

### Aptitude Questions

1. One of the following is my secret word: AIM DUE MOD OAT TIE. With the list in front of you, if I were to tell you any one of my secret word, then you would be able to tell me the number of vowels in my secret word. Which is my secret word?

Ans. TIE

2. In the following figure:

A	B	C
	D	
	E	F G
		H
		I

Each of the digits 1, 2, 3, 4, 5, 6, 7, 8, and 9 is:

- a) Represented by a different letter in the figure above.
- b) Positioned in the figure above so that each of  $A + B + C$ ,  $C + D + E$ ,  $E + F + G$ , and  $G + H + I$  is equal to 13.

Which digit does E represent?

Ans. E is 4

3. One of Mr. Horton, his wife, their son, and Mr. Horton's mother is a doctor and another is a lawyer.

- a) If the doctor is younger than the lawyer, then the doctor and the lawyer are not blood relatives.
- b) If the doctor is a woman, then the doctor and the lawyer are blood relatives.
- c) If the lawyer is a man, then the doctor is a man.

Whose occupation you know?

Ans. Mr. Horton: he is the doctor.

4. Here is a picture of two cubes:



- a) The two cubes are exactly alike.
  - b) The hidden faces indicated by the dots have the same alphabet on them.
- Which alphabet- q, r, w, or k is on the faces indicated by the dots?

Ans. q

5. In the following figure:

A                      D

B	G	E
C		F

Each of the seven digits from 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 is:

- a) Represented by a different letter in the figure above.
- b) Positioned in the figure above so that  $A*B*C$ ,  $B*G*E$ , and  $D*E*F$  are equal.

Which digit does G represent?

**Ans. G represents the digit 2.**

6. Mr. and Mrs. Aye and Mr. and Mrs. Bee competed in a chess tournament. Of the three games played:

- a) In only the first game were the two players married to each other.
- b) The men won two games and the women won one game.
- c) The Ayes won more games than the Bees.
- d) Anyone who lost a game did not play the subsequent game.

Who did not lose a game?

**Ans. Mrs. Bee did not lose a game.**

7. Three piles of chips--pile I consists one chip, pile II consists of chips, and pile III consists of three chips--are to be used in game played by Anita and Brinda. The game requires:

- a) That each player in turn take only one chip or all chips from just one pile.
- b) That the player who has to take the last chip loses.
- c) That Anita now have her turn.

From which pile should Anita draw in order to win?

**Ans. Pile II**

8. Of Abdul, Binoy, and Chandini:

- a) Each member belongs to the Tee family whose members always tell the truth or to the El family whose members always lie.
- b) Abdul says "Either I belong or Binoy belongs to a different family from the other two." Whose family do you name of?

**Ans. Binoy's family--El.**

9. In a class composed of x girls and y boys what part of the class is composed of girls

- A.  $y/(x + y)$
- B.  $x/xy$
- C.  $x/(x + y)$
- D.  $y/xy$

**Ans. C**

10. What is the maximum number of half-pint bottles of cream that can be filled with a 4-gallon can of cream (2 pt.=1 qt. and 4 qt.=1 gal)

- A. 16
- B. 24
- C. 30
- D. 64

**Ans. D**

11. If the operation,  $\wedge$  is defined by the equation  $x \wedge y = 2x + y$ , what is the value of  $a$  in  $2 \wedge a = a \wedge 3$

- A.0
- B.1
- C.-1
- D.4

Ans.B

12. A coffee shop blends 2 kinds of coffee, putting in 2 parts of a 33p. a gm. grade to 1 part of a 24p. a gm. If the mixture is changed to 1 part of the 33p. a gm. to 2 parts of the less expensive grade, how much will the shop save in blending 100 gms.

- A.Rs.90
- B.Rs.1.00
- C.Rs.3.00
- D.Rs.8.00

Ans.C

13. There are 200 questions on a 3 hr examination. Among these questions are 50 mathematics problems. It is suggested that twice as much time be spent on each maths problem as for each other question. How many minutes should be spent on mathematics problems

- A.36
- B.72
- C.60
- D.100

Ans.B

14. In a group of 15, 7 have studied Latin, 8 have studied Greek, and 3 have not studied either. How many of these studied both Latin and Greek

- A.0
- B.3
- C.4
- D.5

Ans.B

15. If  $13 = 13w/(1-w)$ , then  $(2w)^2 =$

- A.1/4
- B.1/2
- C.1
- D.2

Ans.C

16. If  $a$  and  $b$  are positive integers and  $(a-b)/3.5 = 4/7$ , then

- (A)  $b < a$
- (B)  $b > a$
- (C)  $b = a$
- (D)  $b \geq a$

Ans. A

17. In June a baseball team that played 60 games had won 30% of its games played. After a phenomenal winning streak this team raised its average to 50%. How many games must the team have won in a row to attain this average?

- A. 12
- B. 20
- C. 24
- D. 30

Ans. C

18. M men agree to purchase a gift for Rs. D. If three men drop out how much more will each have to contribute towards the purchase of the gift?

- A.  $D/(M-3)$
- B.  $MD/3$
- C.  $M/(D-3)$
- D.  $3D/(M^2-3M)$

Ans. D

19. A company contracts to paint 3 houses. Mr. Brown can paint a house in 6 days while Mr. Black would take 8 days and Mr. Blue 12 days. After 8 days Mr. Brown goes on vacation and Mr. Black begins to work for a period of 6 days. How many days will it take Mr. Blue to complete the contract?

- A. 7
- B. 8
- C. 11
- D. 12

Ans. C

20. 2 hours after a freight train leaves Delhi a passenger train leaves the same station travelling in the same direction at an average speed of 16 km/hr. After travelling 4 hrs the passenger train overtakes the freight train. The average speed of the freight train was?

- A. 30
- B. 40
- C. 58
- D. 60

Ans. B

21. If  $9x-3y=12$  and  $3x-5y=7$  then  $6x-2y = ?$

- A.-5
- B. 4
- C. 2
- D. 8

Ans. D

22. There are 5 red shoes, 4 green shoes. If one draw randomly a shoe what is the probability of getting a red shoe

Ans  $5C_1/ 9C_1$

23. What is the selling price of a car? If the cost of the car is Rs.60 and a profit of 10% over selling price is earned

Ans: Rs 66/-

24.  $1/3$  of girls ,  $1/2$  of boys go to canteen .What factor and total number of classmates go to canteen.

