

QUANTITATIVE APTITUDE

Directions (1-5) : In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer

(1) if $x > y$ (2) if $x \geq y$

(3) if $x < y$ (4) if $x \leq y$

(5) if $x = y$ or relationship between x and y cannot be established.

1. I. $2x^2 - 15x + 28 = 0$

II. $y^2 - 7y + 12 = 0$

2. I. $2x^2 + 3x + 1 = 0$

II. $8y^2 + 22y + 15 = 0$

3. I. $x^2 + 8x + 15 = 0$

II. $2y^2 + 7y + 3 = 0$

4. I. $2x^2 - 11x + 15 = 0$

II. $2y^2 - 17y + 35 = 0$

5. I. $2x^2 - 15x + 27 = 0$

II. $y^2 = 9$

Directions (6-10) : Study the following information carefully to answer the given questions.

The total population of three villages A, B and C together is 80,000 and the ratio between their respective populations is 5 : 4 : 7.

Out of the total population of village A, the age of 16% of villagers is equal to 61 years or more, the age of 36% of villagers is equal to or more than 31 years but less than 61 years and the age of the remaining villagers is less than 31 years.

Out of the total population of village B, the age of one-fifth of villagers is equal to 61 years or more. Out of the remaining population,

the age of $\frac{12}{25}$ th villagers is equal to or more than 31 years but less than 61 years and the age of the remaining villagers is less than 31 years.

In village C, the number of villagers whose age is equal to 61 years or more is 50% more than the difference between the number of villagers in village A whose age is less than 31 years and that in village B. The number of villagers whose age is equal to or more than 31 years but less than 61 years is 80% more than that in village A in the same

age group. The age of the remaining villagers is less than 31 years.

6. In village C, out of the total population whose age is equal to 61 years or more, one sixth are females and out of the total population whose age is equal to or more than 31 years but less than 61 years, one-fifth are females. What is the respective ratio between the number of females whose age is equal to 61 years or more and the number of females whose age is equal to or more than 31 years but less than 61 years?

(1) 27 : 85 (2) 23 : 81

(3) 22 : 81 (4) 23 : 83

(5) 25 : 64

7. In village A, the respective ratio between the total number of male villagers and the total number of female villagers is

23 : 27. If $\frac{9}{16}$ th of the total

villagers whose age is equal to 61 years or more are females, what per cent of female population in village A is equal to 61 years or more?

(1) $15\frac{1}{3}$ (2) $18\frac{2}{5}$

(3) $14\frac{2}{3}$ (4) $16\frac{2}{3}$

(5) $13\frac{1}{3}$

8. In village B, out of the total population, 36% are graduates. If the number of male graduates is 40% more than that of female graduates, female graduates are what per cent of the total population?

(1) 15 (2) 20

(3) 5 (4) 25

(5) 18

9. What is the average population across the three villages whose age is less than 31 years?

(1) 11500 (2) 11750

(3) 12500 (4) 12700

(5) 11200

10. By what per cent the population of village B whose age is equal to or greater than 31 years, is less than the population of village A in the same age group?

(1) $13\frac{3}{17}$ (2) $14\frac{2}{19}$

(3) $11\frac{2}{3}$ (4) $10\frac{2}{13}$

(5) $12\frac{2}{19}$

Directions (11-14) : What will come in place of the question mark (?) in the following number series?

11. 6 8 18 48 116 ?

(1) 236 (2) 220

(3) 244 (4) 242

(5) 246

12. 65 33 17 9 5 ?

(1) 4 (2) 4.5

(3) 5 (4) 3

(5) 2.5

13. 22 13 24 11 26 ?

(1) 9 (2) 8

(3) 43 (4) 35

(5) 7

14. 185 149 119 94 73 ?

(1) 54 (2) 55

(3) 56 (4) 57

(5) 53

15. In an examination, the number of students who passed and the number of those who failed were in the ratio of 25 : 4 respectively. If five more had appeared and the number of failures was 2 less than earlier, the ratio of passed to failed would have been 22 : 3. What is the number of students who appeared for the examination?

