

Quantitative Aptitude

Directions—(Q. 1–5) What will come in place of question-mark (?) in the following questions ?

- $\sqrt{8^2 \times 7 \times (5)^2} - 175 = ?$
(A) 105 (B) 95
(C) 115 (D) 125
(E) None of these
- $(0.125)^3 \div (0.25)^2 \times (0.5)^2 = (0.5)^{? - 3}$
(A) 12 (B) 18
(C) 14 (D) 10
(E) None of these
- 64.5% of 800 + 36.4% of 1500 = $(?)^2 + 38$
(A) 32 (B) 38
(C) 42 (D) 48
(E) 34
- $567 - 4824 \div 134 = ? \times 9$
(A) 33 (B) 59
(C) 37 (D) 57
(E) None of these
- $4\frac{5}{6} - 5\frac{5}{9} = ? - 2\frac{1}{3} + \frac{11}{18}$
(A) $\frac{3}{4}$ (B) $2\frac{1}{18}$
(C) $1\frac{7}{9}$ (D) $1\frac{11}{18}$
(E) None of these

Directions—(Q. 6–10) What approximate value will come in place of question-mark (?) in the following questions ? (You are not expected to calculate the exact value.)

- $(41.33)^2 + (7.96)^2 - (22.02)^2 = ?$
(A) 1280 (B) 1440
(C) 1580 (D) 1540
(E) 1380
- 41% of 601 – 250.17 = ? – 77% of 910
(A) 800 (B) 500
(C) 700 (D) 650
(E) 550
- $52001 \div 61 \times 29 = ? \times 41$
(A) 700 (B) 600
(C) 500 (D) 550
(E) 680

- $\frac{701}{52} + \frac{11}{699} \times \frac{112}{107} = ?$
(A) 700 (B) 850
(C) 900 (D) 800
(E) 650

- $\sqrt{5378} \times \sqrt{3330} \div \sqrt{360} = ?$
(A) 200 (B) 250
(C) 300 (D) 225
(E) 325

Directions—(Q. 11–15) What will come in place of question mark (?) in the following number series ?

- 117 389 525 593 627 (?)
(A) 654 (B) 640
(C) 634 (D) 630
(E) None of these
- 7 11 23 51 103 (?)
(A) 186 (B) 188
(C) 185 (D) 187
(E) None of these
- 18 27 49 84 132 (?)
(A) 190 (B) 183
(C) 180 (D) 193
(E) None of these
- 33 43 65 99 145 (?)
(A) 201 (B) 203
(C) 205 (D) 211
(E) None of these
- 655 439 314 250 223 (?)
(A) 205 (B) 210
(C) 195 (D) 190
(E) None of these

Directions—(Q. 16–20) In the following questions two equations numbered I and II are given. You have to solve both the equations and give answer, if—

- $x > y$
- $x \geq y$
- $x < y$
- $x \leq y$
- $x = y$ or the relationship cannot be established

- I. $\sqrt{289x} + \sqrt{25} = 0$
II. $\sqrt{676y} + 10 = 0$
- I. $8x^2 - 78x + 169 = 0$
II. $20y^2 - 117y + 169 = 0$
- I. $\frac{15}{\sqrt{x}} + \frac{9}{\sqrt{x}} = 11\sqrt{x}$
II. $\frac{\sqrt{y}}{4} + \frac{5\sqrt{y}}{12} = \frac{1}{\sqrt{y}}$
- I. $\frac{8}{\sqrt{x}} + \frac{6}{\sqrt{x}} = \sqrt{x}$
II. $y^3 - \frac{(14)^2}{\sqrt{y}} = 0$
- I. $x^2 - 208 = 233$
II. $y^2 - 47 + 371 = 0$
- Train-A crosses a pole in 25 seconds and another Train-B crosses a pole in 1 minute and 15 seconds. Length of train-A is half length of train-B. What is the respective ratio between the speed of Train-A and Train-B ?
(A) 3 : 2
(B) 3 : 4
(C) 4 : 3
(D) Cannot be determined
(E) None of these
- Veena's monthly income is equal to the cost of 34 kg of nuts. Cost of 10 kg of nuts is equal to the cost of 20 kg of apples. If cost of 12 kg of apples is ₹ 1500. What is Veena's annual salary ? (At some places annual income and in some place monthly income is given)
(A) ₹ 1 lac 20 thousand
(B) ₹ 1 lac 2 thousand
(C) ₹ 2 lacs 20 thousand
(D) Cannot be determined
(E) None of these
- Rohit has some 50 paisa coins, some 2 rupee coins, some 1 rupee coins and some 5 rupee coins. The value of all the coins is ₹ 50. Number of 2 rupee coins is 5