Ans: Cannot be determined.

25. The price of a product is reduced by 30% . By what percentage should it be increased to make it 100%

Ans: 42.857%

26. There is a square of side 6cm . A circle is inscribed inside the square. Find the ratio of the area of circle to square.

Ans. 11/14

27. There are two candles of equal lengths and of different thickness. The thicker one lasts of six hours. The thinner 2 hours less than the thicker one. Ramesh lights the two candles at the same time. When he went to bed he saw the thicker one is twice the length of the thinner one. How long ago did Ramesh light the two candles .

Ans: 3 hours.

28. If  $M/N = 6/5$ , then  $3M+2N = ?$

29. If  $p/q = 5/4$  , then  $2p+q= ?$

30. If PQIRST is a parallelogram what it the ratio of triangle PQS & parallelogram PQIRST .

Ans: 1:2

31. The cost of an item is Rs 12.60. If the profit is 10% over selling price what is the selling price ?

Ans: Rs 13.86/-

32. There are 6 red shoes & 4 green shoes . If two of red shoes are drawn what is the probability of getting red shoes

Ans:  $\frac{6C_2}{10C_2}$

33. To 15 lts of water containing 20% alcohol, we add 5 lts of pure water. What is % alcohol.

Ans : 15%

34. A worker is paid Rs.20/- for a full days work. He works  $1, \frac{1}{3}, \frac{2}{3}, \frac{1}{8}, \frac{3}{4}$  days in a week. What is the total amount paid for that worker ?

Ans : 57.50

35. If the value of x lies between 0 & 1 which of the following is the largest?

- (a) x
- (b)  $x^2$
- (c) -x
- (d)  $\frac{1}{x}$

Ans : (d)

36. If the total distance of a journey is 120 km .If one goes by 60 kmph and comes back at 40kmph what is the average speed during the journey?

Ans: 48kmph

37. A school has 30% students from Maharashtra .Out of these 20% are Bombay students. Find the total percentage of Bombay?

Ans: 6%

38. An equilateral triangle of sides 3 inch each is given. How many equilateral triangles of side 1 inch can be formed from it?

Ans: 9

39. If  $\frac{A}{B} = \frac{3}{5}$ , then  $15A = ?$

Ans : 9B

40. Each side of a rectangle is increased by 100% .By what percentage does the area increase?

Ans : 300%

41. Perimeter of the back wheel = 9 feet, front wheel = 7 feet on a certain distance, the front wheel gets 10 revolutions more than the back wheel .What is the distance?

Ans : 315 feet.

42. Perimeter of front wheel =30, back wheel = 20. If front wheel revolves 240 times. How many revolutions will the back wheel take?

Ans: 360 times

43. 20% of a 6 litre solution and 60% of 4 litre solution are mixed. What percentage of the mixture of solution

Ans: 36%

44City A's population is 68000, decreasing at a rate of 80 people per year. City B having population 42000 is increasing at a rate of 120 people per year. In how many years both the cities will have same population?

Ans: 130 years

45Two cars are 15 kms apart. One is turning at a speed of 50kmph and the other at 40kmph . How much time will it take for the two cars to meet?

Ans: 3/2 hours

46A person wants to buy 3 paise and 5 paise stamps costing exactly one rupee. If he buys which of the following number of stamps he won't able to buy 3 paise stamps.

Ans: 9

47There are 12 boys and 15 girls, How many different dancing groups can be formed with 2 boys and 3 girls.

48Which of the following fractions is less than  $\frac{1}{3}$

- (a)  $\frac{22}{62}$
- (b)  $\frac{15}{46}$
- (c)  $\frac{2}{3}$
- (d) 1

Ans: (b)

49There are two circles, one circle is inscribed and another circle is circumscribed over a square. What is the ratio of area of inner to outer circle?

Ans: 1 : 2

50Three types of tea the a,b,c costs Rs. 95/kg,100/kg and70/kg respectively.  
How many kgs of each should be blended to produce 100 kg of mixture worth Rs.90/kg, given that the quantities of band c are equal

- a)70,15,15
- b)50,25,25
- c)60,20,20
- d)40,30,30

Ans. (b)

51. In a class, except 18 all are above 50 years.  
15 are below 50 years of age. How many people are there

- (a) 30
- (b) 33
- (c) 36
- (d) none of these.

Ans. (d)

52. If a boat is moving in upstream with velocity of 14 km/hr and goes downstream with a velocity of 40 km/hr, then what is the speed of the stream ?

- (a) 13 km/hr
- (b) 26 km/hr
- (c) 34 km/hr
- (d) none of these

Ans. A

53. Find the value of  $(0.75 * 0.75 * 0.75 - 0.001) / (0.75 * 0.75 - 0.075 + 0.01)$

- (a) 0.845
- (b) 1.908
- (c) 2.312
- (d) 0.001

Ans. A

54. A can have a piece of work done in 8 days, B can work three times faster than the A, C can work five times faster than A. How many days will they take to do the work together ?

- (a) 3 days
- (b) 8/9 days
- (c) 4 days
- (d) can't say

Ans. B

55. A car travels a certain distance taking 7 hrs in forward journey, during the return journey increased speed 12km/hr takes the times 5 hrs. What is the distance travelled

- (a) 210 kms
- (b) 30 kms
- (c) 20 kms
- (c) none of these

Ans. B

56. Instead of multiplying a number by 7, the number is divided by 7. What is the percentage of error obtained ?



57. Find  $(7x + 4y) / (x-2y)$  if  $x/2y = 3/2$  ?

- (a) 6
- (b) 8
- (c) 7
- (d) data insufficient

Ans. C

58. A man buys 12 lts of liquid which contains 20% of the liquid and the rest is water. He then mixes it with 10 lts of another mixture with 30% of liquid. What is the % of water in the new mixture?

