Bank P.O. Examination Special-III

MOCK TEST

Quantitative Aptitude & Reasoning

Based on "Latest" Pattern

Quantitative Aptitude

1. Which of these numbers is rational?

(*a*) $\sqrt{\pi}$ (*b*) $\sqrt{(0.04)^{-1}}$

(*c*) $\sqrt[3]{-1}$ (*d*) $\sqrt[3]{0.8}$

(*e*) $\sqrt[4]{0.00016}$

2. For the equation $px^2 + px + q = 0$, the value of the discriminant is zero. The roots of this equation are:

(*a*) imaginary
(*b*) irrational
(*c*) rational and unequal
(*d*) rational and equal
(*e*) real and equal

3. The sum of two times one natural number and three times another natural number is less than 24. If the first natural number is less than or equal to eight, the highest value of the second natural number is:

(*a*) 5 (*b*) 6 (*c*) 7
(*d*) 8 (*e*) 9

4. A shopkeeper bought 800 kg rice at Rs 3840. He had to sell it at a loss of as much as he received for 16 kg. The selling price (per kg, in Rs) will be:

(*a*) Rs 40 (*b*) Rs 100 (*c*) Rs 50
(*d*) Rs 80 (*e*) Rs 65

5. The fractions $\frac{9}{14}, \frac{8}{13}, \frac{5}{7}$ and $\frac{7}{9}$ can be arranged in the descending order as:

(*a*) $\frac{7}{9}, \frac{5}{7}, \frac{9}{14}, \frac{8}{13}$

(*b*) $\frac{5}{7}, \frac{9}{14}, \frac{8}{13}, \frac{7}{9}$

(*c*) $\frac{9}{14}, \frac{5}{7}, \frac{8}{13}, \frac{7}{9}$

(*d*) $\frac{7}{9}, \frac{9}{14}, \frac{5}{7}, \frac{8}{13}$

(*e*) $\frac{8}{13}, \frac{9}{14}, \frac{5}{7}, \frac{7}{9}$

6. The boys and girls in a school are in the ratio 3 : 7. 25% of the boys and 20% of the girls are scholarship holders. How much per cent of the total students do not get scholarships?

(*a*) 68 (*b*) 75
(*c*) 79.8 (*d*) 82.5
(*e*) 78.5

7. If the diameter of a wire is increased by 10%, by how much per cent approximately, will its length be decreased, if the volume remains the same?

(*a*) 15 (*b*) 16 (*c*) 17
(*d*) 18 (*e*) 19

8. There are two numbers R and S, related by the equation $R = S^2$. Now, if S is increased by 10%, what will happen to R?

(*a*) R increases by 10%
(*b*) R decreases by 10%
(*c*) R increases by 21%
(*d*) R decreases by 21%
(*e*) R remains unchanged

9. Mr X gets a salary of Rs 1,44,000 p.a. Assuming the salary to be the same every month, what will happen to his average income per day?

(*a*) Maximum for (Jan, Feb, March) period
(*b*) Maximum for (Feb, March, April) period
(*c*) Minimum for (July, Aug, Sep) period
(*d*) All three above are true
(*e*) Both (*b*) and (*c*) above

10. The value of $\log_{10} 16 - 3 \log_{10} 2 + \log_{10} 5$ is:

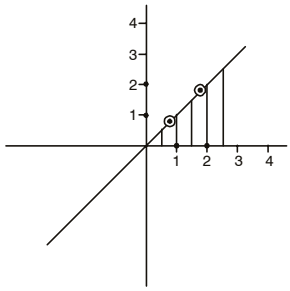
(*a*) $\frac{1}{2}$ (*b*) $1\frac{1}{2}$

(*c*) 0 (*d*) 1
(*e*) 2

11. A cistern is two-third full of water. Pipe A can fill the remaining part in 12 minutes and pipe B in 8 minutes. Once the cistern is emptied, how much time will they take to fill it together completely?