(1) 145 (2) 150

(3) 155 (4) 180

(5) 190

16. The ratio of A to B is 4 : 5 and that of B to C is 22 : 3. If A equals 800, then what is the value of C?

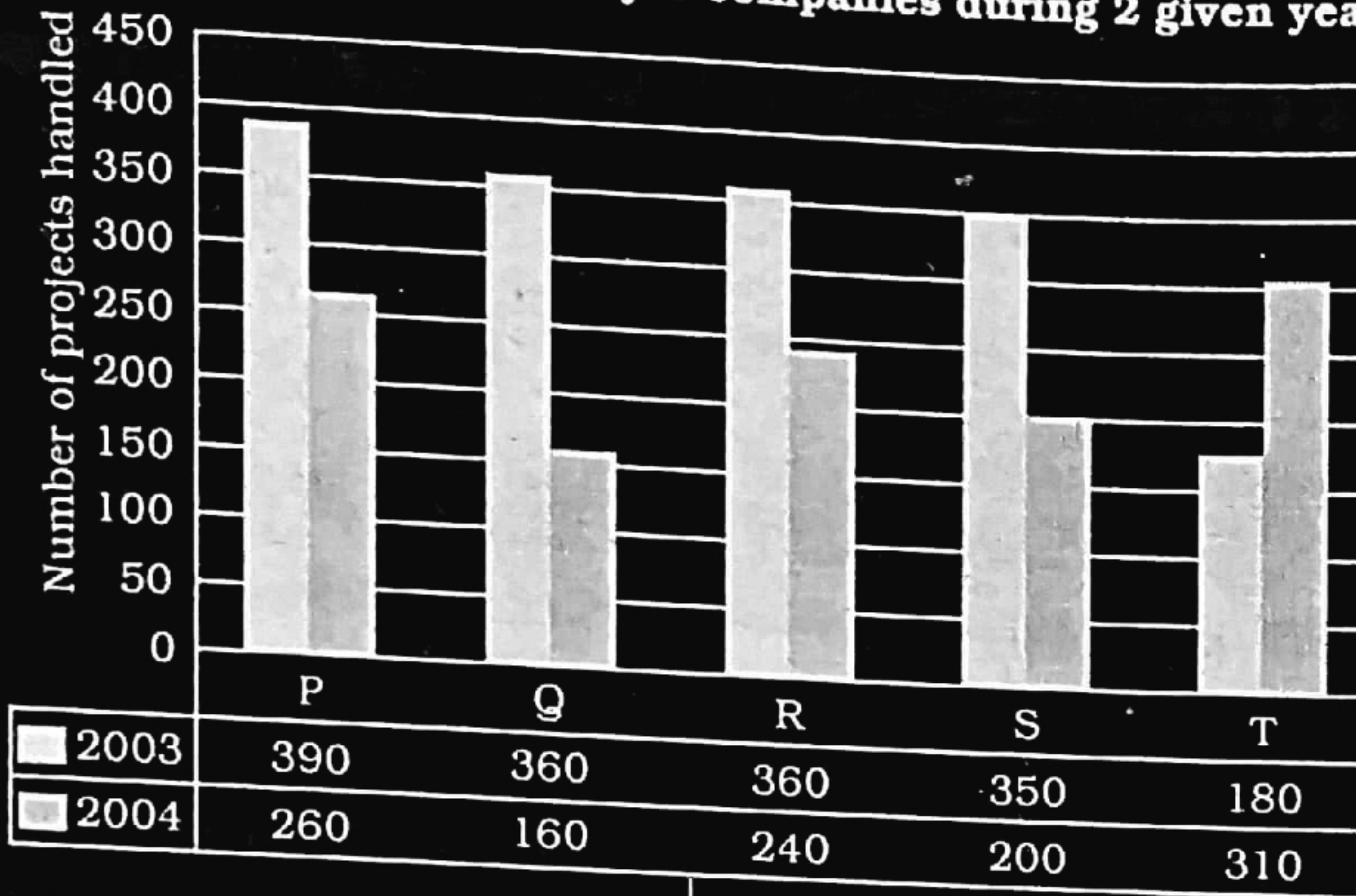
(1) 1000 (2) 1200

(3) 1500 (4) 2000

(5) 3000

Directions (17-21) : Read the following bar diagram carefully and answer the questions given below it.