59. If a man buys 1 lt of milk for Rs.12 and mixes it with 20% water and sells it for Rs.15, then what is the percentage of gain?

60. Pipe A can fill a tank in 30 mins and Pipe B can fill it in 28 mins. If  $3/4$ th of the tank is filled by Pipe B alone and both are opened, how much time is required by both the pipes to fill the tank completely ?

61. If on an item a company gives 25% discount, they earn 25% profit. If they now give 10% discount then what is the profit percentage.

- (a) 40%
- (b) 55%
- (c) 35%
- (d) 30%

Ans. D

62. A certain number of men can finish a piece of work in 10 days. If however there were 10 men less it will take 10 days more for the work to be finished. How many men were there originally?

- (a) 110 men
- (b) 130 men
- (c) 100 men
- (d) none of these

Ans. A

63. In simple interest what sum amounts of Rs.1120/- in 4 years and Rs.1200/- in 5 years ?

- (a) Rs. 500
- (b) Rs. 600
- (c) Rs. 800
- (d) Rs. 900

Ans. C

64. If a sum of money compound annually amounts of thrice itself in 3 years. In how many years will it become 9 times itself.

- (a) 6
- (b) 8

- (c) 10
- (d) 12

Ans A

65. Two trains move in the same direction at 50 kmph and 32 kmph respectively. A man in the slower train observes the 15 seconds elapse before the faster train completely passes by him. What is the length of faster train ?

- (a) 100m
- (b) 75m
- (c) 120m
- (d) 50m

Ans B

66. How many meshes are there in 1 square meter of wire gauge if each mesh is 8mm long and 5mm wide ?

- (a) 2500
- (b) 25000
- (c) 250
- (d) 250000

Ans B

67.  $x\%$  of  $y$  is  $y\%$  of ?

- (a)  $x/y$
- (b)  $2y$
- (c)  $x$
- (d) can't be determined

Ans. C

68. The price of sugar increases by 20%, by what % should a housewife reduce the consumption of sugar so that expenditure on sugar can be same as before ?

- (a) 15%
- (b) 16.66%
- (c) 12%
- (d) 9%

Ans B

69. A man spends half of his salary on household expenses,  $1/4$ th for rent,  $1/5$ th for travel expenses, the man deposits the rest in a bank. If his monthly deposits in the bank amount 50, what is his monthly salary ?

- (a) Rs.500
- (b) Rs.1500
- (c) Rs.1000
- (d) Rs. 900

Ans C

70. The population of a city increases @ 4% p.a. There is an additional annual increase of 4% of the population due to the influx of job seekers, find the % increase in population after 2 years ?

71. The ratio of the number of boys and girls in a school is 3:2 Out of these 10% the boys and 25% of girls are scholarship holders. % of students who are not scholarship holders.?

72. 15 men take 21 days of 8 hrs. each to do a piece of work. How many days of 6 hrs. each would it take for 21 women if 3 women do as much work as 2 men?

- (a) 30
- (b) 20
- (c) 19
- (d) 29

Ans. A

73. A cylinder is 6 cms in diameter and 6 cms in height. If spheres of the same size are made from the material obtained, what is the diameter of each sphere?

- (a) 5 cms
- (b) 2 cms
- (c) 3 cms
- (d) 4 cms

Ans C

74. A rectangular plank  $(2)^{1/2}$  meters wide can be placed so that it is on either side of the diagonal of a square shown below.(Figure is not available)What is the area of the plank?

Ans : $7*(2)^{1/2}$

75. The difference b/w the compound interest payable half yearly and the simple interest on a certain sum lent out at 10% p.a for 1 year is Rs 25. What is the sum?

- (a) Rs. 15000
- (b) Rs. 12000
- (c) Rs. 10000
- (d) none of these

Ans C

76. What is the smallest number by which 2880 must be divided in order to make it into a perfect square ?

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

Ans. C

77. A father is 30 years older than his son however he will be only thrice as old as the son after 5 years

what is father's present age ?

- (a) 40 yrs
- (b) 30 yrs
- (c) 50 yrs
- (d) none of these

Ans. A

78. An article sold at a profit of 20% if both the cost price and selling price would be Rs.20/- the profit would be 10% more. What is the cost price of that article?

29. If an item costs Rs.3 in '99 and Rs.203 in '00.What is the % increase in price?

- (a)  $200/3$  %
- (b)  $200/6$  %
- (c) 100%
- (d) none of these

Ans. A

80. 5 men or 8 women do equal amount of work in a day. a job requires 3 men and 5 women to finish the job in 10 days how many woman are required to finish the job in 14 days.

- a) 10
- b) 7
- c) 6
- d) 12

Ans 7

81. A simple interest amount of rs 5000 for six month is rs 200. what is the anual rate of interest?

- a) 10%
- b) 6%
- c) 8%
- d) 9%

Ans 8%

82. In objective test a correct ans score 4 marks and on a wrong ans 2 marks are ---. a student score 480 marks from 150 question. how many ans were correct?

- a) 120
- b) 130
- c) 110
- d) 150

Ans130.

83. An artical sold at amount of 50% the net sale price is rs 425 .what is the list price of the artical?

- a) 500
- b) 488
- c) 480
- d) 510

Ans 500

84. A man leaves office daily at 7pm A driver with car comes from his home to pick him from office and bring back home

One day he gets free at 5:30 and instead of waiting for driver he starts walking towards home. In the way he meets the car and returns home on car He reaches home 20 minutes earlier

than usual.

In how much time does the man reach home usually??

Ans. 1hr 20min

85. A works thrice as much as B. If A takes 60 days less than B to do a work then find the number of days it would take to complete the work if both work together?

Ans. 22½days

86. How many 1's are there in the binary form of  $8 \cdot 1024 + 3 \cdot 64 + 3$

Ans. 4

87. In a digital circuit which was to implement  $(A \oplus B) + (A \oplus B)$ , the designer implements  $(A \oplus B) \oplus (A \oplus B)$

What is the probability of error in it ?

88. A boy has Rs 2. He wins or loses Re 1 at a time. If he wins he gets Re 1 and if he loses the game he loses Re 1.

He can lose only 5 times. He is out of the game if he earns Rs 5.