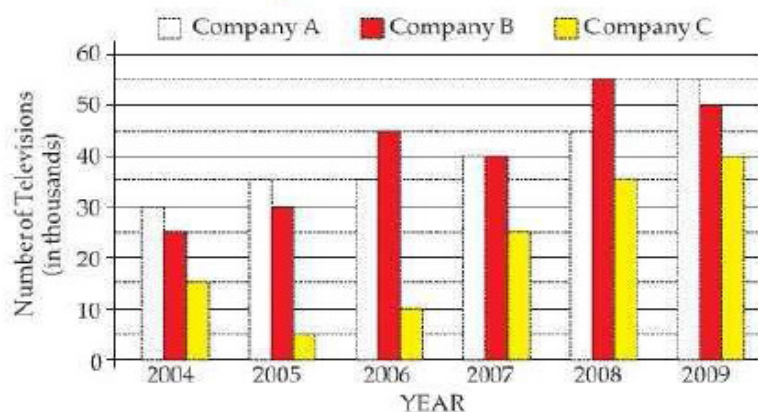
- more than the 5 rupee coins. 50 paisa coins are double in number than 1 rupee coin. Value of 50 paisa coins and 1 rupee coins is ₹ 26. How many 2 rupee coins does he have ?
- (A) 4
(B) 2
(C) 7
(D) Cannot be determined
(E) None of these
24. Puneet scored 175 marks in a test and failed by 35 marks. If the passing percentage of the test is 35 per cent, what are the **maximum** marks of the test ?
- (A) 650 (B) 700
(C) 750 (D) 600
(E) None of these
25. The length of a rectangle is twice the diameter of a circle. The circumference of the circle is equal to the area of a square of side 22 cm. What is the breadth of the rectangle if its perimeter is 668 cm ?
- (A) 24 cm
(B) 26 cm
(C) 52 cm
(D) Cannot be determined
(E) None of these
26. 4 girls can do a piece of work in 8 days, 3 boys can do the same piece of work in 9 days, 7 men do the same piece of work in 2 days and 5 women can do the same piece of work in 4 days. Who is least efficient ?
- (A) Boys (B) Girls
(C) Women (D) Men
(E) Boys and Men both
27. The sum of eight consecutive numbers of set-A is 376. What is the sum of different set of five consecutive numbers whose lowest number is 15 more than the mean of set-A ?
- (A) 296 (B) 320
(C) 324 (D) 284
(E) None of these
28. The ratio between the adjacent angles of a parallelogram is 2 : 3 respectively. Half the smaller angle of the parallelogram is equal to the smallest angle of a

quadrilateral. Largest angle of quadrilateral is four times its smallest angle. What is the sum of largest angle of quadrilateral and the smaller angle of parallelogram ?

- (A) 252° (B) 226°
(C) 144° (D) 180°
(E) None of these
29. Raju purchases 550 ml of milk every day. If cost of one liter of milk is ₹ 44. How much amount will he pay in 45 days ?
- (A) ₹ 1,098 (B) ₹ 1,079
(C) ₹ 1,099 (D) ₹ 1,088
(E) None of these
30. In a school there are 2000 students out of whom 36 per cent are girls. Each boy's monthly fee is ₹ 480 and each girl's monthly fee is 25 per cent less than a boy. What is the total of the monthly fees of girls and boys together ?
- (A) ₹ 8,73,400 (B) ₹ 8,67,300
(C) ₹ 8,76,300 (D) ₹ 8,73,600
(E) None of these

Directions—(Q. 31–35) Study the following graph carefully to answer the questions that follow—

Number of Televisions (in thousands) Manufactured by Three Different Companies in Six Different Years



31. If 25 per cent of the number of televisions manufactured by Company A over all the years together were black and white, then what was the number of coloured televisions manufactured by Company-A over all the years together ?
- (A) 1.4 lacs (B) 14,000
(C) 1.8 lacs (D) 18,000
(E) 1.5 lacs
32. If the cost of manufacturing one television in the year 2008 was ₹ 12,000, then what was the total expenditure of Company C for manufacturing all the Televisions in the same year ?
- (A) ₹ 40 crore
(B) ₹ 52 crore
(C) ₹ 5.2 crore
(D) ₹ 4 crore
(E) ₹ 42 crore
33. What was percentage increase in the number of televisions manufactured by Company-C in year 2008 as compared to the previous year ?
- (A) 40 (B) 45
(C) 30 (D) 35
(E) None of these
34. What was the **approximate** average number of televisions manufactured by Company B over all the years together ?
- (A) 30677 (B) 30566
(C) 40566 (D) 40834
(E) 43055
35. What was the respective ratio between the number of televisions manufactured by Company-B in year 2006 and the number of televisions manufactured by Company-A in year 2005 ?
- (A) 5 : 4
(B) 9 : 5
(C) 4 : 3
(D) 9 : 7
(E) None of these