(*a*) 12 minutes
(*b*) 12 min, 12 sec
(*c*) 14 min, 24 sec
(*d*) 10 min, 12 sec
(*e*) 14 min, 40 sec

12. Which inequations are represented by the shaded area shown in the graph?



(*a*) $x > 0, y > 0$ (*b*) $x > 0, y \geq 0$
(*c*) $x > y, y > 0$ (*d*) $x = y, y < 0$
(*e*) $x \geq y, y \geq 0$

13. There are 7 points in a plane, no three of them being collinear. The number of triangles formed by using these points is:
(*a*) 7 (*b*) 21 (*c*) 10
(*d*) 4 (*e*) 35

14. In how many ways can we arrange 6 books on different subjects, in a shelf?
(*a*) 6 (*b*) 60 (*c*) infinite
(*d*) 720 (*e*) 120

15. The recurring decimal $2.\overline{345}$ can be expressed in the rational form as:
(*a*) $\frac{2343}{990}$ (*b*) $\frac{2345}{999}$
(*c*) $\frac{2343}{999}$ (*d*) $\frac{2345}{99}$
(*e*) $\frac{2345}{1000}$

16. If $a = \sqrt[4]{9}$, $b = \sqrt[6]{26}$, $c = \sqrt[3]{5}$, then, which of these statements is true?
(*a*) $\sqrt[4]{9} < \sqrt[6]{26} < \sqrt[3]{5}$
(*b*) $\sqrt[4]{9} > \sqrt[6]{26} > \sqrt[3]{5}$
(*c*) $\sqrt[6]{26} > \sqrt[3]{5} > \sqrt[4]{9}$
(*d*) $\sqrt[6]{26} < \sqrt[3]{5} < \sqrt[4]{9}$
(*e*) None of these

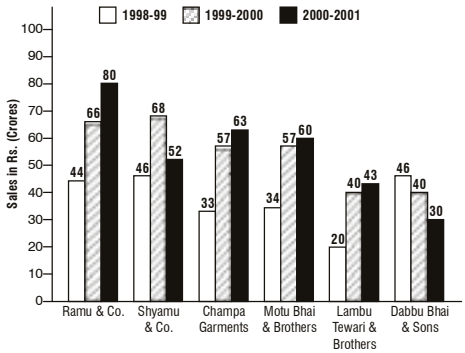
17. The value of the expression $\frac{x^2+7x+10}{x^2+2x-15}$ is:
(*a*) $\frac{x+5}{x-3}$ (*b*) $\frac{x+2}{x-3}$ (*c*) $\frac{x-3}{x+2}$
(*d*) $\frac{x+5}{x+2}$ (*e*) $\frac{x+2}{x+5}$

18. If $3\frac{1}{2}x + 2\frac{1}{2}x = 64 - 2x$, then x equals:
(*a*) 8 (*b*) 7 (*c*) 6
(*d*) 5 (*e*) 4

19. A 90 kg salt solution has 10% salt in it. How much water must be evaporated from it so that the solution now contains 25% salt?
(*a*) 54 (*b*) 45 (*c*) 36
(*d*) 27 (*e*) 18

20. Mr Mohit is 7 times as old as his son. 10 years hence he will be 3 times as old as his son. What are their present ages (in years)?
(*a*) 4, 28 (*b*) 5, 35 (*c*) 3, 21
(*d*) 6, 42 (*e*) 7, 49

Directions (Q. 21-25): *Study the following bar-graph and answer the questions (21-25) given below. (The diagram shows the sale of six garment companies in three successive financial years.)*



21. Which of the following garment companies has a fluctuating sales figure over the given period?
(*a*) Lambu Tewari and Brothers
(*b*) Dabbu Bhai and Sons
(*c*) Motu Bhai and Brothers
(*d*) Champa Garments
(*e*) Shyamu and Company

22. What is the total percentage increase in the sale of garments in 2000-2001 with respect of 1999-2000?
(*a*) 4% fall (*b*) 4% rise
(*c*) No change (*d*) 7% increase
(*e*) 5% decrease