Find the number of ways in which this is possible?

Ans. 16

89. If there are  $1024 \cdot 1280$  pixels on a screen and each pixel can have around 16 million colors. Find the memory required for this?

Ans. 4MB

90. On a particular day A and B decide that they would either speak the truth or will lie.

C asks A whether he is speaking truth or lying?

He answers and B listens to what he said. C then asks B what A has said. B says "A says that he is a liar"

What is B speaking ?

(a) Truth

(b) Lie

(c) Truth when A lies

(d) Cannot be determined

Ans. (b)

91. What is the angle between the two hands of a clock when time is 8:30

Ans. 75(approx)

92. A student is ranked 13th from right and 8th from left. How many students are there in totality ?

93. A man walks east and turns right and then from there to his left and then 45degrees to his right. In which direction did he go

Ans. North west

94. A student gets 70% in one subject, 80% in the other. To get an overall of 75% how much should get in third subject.

95. A man shows his friend a woman sitting in a park and says that she the daughter of my grandmother's only son.

What is the relation between the two

Ans. Daughter

96. How many squares with sides  $\frac{1}{2}$  inch long are needed to cover a rectangle that is 4 ft long and 6 ft wide

- (a) 24
- (b) 96
- (c) 3456
- (d) 13824
- (e) 14266

97. If  $a=2/3b$  ,  $b=2/3c$ , and  $c=2/3d$  what part of d is b/

- (a)  $8/27$
- (b)  $4/9$
- (c)  $2/3$
- (d) 75%
- (e)  $4/3$

Ans. (b)

2598 Successive discounts of 20% and 15% are equal to a single discount of

- (a) 30%
- (b) 32%
- (c) 34%
- (d) 35%
- (e) 36

Ans. (b)

99. The petrol tank of an automobile can hold g liters. If a liters was removed when the tank was full, what part of the full tank was removed?

- (a)  $g-a$
- (b)  $g/a$
- (c)  $a/g$
- (d)  $(g-a)/a$
- (e)  $(g-a)/g$

Ans. (c)

100. If  $x/y=4$  and y is not '0' what % of x is  $2x-y$

- (a) 150%
- (b) 175%

- (c)200%
- (d)250%

Ans. (b)

## SET – 2

### Aptitude Questions

1.If  $2x-y=4$  then  $6x-3y=?$

- (a)15
- (b)12
- (c)18
- (d)10

Ans. (b)

2.If  $x=y=2z$  and  $xyz=256$  then what is the value of  $x$ ?

- (a)12
- (b)8
- (c)16
- (d)6

Ans. (b)

3.  $(1/10)^{18} - (1/10)^{20} = ?$

- (a)  $99/10^{20}$
- (b)  $99/10$
- (c) 0.9
- (d) none of these

Ans. (a)

4.Pipe A can fill in 20 minutes and Pipe B in 30 mins and Pipe C can empty the same in 40 mins.If all of them work together, find the time taken to fill the tank

- (a)  $17 \frac{1}{7}$  mins
- (b) 20 mins
- (c) 8 mins
- (d) none of these

Ans. (a)

5. Thirty men take 20 days to complete a job working 9 hours a day.How many hour a day should 40 men work to complete the job?

- (a) 8 hrs
- (b)  $7 \frac{1}{2}$  hrs
- (c) 7 hrs
- (d) 9 hrs

Ans. (b)

6. Find the smallest number in a GP whose sum is 38 and product 1728

- (a) 12
- (b) 20
- (c) 8
- (d) none of these

Ans. (c)

7. A boat travels 20 kms upstream in 6 hrs and 18 kms downstream in 4 hrs. Find the speed of the boat in still water and the speed of the water current?

- (a)  $1/2$  kmph
- (b)  $7/12$  kmph
- (c) 5 kmph
- (d) none of these

Ans. (b)

8. A goat is tied to one corner of a square plot of side 12m by a rope 7m long. Find the area it can graze?

- (a) 38.5 sq.m
- (b) 155 sq.m
- (c) 144 sq.m
- (d) 19.25 sq.m

Ans. (a)

9. Mr. Shah decided to walk down the escalator of a tube station. He found that if he walks down 26 steps, he requires 30 seconds to reach the bottom. However, if he steps down 34 stairs he would only require 18 seconds to get to the bottom. If the time is measured from the moment the top step begins to descend to the time he steps off the last step at the bottom, find out the height of the stair way in steps?

Ans. 46 steps.

10. The average age of 10 members of a committee is the same as it was 4 years ago, because an old member has been replaced by a young member. Find how much younger is the new member ?

Ans. 40 years.

11. Three containers A, B and C have volumes a, b, and c respectively; and container A is full of water while the other two are empty. If from container A water is poured into container B which becomes  $1/3$  full, and into container C which becomes  $1/2$  full, how much water is left in container A?

12. ABCE is an isosceles trapezoid and ACDE is a rectangle. AB = 10 and EC = 20. What is the length of AE?

Ans. AE = 10.



13. In the given figure, PA and PB are tangents to the circle at A and B respectively and the chord BC is parallel to tangent PA. If AC = 6 cm, and length of the tangent AP is 9 cm, then what is the length of the chord BC?

Ans. BC = 4 cm.

15 Three cards are drawn at random from an ordinary pack of cards. Find the probability that they will consist of a king, a queen and an ace.

Ans. 64/2210.

16. A number of cats got together and decided to kill between them 999919 mice. Every cat killed an equal number of mice. Each cat killed more mice than there were cats. How many cats do you think there were ?

Ans. 991.

17. If  $\log_2 x - 5 \log x + 6 = 0$ , then what would the value / values of x be?

Ans.  $x = e^2$  or  $e^3$ .

18. The square of a two digit number is divided by half the number. After 36 is added to the quotient, this sum is then divided by 2. The digits of the resulting number are the same as those in the original number, but they are in reverse order. The ten's place of the original number is equal to twice the difference between its digits. What is the number?

Ans. 46

19. Can you tender a one rupee note in such a manner that there shall be total 50 coins but none of them would be 2 paise coins.?