Directions—(Q. 36–40) Study the table carefully to answer the questions that follow :

Number of Trees Planted (in Hundreds) by Five Different NGOs in Six Different Years in Two Different States

NGO →	A		B		C		D		E	
Year	State-A	State-B	State-A	State-B	State-A	State-B	State-A	State-B	State-A	State-B
2005	14.2	8.5	14.2	4.4	4.5	4.4	4.5	2.1	9.4	3.5
2006	21.6	5.4	7.9	7.2	6.9	4.4	5.4	4.3	7.2	4.7
2007	13.5	8.8	7.7	4.8	5.4	3.8	6.3	6.3	7.4	8.2
2008	12.4	9.6	10.4	6.4	7.2	8.2	9.6	4.4	5.6	4.2
2009	10.8	12.4	12.6	6.2	8.6	6.4	8.4	5.2	6.9	3.8
2010	12.2	14.2	7.5	4.2	11.3	9.3	6.3	5.4	12.8	6.4

36. What was the respective ratio between the number of trees planted by NGO-A in the year 2006 in state-A and the number of trees planted by NGO-E in the year 2008 in state-B ?

(A) 36 : 11 (B) 36 : 7
(C) 11 : 7 (D) 14 : 9
(E) None of these

37. What was the average number of trees planted by NGO-B in the state-A over all the years together ?

(A) 1005 (B) 1050
(C) 1015 (D) 1205
(E) None of these

38. What was the **approximate** percentage decrease in the number of trees planted by NGO-C in state B in the year 2009 as compared to the previous year ?

(A) 28 (B) 22
(C) 26 (D) 16
(E) 20

39. Which NGO planted the second lowest number of trees in both the states together in the year 2009 ?

(A) A (B) B
(C) C (D) D
(E) E

40. Number of trees planted by NGO-D in the state-B in the year 2007 was **approximately** what percentage of the number of trees planted by NGO-A in the state-A in the year 2009 ?

(A) 46 (B) 52
(C) 70 (D) 58
(E) 64

Directions—(Q. 41–45) Study the following table carefully to answer the questions that follow :

Number of Flights Cancelled by Five Different Airlines in Six Different Years

Year	Airlines				
	P	Q	R	S	T
2005	240	450	305	365	640
2006	420	600	470	446	258
2007	600	680	546	430	610
2008	160	208	708	550	586
2009	140	640	656	250	654
2010	290	363	880	195	483

41. What was the difference between the highest number of flights cancelled by airlines-Q and the lowest number of flights cancelled by airlines-T out of all the six years ?

(A) 446 (B) 456
(C) 432 (D) 442
(E) None of these

42. What was the **approximate** per cent increase in number of flights cancelled by airlines S in the year 2008 as compared to previous year ?

(A) 127 (B) 27
(C) 150 (D) 45
(E) 117

43. What was the average number of flights cancelled by the airlines P, R, S and T in the year 2008 ?

(A) 551.5 (B) 501
(C) 405 (D) 442.4
(E) None of these

44. If 40 per cent of flights in the year 2010 by airlines-R were cancelled due to bad weather conditions and rest were cancelled due to technical fault.

What was the number of flights cancelled due to technical fault ?

(A) 528 (B) 568
(C) 468 (D) 548
(E) None of these

45. Number of flights cancelled by airlines P and R together in the year 2007 was **approximately** what percentage of number of flights cancelled by airlines-S in the year 2005 ?

(A) 356 (B) 280
(C) 265 (D) 340
(E) 314

Directions—(Q. 46–50) Study the information carefully to answer the questions that follow—

In a sports event there are 5 sports viz. Hockey, Cricket, Tennis, Badminton and Baseball. There is a total number of 800 players in the sports event. The ratio between female and male players is 1 : 3 respectively. Twenty five per cent of the total players are in Cricket. There are 110 badminton players. 10 per cent of the total players are in Tennis. Hockey players are double the number of badminton players. Remaining players are in Baseball. 30 per cent of cricket players are female. Half the female cricketers are equal to female badminton players. 10 per cent of total hockey players are equal to the number of female players in Tennis. There are equal numbers of females in Hockey and Baseball.