23. For the total 3-year period under consideration, the nearest competitor of Ramu and Company is:
(*a*) Champa Garments
(*b*) Motu Bhai and Brothers
(*c*) Shyamu and Company
(*d*) Dabbu Bhai and Sons
(*e*) None of these

24. For the years 1998-99 and 1999-2000, which company has the minimum rate of change of sales?
(*a*) Dabbu Bhai and Sons
(*b*) Lambu Tewari and Brothers
(*c*) Ramu and Company
(*d*) Champa Garments
(*e*) None of these

25. For the years 1999-2000 and 2000-2001, which company has the maximum rate of change of sales?
(*a*) Dabbu Bhai and Sons (*b*) Ramu and Company
(*c*) Shyamu and Company (*d*) Lambu Tewari and Sons

(*e*) Champa Garments

26. A train running at the speed of 90 km/hr crosses a platform of length 160 m in 10 seconds. What is the length of the train (in metres)?

(*a*) 60 (*b*) 90 (*c*) 150
(*d*) 140 (*e*) 40

27. The average of 4 consecutive even numbers is 9. Which of these is the first number?

(*a*) 6 (*b*) 4 (*c*) 8
(*d*) 10 (*e*) 12

28. The distance between Charu's and Mani's places is 120 km. Charu travelled the whole distance from her place to Mani's at 30 km/hr but returned at 40 km/hr. Her average speed for the whole journey is (approximately):

(*a*) 36 km/hr (*b*) 37 km/hr (*c*) 33 km/hr
(*d*) 34 km/hr (*e*) 35 km/hr

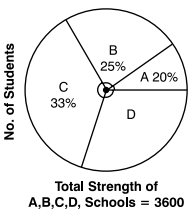
29. The average of the 1st 50 natural numbers is:

(*a*) 25 (*b*) 25.5 (*c*) 26.4
(*d*) 50 (*e*) $\sqrt{50}$

30. A certain sum of money doubles in 10 years at simple interest. What is the rate of interest?

(*a*) 20% (*b*) 30% (*c*) 10%
(*d*) 5% (*e*) 12%

Directions (Q. 31-35): *Study the pie-chart and table given below and answer the questions that follow—(The data shows statistics about 4 schools (A, B, C and D) as in the year 2001.)*



Students' Ratio

School	Science : Commerce : Arts	Boys : Girls
A	1 : 4 : 1	5 : 4
B	4 : 1 : 1	5 : 1
C	2 : 5 : 2	2 : 7
D	3 : 5 : 1	1 : 8

31. Which school has the maximum number of girl students?

(*a*) A (*b*) B (*c*) both C and D
(*d*) C (*e*) D

32. If the number of students of school A increase by 12.5% and that of school B decrease by 10%, what is the ratio of the number of students in the two schools?

(*a*) 2 : 3 (*b*) 3 : 2 (*c*) 1 : 1
(*d*) 4 : 3 (*e*) 3 : 4

33. In school B, 10% students failed in science, 20% failed in commerce and 30% failed in arts. What is the percentage of failures in school B?

(*a*) 15 (*b*) 25 (*c*) 12
(*d*) $12\frac{1}{2}$ (*e*) 17

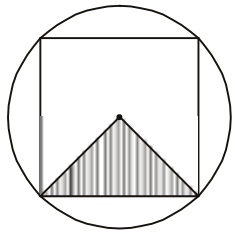
34. The total number of arts students expressed as a percentage of total number of commerce students is (approximately):

(*a*) 32 (*b*) 36 (*c*) 35
(*d*) 30 (*e*) 38

35. How many girls are there in science stream of school D?

(*a*) 264 (*b*) 704 (*c*) 88
(*d*) 264 (*e*) Data inadequate

36. A square is inscribed inside a circle of radius 4 cm. What is the area of the shaded region in the diagram?



(*a*) 10 cm^2 (*b*) 8 cm^2 (*c*) $\frac{20}{3}$ cm^2
(*d*) 16 cm^2 (*e*) $\sqrt{8}$ cm^2

37. A square is drawn inside a right-angled triangle with the two perpendicular sides as 12 cm and 8 cm. What is the side of the largest possible square that can be drawn?