Ans. 45 one paise coins, 2 five paise coins, 2 ten paise coins, and 1 twenty-five paise coins.

20. A monkey starts climbing up a tree 20ft. tall. Each hour, it hops 3ft. and slips back 2ft. How much time would it take the monkey to reach the top?

Ans. 18 hours.

21. What is the missing number in this series? 8 2 14 6 11 ? 14 6 18 12

Ans. 9

22. A certain type of mixture is prepared by mixing brand A at Rs.9 a kg. with brand B at Rs.4 a kg. If the mixture is worth Rs.7 a kg., how many kgs. of brand A are needed to make 40kgs. of the mixture?

Ans. Brand A needed is 24kgs.

23. A wizard named Nepo says "I am only three times my son's age. My father is 40 years more than twice my age. Together the three of us are a mere 1240 years old." How old is Nepo?

Ans. 360 years old.

24. One dog tells the other that there are two dogs in front of me. The other one also shouts that he too had two behind him. How many are they?

Ans. Three.

25. A man ate 100 bananas in five days, each day eating 6 more than the previous day. How many bananas did he eat on the first day?

Ans. Eight.

26. If it takes five minutes to boil one egg, how long will it take to boil four eggs?

Ans. Five minutes.

27. The minute hand of a clock overtakes the hour hand at intervals of 64 minutes of correct time. How much a day does the clock gain or lose?

Ans.  $32 \frac{8}{11}$  minutes.

28. Solve for x and y:  $\frac{1}{x} - \frac{1}{y} = \frac{1}{3}$ ,  $\frac{1}{x^2} + \frac{1}{y^2} = \frac{5}{9}$ .

Ans.  $x = \frac{3}{2}$  or  $-3$  and  $y = 3$  or  $-\frac{3}{2}$ .

29. Daal is now being sold at Rs. 20 a kg. During last month its rate was Rs. 16 per kg. By how much percent should a family reduce its consumption so as to keep the expenditure fixed?

Ans. 20 %.

30. Find the least value of  $3x + 4y$  if  $x^2y^3 = 6$ .

Ans. 10.

31. Can you find out what day of the week was January 12, 1979?

Ans. Friday.

32. A garrison of 3300 men has provisions for 32 days, when given at a rate of 850 grams per head. At the end of 7 days a reinforcement arrives and it was found that now the provisions will last 8 days less, when given at the rate of 825 grams per head. How many more men can it feed?

Ans. 1700 men.

33. From 5 different green balls, four different blue balls and three different red balls, how many combinations of balls can be chosen taking at least one green and one blue ball?

Ans. 3720.

34. Three pipes, A, B, & C are attached to a tank. A & B can fill it in 20 & 30 minutes respectively while C can empty it in 15 minutes. If A, B & C are kept open successively for 1 minute each, how soon will the tank be filled?

Ans. 167 minutes.

35. A person walking  $\frac{5}{6}$  of his usual rate is 40 minutes late. What is his usual time? **Ans. 3 hours 20 minutes.**

36. For a motorist there are three ways going from City A to City C. By way of bridge the distance is 20 miles and toll is \$0.75. A tunnel between the two cities is a distance of 10 miles and toll is \$1.00 for the vehicle and driver and \$0.10 for each passenger. A two-lane highway without toll goes east for 30 miles to city B and then 20 miles in a northwest direction to City C.

1. Which is the shortest route from B to C

- (a) Directly on toll free highway to City C
- (b) The bridge
- (c) The Tunnel
- (d) The bridge or the tunnel
- (e) The bridge only if traffic is heavy on the toll free highway

**Ans. (a)**

2. The most economical way of going from City A to City B, in terms of toll and distance is to use the

- (a) tunnel
- (b) bridge
- (c) bridge or tunnel
- (d) toll free highway
- (e) bridge and highway

**Ans. (a)**

3. Jim usually drives alone from City C to City A every working day. His firm deducts a percentage of employee pay for lateness. Which factor would most influence his choice of the bridge or the tunnel ?

- (a) Whether his wife goes with him
- (b) scenic beauty on the route
- (c) Traffic conditions on the road, bridge and tunnel
- (d) saving \$0.25 in tolls
- (e) price of gasoline consumed in covering additional 10 miles on the bridge

**Ans. (a)**

4. In choosing between the use of the bridge and the tunnel the chief factor(s) would be:

- I. Traffic and road conditions
- II. Number of passengers in the car
- III. Location of one's homes in the center or outskirts of one of the cities
- IV. Desire to save \$0.25

- (a) I only
- (b) II only
- (c) II and III only
- (d) III and IV only
- (e) I and II only

Ans. (a)

37. The letters A, B, C, D, E, F and G, not necessarily in that order, stand for seven consecutive integers from 1 to 10

D is 3 less than A

B is the middle term

F is as much less than B as C is greater than D

G is greater than F

1. The fifth integer is

(a) A

(b) C

(c) D

(d) E

(e) F

Ans. (a)

2. A is as much greater than F as which integer is less than G

(a) A

(b) B

(c) C

(d) D

(e) E

Ans. (a)

3. If  $A = 7$ , the sum of E and G is

(a) 8

(b) 10

(c) 12

(d) 14

(e) 16

Ans. (a)

4.  $A - F = ?$

(a) 1

(b) 2

(c) 3

(d) 4

(e) Cannot be determined

Ans. (a)

5. An integer T is as much greater than C as C is greater than E. T can be written as  $A + E$ . What is D?

(a) 2

(b) 3

(c) 4

(d) 5

(e) Cannot be determined

Ans. (a)

6. The greatest possible value of C is how much greater than the smallest possible value of D?

- (a) 2
- (b) 3
- (c) 4
- (d) 5
- (e) 6

Ans. (a)

38.