46. What is the respective ratio between the female players in Hockey and the male players in Badminton ?

(A) 20 : 13 (B) 11 : 20
(C) 13 : 20 (D) 11 : 23
(E) None of these

47. What is the total number of males in Hockey, Cricket and Baseball together?

- (A) 464 (B) 454
(C) 462 (D) 432
(E) None of these

48. Number of female players in Baseball is what percentage of male players in Hockey?

- (A) 25 (B) 34
(C) 24 (D) 15
(E) None of these

49. What is the difference between the male players in Baseball and total number of players in Tennis?

- (A) 58 (B) 76
(C) 56 (D) 68
(E) None of these

50. In which sports female players are **maximum** and male players are **minimum** respectively?

- (A) Cricket and Badminton
(B) Cricket and Hockey
(C) Baseball and Cricket
(D) Cricket and Tennis
(E) Tennis and Hockey

Answers with Hints

1. (A) 2. (D) 3. (A) 4. (B) 5. (E)
6. (A) 7. (C) 8. (B) 9. (C) 10. (D)
11. (E)

$$\begin{array}{ccccccccc} 117 & 389 & 525 & 593 & 627 & (644) \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +272 & +136 & +68 & +34 & +17 & \end{array}$$

12. (D)

$$\begin{array}{ccccccccc} 7 & 11 & 23 & 51 & 103 & ? & (187) \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +4 & +12 & +28 & +52 & +84 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +8 & +16 & +24 & +32 & \end{array}$$

$\therefore ? = 103 + 84 = 187$

13. (D)

$$\begin{array}{ccccccccc} 18 & 27 & 49 & 84 & 132 & ? & (193) \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +9 & +22 & +35 & +48 & +61 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +13 & +13 & +13 & +13 & \end{array}$$

$\therefore ? = 132 + 61 = 193$

14. (B)

$$\begin{array}{ccccccccc} 33 & 43 & 65 & 99 & 145 & ? & (203) \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +10 & +22 & +34 & +46 & +58 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +12 & +12 & +12 & +12 & \end{array}$$

$\therefore ? = 145 + 58 = 203$

15. (E)

$$\begin{array}{ccccccccc} 655 & 439 & 314 & 250 & 223 & (215) \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ -(6)^3 & -(5)^3 & -(4)^3 & -(3)^3 & -(2)^3 & \end{array}$$

16. (C) 17. (B) 18. (A) 19. (E) 20. (E)

21. (A) Let the speeds of the trains A and B be x m/sec and y m/sec respectively.

$$\therefore \text{Length of A} = x \times 25 \text{ m}$$

$$\text{and Length of B} = 75y \text{ m}$$

$$\therefore 25x = \frac{1}{2} \times 75y$$

$$\therefore \frac{x}{y} = \frac{1}{2} \times \frac{75}{25} = 3:2$$

22. (B) Monthly income of Veena

$$= ₹ 34 \times \frac{20}{10} \times \frac{1500}{12}$$

$$\therefore \text{Annual income of Veena}$$

$$= ₹ 12 \times 34 \times 2 \times \frac{1500}{12}$$

$$= ₹ 1 \text{ lac } 2 \text{ thousand.}$$

23. (C) Let the number of 2 rupee coins be x .

$$\Rightarrow \text{No. of 5 rupee coins} = (x - 5)$$

$$\Rightarrow \text{No. of 1 rupee coins} = 13$$

$$\text{and No. of 50 paise coins} = 26$$

$$\therefore 2x + 5(x - 5) + 13 + \frac{26}{2} = 50$$

$$\Rightarrow 7x = 49$$

$$\therefore x = 7$$

24. (D) Maximum marks of the test

$$= \frac{100}{35} \times (175 + 35)$$

$$= \frac{100 \times 210}{35} = 600$$

25. (B) Circumference of the circle

$$= 22 \times 22 = 484 \text{ cm}$$

$$\therefore \text{Diameter of the circle}$$

$$= 484 \times \frac{7}{22} = 154 \text{ cm}$$

$$\therefore \text{Length of the rectangle}$$

$$= 152 \times 2 = 308 \text{ cm}$$

$$\text{and breadth of the rectangle}$$

$$= \frac{1}{2} \times 668 - 308$$

$$= 334 - 308 = 26 \text{ cm}$$

26. (B)