(*a*) 4 cm (*b*) 4.8 cm (*c*) 4.5 cm
(*d*) 4.4 cm (*e*) 5 cm

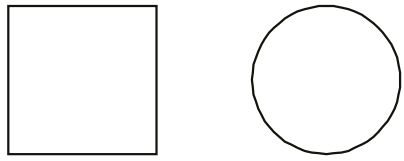
38. Three terrorists are employed to shoot a reknowned person Mr X. Only one bullet is sufficient to kill him if it strikes in the head. The probabilities of the terrorists striking Mr X's head by their bullets are 0.2, 0.3 and 0.4. What is the probability that Mr X is shot dead?

(*a*) 0.336 (*b*) 0.9 (*c*) 0.1
(*d*) 0.760 (*e*) 0.664

39. Which of the following numbers is a perfect square?

(*a*) 10201 (*b*) 12222 (*c*) 11112
(*d*) 55555 (*e*) 10101

40. The following two figures have the same perimeter.



Which of the following statements is true?

(*a*) The square and the circle have equal areas.
(*b*) The area of square is greater than that of the circle.
(*c*) The area of the circle is greater.
(*d*) Area of circle is π times that of the square.
(*e*) None of these.

41. Prasoon's bike needs a fresh paint. He wants 2 shades on his bike. The painter shows all the available 5 shades. In how many ways can Prasoon paint his bike?

(*a*) 7 (*b*) 10 (*c*) 2^5
(*d*) 20 (*e*) 5^2

42. A bag contains 4 white and 3 black balls. 2 balls are drawn out one at a time, randomly in succession. What is the probability that both the balls drawn out are white in colour, if the first ball is replaced before the second draw is made.

(*a*) $\frac{9}{49}$ (*b*) $\frac{4}{12}$ (*c*) $\frac{12}{49}$

(*d*) $\frac{4}{7}$ (*e*) $\frac{16}{49}$

43. What is the maximum value of the function $f(x) = x^2 + 5x + 16$

(*a*) $\frac{16}{5}$ (*b*) $\frac{4}{3}$ (*c*) 16

(*d*) $\frac{39}{4}$ (*e*) $\frac{25}{16}$

44. On giving a reduction of 20% on clothes, a cloth-merchant's sale increased by 30% to become Rs 26,000 in the month of June 2002. What was the previous sale?

(*a*) Rs 25,000 (*b*) Rs 30,000
(*c*) Rs 13,000 (*d*) Rs 24,500
(*e*) Rs 20,000

45. The difference between the product of two numbers and their sum is 24. What is the difference between the two numbers?

(*a*) 24
(*b*) 25
(*c*) Data inadequate
(*d*) Several solutions
(*e*) None of these

46. Mr Sanjay Sharma, Mr Pravesh Khare and Mr Mitra are partners in a business. Mr Mitra started the business with Rs 40,000. After 3 months, Mr Sanjay and Mr Pravesh joined him with Rs 60,000 each. If the total profits at the end of the year amount to Rs 31,200, what would be Mr Khare's share in it?

(*a*) Rs 15600 (*b*) Rs 9600
(*c*) Rs 10800 (*d*) Rs 21600
(*e*) None of these

47. Mr Rajiv and Mr Jogesh can complete a piece of work in 6 days and 8 days respectively. They started together but Rajiv left the work after 2 days. In how many days will Mr Jogesh complete the remaining work now?