- 1. All G's are H's
- 2. All G's are J's or K's
- 3. All J's and K's are G's
- 4. All L's are K's
- 5. All N's are M's
- 6. No M's are G's

1. If no P's are K's, which of the following must be true?

- (a) All P's are J's
- (b) No P is a G
- (c) No P is an H
- (d) If any P is an H it is a G
- (e) If any P is a G it is a J

Ans. (a)

2. Which of the following can be logically deduced from the conditions stated?

- (a) No M's are H's
- (b) No M's that are not N's are H's
- (c) No H's are M's
- (d) Some M's are H's
- (e) All M's are H's

Ans. (a)

3. Which of the following is inconsistent with one or more of the conditions?

- (a) All H's are G's
- (b) All H's that are not G's are M's
- (c) Some H's are both M's and G's
- (d) No M's are H's
- (e) All M's are H's

Ans. (a)

4. The statement "No L's are J's" is

I. Logically deducible from the conditions stated

- II. Consistent with but not deducible from the conditions stated
- III. Deducible from the stated conditions together with the additional statement "No J's are K's"

- (a) I only
- (b) II only
- (c) III only
- (d) II and III only
- (e) Neither I, II nor III

Ans. (a)

39. In country X, democratic, conservative and justice parties have fought three civil wars in twenty years. To restore stability an agreement is reached to rotate the top offices President, Prime Minister and Army Chief among the parties so that each party controls one and only one office at all times. The three top office holders must each have two deputies, one from each of the other parties. Each deputy must choose a staff composed of equally members of his or her chief's party and member of the third party.

1. When Justice party holds one of the top offices, which of the following cannot be true

- (a) Some of the staff members within that office are justice party members
- (b) Some of the staff members within that office are democratic party members
- (c) Two of the deputies within the other offices are justice party members
- (d) Two of the deputies within the other offices are conservative party members
- (e) Some of the staff members within the other offices are justice party members.

Ans. (a)

2. When the democratic party holds presidency, the staff of the prime minister's deputies are composed

- I. One-fourth of democratic party members
- II. One-half of justice party members and one-fourth of conservative party members
- III. One-half of conservative party members and one-fourth of justice party members.

- (a) I only
- (b) I and II only
- (c) II or III but not both
- (d) I and II or I and III
- (e) None of these

Ans. (a)

3. Which of the following is allowable under the rules as stated:

- (a) More than half of the staff within a given office belonging to a single party
- (b) Half of the staff within a given office belonging to a single party
- (c) Any person having a member of the same party as his or her immediate superior
- (d) Half the total number of staff members in all three offices belonging to a single party
- (e) Half the staff members in a given office belonging to parties different from the party of the top office holder in that office.

Ans. (a)

4. The office of the Army Chief passes from Conservative to Justice party. Which of the following must be fired.

- (a) The democratic deputy and all staff members belonging to Justice party
- (b) Justice party deputy and all his or hers staff members
- (c) Justice party deputy and half of his Conservative staff members in the chief of staff office
- (d) The Conservative deputy and all of his or her staff members belonging to Conservative party
- (e) No deputies and all staff members belonging to conservative parties.

Ans. (a)

40. In recommendations to the board of trustees a tuition increase of \$500 per year, the president of the university said "There were no student demonstrations over the previous increases of \$300 last year and \$200 the year before". If the president's statement is accurate then which of the following can be validly inferred from the information given:

- I. Most students in previous years felt that the increases were justified because of increased operating costs.
- II. Student apathy was responsible for the failure of students to protest the previous tuition increases.
- III. Students are not likely to demonstrate over new tuition increases.

- (a) I only
- (b) II only
- (c) I or II but not both
- (d) I, II and III
- (e) None

Ans. (a)

41. The office staff of XYZ corporation presently consists of three bookkeepers--A, B, C and 5 secretaries D, E, F, G, H. The management is planning to open a new office in another city using 2 bookkeepers and 3 secretaries of the present staff. To do so they plan to separate certain individuals who don't function well together. The following guidelines were established to set up the new office

- I. Bookkeepers A and C are constantly finding fault with one another and should not be sent together to the new office as a team
- II. C and E function well alone but not as a team, they should be separated
- III. D and G have not been on speaking terms and shouldn't go together
- IV. Since D and F have been competing for promotion they shouldn't be a team

1. If A is to be moved as one of the bookkeepers, which of the following cannot be a possible working unit.

- A. ABDEH
- B. ABDGH
- C. ABEFH
- D. ABEGH

Ans. B

2. If C and F are moved to the new office, how many combinations are possible

- A. 1

- B.2
- C.3
- D.4

Ans.A

3.If C is sent to the new office,which member of the staff cannot go with C

- A.B
- B.D
- C.F
- D.G

Ans.B

4.Under the guidelines developed,which of the following must go to the new office

- A.B
- B.D
- C.E
- D.G

Ans.A

5.If D goes to the new office,which of the following is/are true

- I.C cannot go
- II.A cannot go
- III.H must also go

- A.I only
- B.II only
- C.I and II only
- D.I and III only

Ans.D

*42.After months of talent searching for an administrative assistant to the president of the college the field of applicants has been narrowed down to 5--A, B, C, D, E .It was announced that the finalist would be chosen after a series of all-day group personal interviews were held.The examining committee agreed upon the following procedure*

- I.The interviews will be held once a week
- II.3 candidates will appear at any all-day interview session
- III.Each candidate will appear at least once
- IV.If it becomes necessary to call applicants for additional interviews, no more 1 such applicant should be asked to appear the next week
- V.Because of a detail in the written applications,it was agreed that whenever candidate B appears, A should also be present.
- VI.Because of travel difficulties it was agreed that C will appear for only 1 interview.

1.At the first interview the following candidates appear A,B,D.Which of the following combinations can be called for the interview to be held next week.



- A.BCD
- B.CDE
- C.ABE
- D.ABC

Ans.B

2.Which of the following is a possible sequence of combinations for interviews in 2 successive weeks

- A.ABC;BDE
- B.ABD;ABE
- C.ADE;ABC
- D.BDE;ACD

Ans.C

3.If A ,B and D appear for the interview and D is called for additional interview the following week,which 2 candidates may be asked to appear with D?

