P(X ≥ 1) is:

(a) 0.7294 (b) 0.2706
(c) 0.8647 (d) 0.1353

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

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

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

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

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

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

159. X is normal with mean 100 and SD 15. The area between z = 0 and z = 2.0 is 0.4772. P(X > 130) is:

(a) 0.0228
(b) 0.9772
(c) 0.4772
(d) 0.5228

160. For a Poisson distribution, mean and variance are:

(a) Equal
(b) Unrelated
(c) Mean > variance always
(d) Mean < variance always

Answers – Ch 16 Theoretical distributions

Q	Ans	Explanation / working
151	(a)	The curvature changes at one SD from the mean.
152	(a)	P(X ≥ 1) = 1 − P(0) = 1 − 0.0498 = 0.9502.
153	(a)	q = variance/mean = 4/5 → p = 1/5 → n = mean/p = 25.
154	(c)	μ ± 2σ covers 95.45%.
155	(c)	P(X ≥ 1) = 1 − P(0) = 1 − 0.1353 = 0.8647.
156	(d)	q = variance/mean = 1/2 → p = 1/2 → n = mean/p = 10.
157	(c)	6C2 × (1/2)^6 = 15/64 = 15/64.
158	(c)	Used for rare events.
159	(a)	z = (130 − 100)/15 = 2.0; P = 0.5 − 0.4772 = 0.0228.
160	(a)	Both equal m.

Chapter 17: Correlation & regression

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

(a) 0.27
(b) 6.75
(c) -0.45
(d) 0.45

162. If b_yx = -4/5 and b_xy = -1/5, the correlation coefficient r is:

(a) 0.16
(b) 0.4
(c) -0.4
(d) -0.500

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

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

164. Mean of x = 47, mean of y = 31 and b_yx = 2/5. The estimated value of y when x = 31 is:

(a) 123/5
(b) 118/5
(c) 217/5
(d) 143/5

165. If r = 0.8, the coefficient of determination is:

(a) 0.89 (b) 0.64
(c) 0.8 (d) 0.36

166. For 7 pairs of ranks without ties, $\Sigma d^2 = 4$. The rank correlation coefficient is:

(a) 83/84 (b) 319/343
(c) -13/14 (d) 13/14

167. If $b_{yx} = 4/5$ and $b_{xy} = 9/20$, the correlation coefficient r is:

(a) 0.6 (b) 0.625
(c) 0.36 (d) -0.6

168. The correlation between x and y is 0.6. If u = 2x + 5 and v = 3y − 7, the correlation between u and v is:

(a) 0.6 (b) 0.4
(c) 3.6 (d) -0.6

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

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

170. For 5 pairs of ranks without ties, $\Sigma d^2 = 20$. The rank correlation coefficient is:

(a) 2 (b) 1/25
(c) 5/6 (d) 0

Answers – Ch 17 Correlation & regression

Q	Ans	Explanation / working
161	(d)	r is unaffected in magnitude by change of origin and scale; the signs of 3 and 5 are the same → 0.45.
162	(c)	$r = \pm\sqrt{(b_{yx} \times b_{xy})} = \sqrt{0.16} = 0.4$, with the sign of the coefficients.
163	(a)	$r^2 = 0.25$: 25% of the variation in y is explained by x.
164	(a)	$y - \bar{y} = b_{yx}(x - \bar{x}) \rightarrow y = 31 + 2/5(31 - 47) = 123/5$.
165	(b)	$r^2 = 0.64$: 64% of the variation in y is explained by x.
166	(d)	$R = 1 - 6\Sigma d^2/[n(n^2 - 1)] = 1 - 24/336 = 13/14$.
167	(a)	$r = \pm\sqrt{(b_{yx} \times b_{xy})} = \sqrt{0.36} = 0.6$, with the sign of the coefficients.
168	(a)	r is unaffected in magnitude by change of origin and scale; the signs of 2 and 3 are the same → 0.6.
169	(a)	$R = 1 - 6\Sigma d^2/[n(n^2 - 1)] = 1 - 60/210 = 5/7$.
170	(d)	$R = 1 - 6\Sigma d^2/[n(n^2 - 1)] = 1 - 120/120 = 0$.

Chapter 18: Index numbers

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

Item	p_0	p_1	q_0
A	2	3	10
B	2	7	5
C	7	12	4

(a) 51.33 (b) 199.83
(c) 194.83 (d) 200.00

172. The price of a commodity rose from ₹80 in the base year to ₹100 in the current year. The price relative is:

(a) 80
(b) 20
(c) 25
(d) 125

173. The price of a commodity rose from ₹50 in the base year to ₹65 in the current year. The price relative is:

(a) 30
(b) 15
(c) 130
(d) 76.92

174. Paasche's price index uses as weights the:

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

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

Item	p_0	p_1	q_0
A	8	11	2
B	10	14	10
C	3	8	6

(a) 63.64
(b) 157.14
(c) 153.14
(d) 156.72

176. Fisher's ideal index number satisfies:

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

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

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

178. The index number for the base year is always:

(a) 1,000
(b) 50
(c) 100
(d) 0

179. Laspeyres' price index uses as weights the:

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

180. The price of a commodity rose from ₹25 in the base year to ₹30 in the current year. The price relative is:

(a) 120
(b) 83.33
(c) 5
(d) 20

Answers – Ch 18 Index numbers

Q	Ans	Explanation / working
171	(c)	$\Sigma p_1q_0/\Sigma p_0q_0 \times 100 = 113/58 \times 100 = 194.83$.
172	(d)	$p_1/p_0 \times 100 = 100/80 \times 100 = 125$.
173	(c)	$p_1/p_0 \times 100 = 65/50 \times 100 = 130$.
174	(c)	$P = \Sigma p_1q_1/\Sigma p_0q_1 \times 100$.
175	(b)	$\Sigma p_1/\Sigma p_0 \times 100 = 33/21 \times 100 = 157.14$.
176	(d)	Fisher = $\sqrt{(L \times P)}$ satisfies both tests.

Q	Ans	Explanation / working
177	(d)	Real wage = 50,000 ÷ 125 × 100 = ₹40,000.
178	(c)	The base period is taken as 100.
179	(b)	$L = \Sigma p_1 q_o / \Sigma p_o q_o \times 100$.
180	(a)	$p_1/p_o \times 100 = 30/25 \times 100 = 120$.