(*a*) $4\frac{3}{4}$ days

(*b*) $2\frac{2}{3}$ days

(*c*) $4\frac{1}{2}$ days

(*d*) 4 days

(*e*) $3\frac{1}{3}$ days

Directions (Q. 48-50): *Study the given series (A) carefully and answer the incomplete series (B), in the following questions. Assume that series B follows the same rule as series A.*

48. Series A: 12 24 48 96 192
Series B: 0.5 x y z t
What should come in place of t?
(*a*) Both (*d*) and (*e*) (*b*) 4 (*c*) 84.5
(*d*) 8 (*e*) 180.5

49. Series A: 2 5 17 71 ...
Series B: 1 a b c
What will replace the symbol b?
(*a*) 47 (*b*) 11 (*c*) 3
(*d*) 17 (*e*) 12

50. Series A: 2 11 47 128 ...
Series B: 5 m n o ...
The value of n is ...
(*a*) 27 (*b*) 50 (*c*) 25
(*d*) 21 (*e*) 62

Answers (with Hints and Solutions)

1. (*b*) $\sqrt{(0.04)^{-1}} = \sqrt{\frac{100}{4}} = \pm\left(\frac{10}{2}\right)$

2. (*e*) If D = 0 $\rightarrow$ the roots are real and equal

3. (*c*) We can write: $2x + 3y < 24$
The highest value of second can take place when the first is having lowest value.
Lowest value of 1st = 1
($\because$ smallest natural number = 1)
Thus, $2(1) + 3y < 24$
$3y < 22$
$y < \frac{22}{3} \simeq 7$

4. (*a*) Let SP per kg be Rs x
$\rightarrow$ Total SP = 80 x and loss = 16 x
Now, loss = CP – SP
$\rightarrow$ $16x = 3840 - 80x$
i.e. $x = 40$

5. (*a*) By cross-multiplication (or otherwise), compare the 4 fractions. Thus, $\frac{7}{9} > \frac{5}{7} > \frac{9}{14} > \frac{8}{13}$

6. (*e*) Scholarship holders = $\frac{25(3x)}{100} + \frac{20}{100}(7x)$
$= \frac{3x}{4} + \frac{1}{5}.7x = \frac{43x}{20}$
Total = 3x + 7x = 10 x
% of scholarship holders = $\left(\frac{\frac{43x}{20}}{10x}\right) \times 100 = 21.5$
$\therefore$ % of those without scholarships = 78.5

7. (*c*) $V_1 = V_2 \rightarrow \pi \times 100 \times 100 \times l_1 = \pi \times 110 \times 110 \times l_2$

$$\rightarrow \frac{l_2}{l_1} = \frac{100}{121}$$

$$\therefore \%\ \text{decrease} = \frac{21}{121} \times 100 \cong 17$$

8. (*c*) $R = S^2$

S increases by 10% and becomes $S + \frac{S}{10}$ *i.e.* $\frac{11}{10}S$

Since $R = S^2 \rightarrow$ R becomes $(\frac{11}{10}S)^2 = \frac{121}{100}S^2$

$\rightarrow$ % increase in R = 21%

9. (*e*) February has 28 days while July and August have 31 days. Find average using number of days.

10. (*d*) Given expression $= \log_{10}(\frac{16 \times 5}{8}) = \log_{10} 10 = 1$

11. (*c*) Pipes A and B fill $\frac{1}{3}$ tank in 12 and 8 minutes

$\rightarrow$ They fill the whole tank in 36 and 24 minutes

1 minute's work $= \frac{1}{36} + \frac{1}{24} = \frac{5}{72}$

$\rightarrow$ Time taken $= \frac{72}{5}$ minutes = 14.4 minutes

= 14 minutes, 24 seconds

12. (*e*) Refer special P.O. Exam issues of THE COMPETITION MASTER (May and June 2002)

13. (*e*) $^7C_3 = 35$ (Refer May and June issues of CM)

14. (*d*) $^6P_6$ or $\angle 6 = 720$ (Refer May and June issues of CM)

15. (*c*)

16. (*b*) LCM of 4, 6, 3 is 12

Thus, $\sqrt[4]{9} = (9)^{1/4} = (9)^{3/12} = \left(9^3\right)^{1/12} = \sqrt[12]{729}$

$\sqrt[6]{26} = (26)^{1/6} = (26)^{2/12} = \left(26^2\right)^{1/12} = \sqrt[12]{676}$

and $\sqrt[3]{5} = (5)^{1/3} = (5)^{4/12} = \left(5^4\right)^{1/12} = \sqrt[12]{625}$

$\therefore \sqrt[12]{729} > \sqrt[12]{676} > \sqrt[12]{625}$

17. (*b*) Factorise by splitting the middle term

Thus, we have: $\frac{(x+2)(x+5)}{(x+5)(x-3)} = \frac{(x+2)}{(x-3)}$

18. (*a*) Solve as simple linear equations.