$$\therefore \text{Work of a girl for 1 day} = \frac{1}{32}$$

$$\text{Work of a boy for 1 day} = \frac{1}{27}$$

$$\text{Work of a man for 1 day} = \frac{1}{14}$$

$$\text{and work of a woman for 1 day} = \frac{1}{20}$$

$$\therefore \text{The least efficient is girl.}$$

27. (B) Average of the set A

$$= \frac{376}{8} = 47$$

$$\therefore \text{Least number of other set}$$

$$= 47 + 15 = 62$$

$$\therefore \text{Sum of the 5 consecutive numbers other set}$$

$$= 62 + 63 + 64 + 65 + 66 = 320.$$

28. (E) The smallest angle of parallelogram

$$= \frac{2 \times 180}{(2 + 3)} = 72^\circ$$

$$\text{and the smallest angle of quadrilateral}$$

$$= \frac{1}{2} \times 72^\circ = 36^\circ$$

$$\text{and the largest angle of quadrilateral}$$

$$= 4 \times 36^\circ = 144^\circ$$

$$\therefore \text{Reqd. sum}$$

$$= 144^\circ + 72^\circ = 216^\circ$$

29. (E) Reqd. amount

$$= \frac{550}{1000} \times 44 \times 45$$

$$= ₹ 1089$$

30. (C) No. of boys in the school

$$= 2000 \times \frac{64}{100} = 1280$$

$$\text{and no. of girls in the school}$$

$$= 2000 \times \frac{36}{100} = 720$$

$$\text{Monthly fee of each girl}$$

$$= ₹ 480 \times \frac{75}{100} = ₹ 360$$

$$\therefore \text{Reqd. sum}$$

$$= 1280 \times 480 + 720 \times 360$$

$$= 614400 + 259200$$

$$= ₹ 873600$$

31. (C) Reqd. number

$$= (30 + 35 + 35 + 40 + 45 + 55) \times 1000 \times \frac{75}{100}$$

$$= 240000 \times \frac{75}{100}$$

$$= 180000 = 1.8 \text{ lacs.}$$

32. (E) Reqd. expenditure

$$= ₹ 35 \times 1000 \times 12000$$

$$= ₹ 42 \text{ crore.}$$

33. (A) Reqd. % increase

$$= \frac{35 - 25}{25} \times 100\% = 40\%$$

34. (D) Average number

$$= \frac{25 + 30 + 45 + 40 + 55 + 50}{6} \text{ thousand}$$

$$= \frac{245000}{6} = 40834 \text{ (App.)}$$

35. (D) Req'd. ratio = $45 : 35 = 9 : 7$

36. (B) Ratio = $21.6 : 4.2 = 36 : 7$

37. (A) Average number

$$= (14.2 + 7.9 + 7.7 + 10.4 + 12.6 + 7.5) \times \frac{100}{6}$$

$$= \frac{6030}{6} = 1005$$

38. (B) % decrease

$$= \frac{(8.2 - 6.4) \times 100}{8.2} \%$$

$$= 21.95\%$$

$$= 22\% \text{ (App.)}$$

39. (D) A = 23.2, B = 18.8,
 C = 15.0, D = 13.6
 E = 10.7

40. (D) Req'd. % = $\frac{6.3 \times 100}{10.8} \%$

$$= 58.33\%$$

$$\approx 58\% \text{ (App.)}$$

41. (E)
 Req'd. difference = $680 - 258$

$$= 422$$

42. (B) Req'd. % increase

$$= \frac{550 - 430}{430} \times 100\%$$

$$= 27.9\%$$

$$= 27 \text{ (App.)}$$

43. (B) Average number

$$= \frac{160 + 708 + 550 + 586}{4}$$

$$= \frac{2004}{4} = 501$$

44. (A) Req'd. number = $\frac{880 \times 60}{100}$

$$= 528$$

45. (B)
 Req'd. % = $\frac{(600 + 546) \times 100}{365} \%$

$$= 313.97\%$$

$$\approx 314\% \text{ (App.)}$$

For Q. 46 to 50 :

No. of male players = 600 and

No. of female players = 200

Game	Female Players	Male Players
Hockey	44	176
Cricket	60	140
Tennis	22	58
Badminton	30	80
Baseball	44	146

46. (B) Req'd. ratio = $44 : 80$

$$= 11 : 20$$

47. (C) Req'd. number

$$= 176 + 140 + 146$$

$$= 462$$

48. (A) Req'd. % = $\frac{44 \times 100}{176} = 25\%$

49. (E) Req'd. difference

$$= 146 - (22 + 58)$$

$$= 146 - 80 = 66$$

50. (D) Cricket and Tennis
 (60) (58)