Number of projects handled by 6 companies during 2 given years:



17. The number of projects handled by company T increased by what per cent from 2003 to 2004 ?

- (1) $70\frac{8}{9}$ (2) $82\frac{2}{9}$
 (3) $84\frac{4}{9}$ (4) $72\frac{2}{9}$
 (5) $76\frac{4}{9}$

18. The number of projects handled by companies R and S increased by 25% and 16% respectively from 2004 to 2005. What was the total number of projects handled by companies R and S together in 2005 ?

- (1) 524 (2) 548
 (3) 532 (4) 518
 (5) 540

19. The number of projects handled by Company R in 2006 was 150% of the number of projects handled by it in 2003 and number of projects handled by company S in 2006 was 60% of the number of projects handled by it in 2003. What is the respective ratio between number of projects handled by company R and company S in 2006 ?

- (1) 9 : 5 (2) 12 : 7
 (3) 8 : 3 (4) 18 : 7
 (5) 13 : 5

20. Combining years 2003 and 2004, 58% of the total num-

ber of projects handled by company P was non-governmental and 35% of the total number of projects handled by company Q was non-governmental. What is the total number of governmental projects handled by companies P and Q in 2003 and 2004 together ?

- (1) 623 (2) 641
 (3) 611 (4) 625
 (5) 635

21. What is the average number of projects handled by companies P, Q and T in 2003 ?

- (1) 290 (2) 320
 (3) 330 (4) 335
 (5) 310

22. A and B entered into a partnership, investing Rs. 16,000 and Rs. 12,000 respectively. After 3 months, 'A' withdrew Rs. 5000, while 'B' invested Rs. 5000 more. After 3 months more, C joins the business with a capital of Rs. 21,000. After a year, they obtained a profit of Rs. 26,400. By what amount does the profit of B exceed the share of C ?

- (1) Rs. 3600 (2) Rs. 3800
 (3) Rs. 4600 (4) Rs. 4800
 (5) Rs. 5000

23. On what sum will the difference between the simple and compound interest for 3 years at 5 per cent per annum amount to Rs. 24.40 ?

- (1) Rs. 3300 (2) Rs. 3587
 (3) Rs. 3200 (4) Rs. 2800
 (5) Rs. 3000

24. If 6 years are subtracted from the present age of Randheer and the remainder is divided by 18, then the present age of his grandson Anup is obtained. If Anup is 2 years younger than Mahesh whose age is 5 years, then what is the age of Randheer ?

- (1) 96 years (2) 84 years
 (3) 48 years (4) 60 years
 (5) 66 years

25. If 2 kg of an alloy, of which $\frac{1}{3}$ rd is zinc and the rest is copper, be mixed with 3 kg of other

alloy of which $\frac{1}{4}$ th is zinc and the rest is copper, what is the ratio of zinc to copper in the mixture?

- (1) 13 : 42 (2) 17 : 43
 (3) 19 : 43 (4) 15 : 42
 (5) 16 : 43

Directions (26-29) : Each of the questions given below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements sufficient to answer the question. Read both the statements and

Give answer (1) if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data in statement I alone or in statement II alone are sufficient to answer the question.

Give answer (4) if the data in both the statements I and II are not sufficient to answer the question.

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

26. If 'x' litre was removed from a jar containing a mixture of milk and water in the ratio of

4 : 1 respectively, what was value of x ?

I. After removing ' x ' litre of mixture from the jar, 16 litre of water was added to the jar and the respective ratio between milk and water (in the jar) became 2 : 1.

II. ' x ' litre of the mixture constituted 20% of the original quantity of mixture in the jar.

27. If the average of three positive integers A, B and C is 92, what is the value of A ?

I. $C - B = 36$

II. If $x = A - B$, then $(C - x) - (x - B) = 132$

28. If Ram's mother is 5 years younger than his father, what is the respective ratio between Ram's age 4 years hence and his father's age 12 years ago ?

I. Seven years ago, Ram's father was 55 years old.

II. The respective ratio between the Ram's age 3 years hence and his mother's age 3 years hence will be 2 : 5.

29. A, B and C start a business with initial investments in the respective ratio of 3 : 4 : 2. Four months after the start of the business, B halves his investment. What was C's investment?