19. (*a*) Quantity of salt = $90 \times \frac{10}{100} = 9$ kg

If 'x' kg water is evaporated, $\left(\frac{9}{90-x}\right) \times 100 = 25$

Thus, x = 54

20. (*b*) Let the son be x years old and father be 7x years old

Their ages after 10 years are (x + 10) and (7x + 10)

Thus, according to the question, we have

(7x + 10) = 3(x + 10)

x = 5 and father's age = 7 × 5 = 35 years

21. (*e*) Shyamu and Company—It first registered a growth and then a fall in the sales.

22. (*c*) Sum of sales figures in both the years are the same *i.e.* 328 crore each

23. (*c*) The total sales of Ramu and Company is Rs 200 crore which is closest to Rs 166 crore of Shyamu and Company.

24. (*a*) For Dabbu Bhai and Sons, the rate of change is only $\frac{46-40}{46}$ *i.e.* $\frac{6}{46}$

25. (*a*) For Dabbu Bhai and Sons, the rate of change is $\frac{40-30}{40} = \frac{1}{4}$

For others it is less than this.

26. (*b*) Refer June issue for direct formula on TRAIN problems

$10 = \frac{18}{5}\left(\frac{x}{90}\right)$

x = 250 $\rightarrow$ length = 250 – 160 = 90 m

27. (*a*) Let the first number be x

Then, $\frac{x + (x+2) + (x+4) + (x+6)}{4} = 9$

$\rightarrow 4x = 36 - 12$

$\rightarrow x = \frac{24}{4} = 6$

28. (*d*) Average speed $= \frac{2 \times 30 \times 40}{30 + 40} = \frac{2400}{70} = 34.33$ km/hr

29. (*b*) Sum of 1st n natural numbers is $\frac{n}{2}[a + l]$

Where n = number of terms, a= 1st term, *l* = last term

Thus, average $= \frac{\frac{n}{2}[a+l]}{n} = \frac{a+l}{2} = \frac{1+50}{2} = 25.5$

30. (*c*) S.I. = Amount – Principal

$\rightarrow$ S.I. = 2P – P = P

Now, S.I. $= \frac{PTR}{100} \rightarrow P = \frac{P \times 10 \times R}{100}$

$\rightarrow$ R = 10%

31. (*d*) First put all the data in a relevant form

From the pie-chart, we get,

$A = \frac{20}{100} \times 3600 = \frac{3600}{5} = 720$

$B = \frac{25}{100} \times 3600 = \frac{3600}{4} = 900$

$C = \frac{33}{100} \times 3600 = 1188$

$D = \frac{22}{100} \times 3600 = 792$

Now, dividing the students as per the table, we have:

School	Science : Comm. : Arts	Boys : Girls
A(720)	120 / 480 / 120	400 / 320
B(900)	600 / 150 / 150	750 / 150
C(1188)	264 / 660 / 264	264 / 924
D(792)	264 / 440 / 88	88 / 704

32. (*c*) 12.5% increase in A = 720 + 90 = 810
10% decrease in B = 900 – 90 = 810
Ratio = $\frac{810}{810} = 1 : 1 = 1$

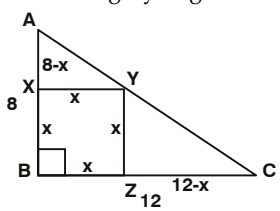
33. (*a*) Number of failures
$= \frac{10}{100}\times 600 + \frac{20}{100}\times 150 + \frac{30}{100}\times 150$
$= 60 + 30 + 45 = 135$
% failures = $\frac{135}{900}\times 100 = 15$

34. (*b*) Required percentage
$= \frac{120+150+264+88}{480+150+660+440}\times 100$
$= \frac{622}{1730}\times 100 = 36$ (approx.)