- I. A
- II B
- III.C
- IV.E

- A.I and II
- B.I and III only
- C.II and III only
- D.III and IV only

Ans.D

4.Which of the following correctly state(s) the procedure followed by the search committee

- I.After the second interview all applicants have appeared at least once
- II.The committee sees each applicant a second time
- III.If a third session,it is possible for all applicants to appear at least twice

- A.I only
- B.II only
- C.III only
- D.Both I and II

Ans.A

43. A certain city is served by subway lines A,B and C and numbers 1 2 and 3

*When it snows , morning service on B is delayed*

*When it rains or snows , service on A, 2 and 3 are delayed both in the morning and afternoon*

*When temp. falls below 30 degrees farenheit afternoon service is cancelled in either the A line or the 3 line,*

*but not both.*

*When the temperature rises over 90 degrees farenheit, the afternoon service is cancelled in either the line C or the*

*3 line but not both.*

*When the service on the A line is delayed or cancelled, service on the C line which connects the A line, is delayed.*

*When service on the 3 line is cancelled, service on the B line which connects the 3 line is delayed.*

Q1. On Jan 10th, with the temperature at 15 degree farenheit, it snows all day. On how many lines will service be affected, including both morning and afternoon.

- (A) 2
- (B) 3
- (C) 4
- (D) 5

**Ans. D**

Q2. On Aug 15th with the temperature at 97 degrees farenheit it begins to rain at 1 PM. What is the minimum number of lines on which service will be affected?

- (A) 2
- (B) 3
- (C) 4
- (D) 5

**Ans. C**

Q3. On which of the following occasions would service be on the greatest number of lines disrupted.

- (A) A snowy afternoon with the temperature at 45 degree farenheit
- (B) A snowy morning with the temperature at 45 degree farenheit
- (C) A rainy afternoon with the temperature at 45 degree farenheit
- (D) A rainy afternoon with the temperature at 95 degree farenheit

**Ans. B**

44. In a certain society, there are two marriage groups, red and brown. No marriage is permitted within a group. On marriage, males become part of their wives groups; women remain in their own group. Children belong to the same group as their parents. Widowers and divorced males revert to the group of their birth. Marriage to more than one person at the same time and marriage to a direct descendant are forbidden

Q1. A brown female could have had

- I. A grandfather born Red
- II. A grandmother born Red
- III Two grandfathers born Brown

- (A) I only
- (B) III only

- (C) I, II and III
- (D) I and II only

Ans. D

Q2. A male born into the brown group may have

- (A) An uncle in either group
- (B) A brown daughter
- (C) A brown son
- (D) A son-in-law born into red group

Ans. A

Q3. Which of the following is not permitted under the rules as stated.

- (A) A brown male marrying his father's sister
- (B) A red female marrying her mother's brother
- (C) A widower marrying his wife's sister
- (D) A widow marrying her divorced daughter's ex-husband

Ans. B

Q4. If widowers and divorced males retained their group they had upon marrying which of the following would be permissible ( Assume that no previous marriage occurred)

- (A) A woman marrying her dead sister's husband
- (B) A woman marrying her divorced daughter's ex-husband
- (C) A widower marrying his brother's daughter
- (D) A woman marrying her mother's brother who is a widower.

Ans. D

- Q5. I. All G's are H's
- II. All G's are J's or K's
- III All J's and K's are G's
- IV All L's are K's
- V All N's are M's
- VI No M's are G's

45. There are six steps that lead from the first to the second floor. No two people can be on the same step

Mr. A is two steps below Mr. C

Mr. B is a step next to Mr. D

Only one step is vacant ( No one standing on that step )

Denote the first step by step 1 and second step by step 2 etc.

1. If Mr. A is on the first step, Which of the following is true?

- (a) Mr. B is on the second step
- (b) Mr. C is on the fourth step.

- (c) A person Mr. E, could be on the third step
- (d) Mr. D is on higher step than Mr. C.

Ans: (d)

2. If Mr. E was on the third step & Mr. B was on a higher step than Mr. E which step must be vacant
- (a) step 1
  - (b) step 2
  - (c) step 4
  - (d) step 5
  - (e) step 6

Ans: (a)

3. If Mr. B was on step 1, which step could A be on?
- (a) 2&e only
  - (b) 3&5 only
  - (c) 3&4 only
  - (d) 4&5 only
  - (e) 2&4 only

Ans: (c)

4. If there were two steps between the step that A was standing and the step that B was standing on, and A was on a higher step than D, A must be on step

- (a) 2
- (b) 3
- (c) 4
- (d) 5
- (e) 6

Ans: (c)

5. Which of the following is false

- i. B&D can be both on odd-numbered steps in one configuration
- ii. In a particular configuration A and C must either both an odd numbered steps or both an even-numbered steps
- iii. A person E can be on a step next to the vacant step.

- (a) i only
- (b) ii only
- (c) iii only
- (d) both i and iii

Ans: (c)

46. Six swimmers A, B, C, D, E, F compete in a race. The outcome is as follows.

- i. B does not win.
- ii. Only two swimmers separate E & D

- iii. A is behind D & E
- iv. B is ahead of E , with one swimmer intervening
- v. F is a head of D

1. Who stood fifth in the race ?

- (a) A
- (b) B
- (c) C
- (d) D
- (e) E

Ans: (e)

2. How many swimmers separate A and F ?

- (a) 1
- (b) 2
- (c) 3
- (d) 4
- (e) cannot be determined

Ans: (d)

3. The swimmer between C & E is

- (a) none
- (b) F
- (c) D
- (d) B
- (e) A

Ans: (a)

4. If the end of the race, swimmer D is disqualified by the Judges then swimmer B finishes in which place

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

Ans: (b)

47. Five houses lettered A,B,C,D, & E are built in a row next to each other. The houses are lined up in the order A,B,C,D, & E. Each of the five houses has a colored chimney. The roof and chimney of each house must be painted as follows.

- i. The roof must be painted either green, red , or yellow.
- ii. The chimney must be painted either white, black, or red.
- iii. No house may have the same color chimney as the color of roof.
- iv. No house may use any of the same colors that the every next house uses.
- v. House E has a green roof.
- vi. House B has a red roof and a black chimney

1. Which of the following is true ?

- (a) At least two houses have black chimney.
- (b) At least two houses have red roofs.
- (c) At least two houses have white chimneys

- (d) At least two houses have green roofs
- (e) At least two houses have yellow roofs

Ans: (c)

2. Which must be false ?
- (a) House A has a yellow roof
  - (b) House A & C have different color chimney
  - (c) House D has a black chimney
  - (d) House E has a white chimney
  - (e) House B&D have the same color roof.