I. The difference between B's and C's share of the annual profit was Rs. 600.

II. The ratio between the annual investments by A, B and C was 9 : 8 : 6 respectively.

30. Aniket deposited two parts of a sum of Rs. 25000 in different banks at the rates of 15% per annum and 18% per annum respectively. In one year he got Rs. 4050 as the total interest. What was the amount deposited at the rate of 18% per annum ?

(1) Rs. 10000 (2) Rs. 18000

(3) Rs. 15000 (4) Rs. 12000

(5) Rs. 16000

31. One bag contains 4 white balls and 2 black balls. Another bag contains 3 white balls and 5 black balls. If one ball is drawn from each bag, what is the probability that one ball is white and another is black ?

(1) $\frac{6}{24}$

(2) $\frac{5}{24}$

(3) $\frac{7}{24}$

(4) $\frac{13}{24}$

(5) $\frac{14}{24}$

32. A and B together can do a work in 8 days, B and C together in 6 days, while C and A together in 10 days. If they all work together, in how many days will they complete the work ?

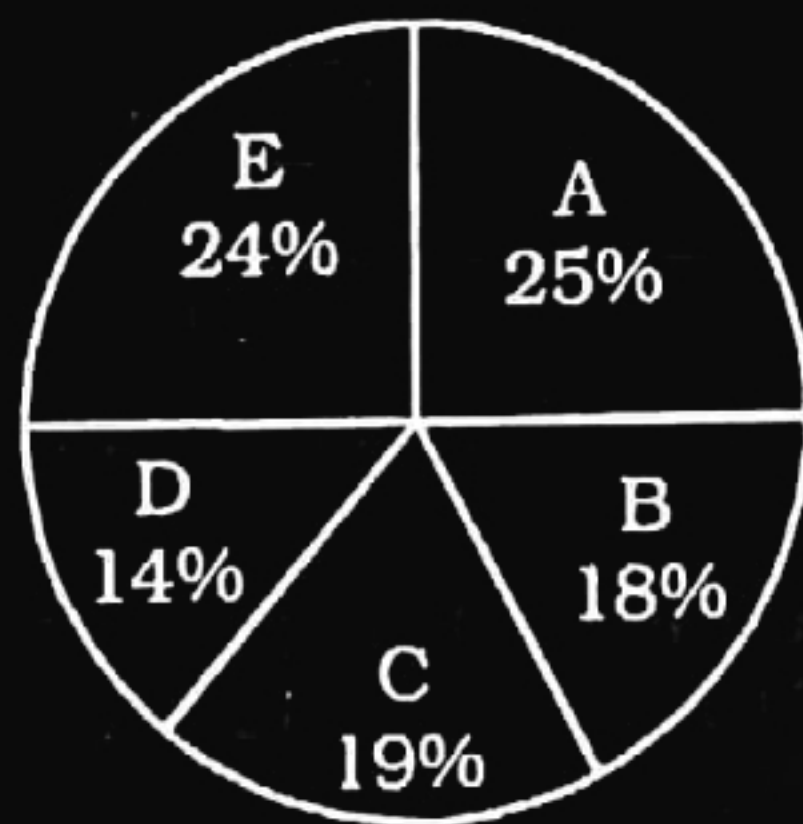
(1) $3\frac{3}{4}$ days (2) $3\frac{3}{7}$ days

(3) $5\frac{5}{47}$ days (4) $4\frac{4}{9}$ days

(5) $3\frac{3}{17}$ days

Directions (33-37) : Refer to the pie-chart and answer the given questions.

Percentage Distribution of Rice to 5 retailers—A, B, C, D and E from a granary (having total quantity = 800 kg) in March, 2017



33. What is the average quantity of rice distributed to retailers B, C and D ? (in kg)

(1) 136 (2) 142

(3) 140 (4) 138

(5) 144

34. What is the central angle corresponding to the quantity of rice distributed to retailer C ?

(1) 68.4° (2) 67.6°

(3) 69.4° (4) 68.8°

(5) 90°

35. What is the difference between the total quantity of rice distributed to retailers A and B together and that distributed to retailers D and E together ?