35. (*e*) The given data only provides the number of students in the 3 streams and the ratio of boys to girls in a particular school.

36. (*b*) Area = $\frac{1}{2}\times r^2 = \frac{1}{2}\times 4^2 = 8$ cm^2
(Solve using Pythagoras' theorem)

37. (*b*)



The triangles AXY and YZC are similar
Thus, we have: $\frac{x}{8-x} = \frac{12}{x}$
i.e., $x^2 = 96 - 20x + x^2$
i.e., x = 4.8 cm

38. (*e*) (Refer May issue of CM for a more systematic approach to this topic)
Required Probability = $1 - q_1 q_2 q_3$ (Where q = probability of failing to strike)
$= 1 - 0.8\times 0.7\times 0.6$
$= 1 - 0.336$
$= 0.664$

39. (*a*) $(101)^2 = 10201$

40. (*c*) Let side of square be 'x' cm, *i.e.* perimeter = 4x cm
Since perimeters are same $\rightarrow$ $4x = 2\pi r$ *i.e.* $r = \frac{2x}{\pi}$
Now, Area of square = x^2 and area of circle
$= \pi\left(\frac{2x}{\pi}\right)^2 = \left(\frac{4}{\pi}\right)x^2$
Since $\frac{4}{\pi} > 1 \rightarrow$ Area of circle > Area of square

41. (*d*) (Refer April 2002 issue of CM for more details on the topic of permutations and combinations).
Using arrangements or permutations, we have
${}^5P_2 = \frac{5!}{3!} = \frac{5\times 4\times 3!}{3!} = 20$

42. (*e*) (Refer May 2002 issue of CM for more details on probability).
Required probability = p (1st white) × p (2nd white)
$= \frac{4}{4+3}\times\frac{4}{4+3} = \frac{16}{49}$

43. (*d*) Maximum value = c $\frac{b^2}{4a} = 16 - \frac{(5)^2}{4} = 16 - \frac{25}{4} = \frac{39}{4}$
(of $ax^2 + bx + c$)

44. (*a*) Required figure = 26,000 × $\frac{100}{80}\times\frac{100}{130}$ = Rs 25,000

45. (*c*) Let the two numbers be x and y
It is only given that xy – (x + y) = 24
We need at least two equations to solve for the two unknown variables

46. (*c*) Money will be divided according to the time and investment ratios
Thus, required ratio
= 40,000 × 12 : 60,000 × 9 : 60,000 × 9
= 48 : 54 : 54 = 8 : 9 : 9
Mr Khare's share = $\frac{9}{8+9+9}\times 31200$ = Rs 10800

47. (*e*) Their 1-day work = $\frac{1}{6}+\frac{1}{8} = \frac{7}{24}$
$\therefore$ They do $2\left(\frac{7}{24}\right)$ work in 2 days
Remaining work = $1 - \frac{14}{24} = \frac{5}{12}$
Days taken by Jogesh = $\frac{5}{12}\times 8 = \frac{10}{3}$

48. (*a*) We can have two possibilities $\begin{cases}\times 2, \times 2, \times 2 \ldots \\ +12, +24, +48 \ldots\end{cases}$
Thus, both (*d*) and (*e*)

49. (*b*) The series A is: ×2 + 1, × 3 + 2, × 4 + 3 ...
Thus, 1 × 2 + 1 = 3, 3 × 3 + 2
= 11, 11 × 4 + 3 = 47 etc

50. (*b*) The given series A is: $+3^2, +6^2, +9^2$, etc
Thus, series B is: m = 5 + 3^2 = 14,
n = 14 + 6^2 = 50, etc