(1) 32 (2) 42

(3) 36 (4) 40

(5) 38

36. In April, 2017, if the total quantity of rice in the granary increased by 5% over the previous month and the additional quantity of rice was distributed to retailers B and E only, what was the total quantity of rice distributed to retailers B and E together ? (in kg)

(1) 398 (2) 406

(3) 376 (4) 367

(5) 400

37. By what per cent is the quantity of rice distributed to retailer B less than that to retailer E ?

(1) 20% (2) 25%

(3) 30% (4) 21%

(5) 36%

38. A boat takes 19 hours for travelling downstream from point A to point B and coming back to a point C midway between A and B. If the velocity of the stream is 4km/hr and the speed of the boat in still water is 14km/hr, what is the distance between A and B ?

(1) 200 km (2) 180 km

(3) 160 km (4) 220 km

(5) 210 km

39. A person purchases 100 pens at a discount of 10%. The net amount of money spent by the person to purchase the pens is Rs. 600. The selling expenses incurred by the person are 15% on the net cost price. What should be the selling price for 100 pens in order to earn a profit of 25% ?

(1) Rs. 802.50 (2) Rs. 811.25

(3) Rs. 862.50 (4) Rs. 875

(5) Rs. 825

Directions (40-44) : What approximate value will come in place of the question mark (?) in the following questions ? (You are not expected to calculate the exact value.)

40. $9.001^3 = (? - 3.3) \times 89.897 \div$

$\sqrt[4]{624.99}$

(1) 53 (2) 16

(3) 28 (4) 44

(5) 30

41. $(18.999)^3 + (19.0009)^5 = (13.0001 + 5.999) ?$
 (1) 5 (2) 6
 (3) 8 (4) 9
 (5) 4
42. $(127.998 \times 10.012 \times \sqrt{6400}) \div 100 = ?^2$
 (1) 34 (2) 49
 (3) 32 (4) 35
 (5) 36
43. $\sqrt{530} - 3.99^2 = \sqrt{?} - \sqrt{9.01}$
 (1) 125 (2) 120
 (3) 100 (4) 81
 (5) 64

44. $84.85 \times 12.02 + \sqrt{48.88} \times 16.06 = 283 \times \sqrt{?}$
 (1) 4 (2) 5
 (3) 9 (4) 10
 (5) 16
45. The ratio between the length and the breadth of a rectangular park is 3 : 2. If a man cycling along the boundary of the park at the speed of 12 km/hr completes one round in 8 minutes, then what is the area of the park ? (in sq. metre)
 (1) 154000 (2) 153600
 (3) 307400 (4) 307200
 (5) 412500

Directions (46–50) : Study the table and answer the given questions.

Data regarding number of people (both literate and illiterate) who attended a workshop.

Day	Number of literates (males + females)	Overall ratio (Illiterates : Literates) (Out of those who attended)	Number of Males (literate + illiterate) (Out of those who attended)
Sunday	420	5 : 6	250
Monday	350	3 : 5	240
Tuesday	320	5 : 4	320
Wednesday	300	6 : 5	300
Thursday	420	2 : 3	320

Note : Total number of people who attended = Number of Literates + Number of Illiterates

46. Total number of people (literate + illiterate) who attended the workshop on Sunday was what per cent more than those who attended on Thursday ?
 (1) 7 (2) 15
 (3) 10 (4) 12
 (5) 20
47. On Thursday, if 192 illiterate males attended the workshop, what was the number of literate females who attended the workshop on that day ?
 (1) 292 (2) 314
 (3) 280 (4) 304
 (5) 320
48. On Friday, if the number of literates (males + females) increased by 40% and those of illiterates (males + females) reduced by 20%, as compared to Monday, what was the difference between the number of literates and illiterates who attended the workshop on Friday ?
 (1) 18 (2) 24
 (3) 22 (4) 14
 (5) 15
49. What is the average number of illiterates (males + females) who attended the workshop on Sunday, Tuesday and Wednesday ?
 (1) 370 (2) 360
 (3) 350 (4) 380
 (5) 385
50. What is the respective ratio between the total number of males (literate + illiterate) who attended the workshop on Monday and Tuesday together and that of females (literate and illiterate) who attended the workshop on the same days together ?
 (1) 5 : 6 (2) 7 : 9
 (3) 4 : 7 (4) 3 : 5
 (5) 8 : 9