Ans: (b)

3. If house C has a yellow roof. Which must be true.
- (a) House E has a white chimney
  - (b) House E has a black chimney
  - (c) House E has a red chimney
  - (d) House D has a red chimney
  - (e) House C has a black chimney

Ans: (a)

4. Which possible combinations of roof & chimney can house
- I. A red roof & a black chimney
  - II. A yellow roof & a red chimney
  - III. A yellow roof & a black chimney

- (a) I only
- (b) II only
- (c) III only
- (d) I & II only
- (e) I&II&III

Ans: (e)

48. Find  $x+2y$
- (i).  $x+y=10$
  - (ii).  $2x+4y=20$

Ans: (b)

49. Is angle BAC is a right angle
- (i)  $AB=2BC$
  - (2)  $BC=1.5AC$

Ans: (e)

50. Is  $x$  greater than  $y$
- (i)  $x=2k$
  - (ii)  $k=2y$

Ans: (e)

## Aptitude Questions

*Solve the following and check with the answers given at the end.*

1. It was calculated that 75 men could complete a piece of work in 20 days. When work was scheduled to commence, it was found necessary to send 25 men to another project. How much longer will it take to complete the work?
2. A student divided a number by  $\frac{2}{3}$  when he required to multiply by  $\frac{3}{2}$ . Calculate the percentage of error in his result.
3. A dishonest shopkeeper professes to sell pulses at the cost price, but he uses a false weight of 950gm. for a kg. His gain is ...%.
4. A software engineer has the capability of thinking 100 lines of code in five minutes and can type 100 lines of code in 10 minutes. He takes a break for five minutes after every ten minutes. How many lines of codes will he complete typing after an hour?
5. A man was engaged on a job for 30 days on the condition that he would get a wage of Rs. 10 for the day he works, but he have to pay a fine of Rs. 2 for each day of his absence. If he gets Rs. 216 at the end, he was absent for work for ... days.
6. A contractor agreeing to finish a work in 150 days, employed 75 men each working 8 hours daily. After 90 days, only  $\frac{2}{7}$  of the work was completed. Increasing the number of men by \_\_\_\_\_ each working now for 10 hours daily, the work can be completed in time.
7. what is a percent of b divided by b percent of a?  
(a) a      (b) b      (c) 1      (d) 10      (d) 100
8. A man bought a horse and a cart. If he sold the horse at 10 % loss and the cart at 20 % gain, he would not lose anything; but if he sold the horse at 5% loss and the cart at 5% gain, he would lose Rs. 10 in the bargain. The amount paid by him was Rs. \_\_\_\_\_ for the horse and Rs. \_\_\_\_\_ for the cart.

9. A tennis marker is trying to put together a team of four players for a tennis tournament out of seven available. males - a, b and c; females – m, n, o and p. All players are of equal ability and there must be at least two males in the team. For a team of four, all players must be able to play with each other under the following restrictions:

b should not play with m,

c should not play with p, and

a should not play with o.

Which of the following statements must be false?

1. b and p cannot be selected together
2. c and o cannot be selected together
3. c and n cannot be selected together.

- 10-12. The following figure depicts three views of a cube. Based on this, answer questions 10-12.

10. The number on the face opposite to the face carrying 1 is \_\_\_\_\_ .

11. The number on the faces adjacent to the face marked 5 are \_\_\_\_\_ .

12. Which of the following pairs does not correctly give the numbers on the opposite faces.

- (1) 6,5    (2) 4,1    (3) 1,3    (4) 4,2

13. Five farmers have 7, 9, 11, 13 & 14 apple trees, respectively in their orchards. Last year, each of them discovered that every tree in their own orchard bore exactly the same number of apples. Further, if the third farmer gives one apple to the first, and the fifth gives three to each of the second and the fourth, they would all have exactly the same number of apples. What were the yields per tree in the orchards of the third and fourth farmers?

14. Five boys were climbing a hill. J was following H. R was just ahead of G. K was between G & H. They were climbing up in a column. Who was the second?

15-18 John is undecided which of the four novels to buy. He is considering a spy



**thriller**, a Murder mystery, a Gothic romance and a science fiction novel. The books are written by Rothko, Gorky, Burchfield and Hopper, not necessary in that order, and published by Heron, Piegou, Blueja and sparrow, not necessary in that order.

(1) The book by Rothko is **published** by Sparrow.

(2) The Spy thriller is published by Heron.

(3) The science fiction novel is by Burchfield and is not published by Blueja.

(4)The **Gothic** romance is by Hopper.

15. Pigeon publishes \_\_\_\_\_.

16. The novel by Gorky \_\_\_\_\_.

17. John purchases **books by** the authors whose names come first and third in alphabetical order. He does not buy the books \_\_\_\_\_.

18. On the basis of the first paragraph and statement (2), (3) and (4) only, it is possible to deduce that

1. Rothko wrote the murder mystery or the spy thriller
2. Sparrow published the **murder mystery** or the spy thriller
3. The book by Burchfield is published by Sparrow.

19. If a light flashes every 6 seconds, how many times will it flash in  $\frac{3}{4}$  of an hour?

20. If point P is on line segment AB, then which of the following is always true?

(1)  $AP = PB$  (2)  $AP > PB$  (3)  $PB > AP$  (4)  $AB > AP$  (5)  $AB > AP + PB$

21. All men are vertebrates. Some mammals are vertebrates. Which of the following conclusions drawn from the above statement is correct.

All men are mammals

All mammals are men

Some vertebrates are mammals.

None

22. Which of the following statements drawn from the given statements are correct?

Given:

All watches sold in that shop are of high standard. Some of the HMT watches are sold in that shop.

- a) All watches of high standard were manufactured by HMT.
- b) Some of the HMT watches are of high standard.
- c) None of the HMT watches is of high standard.
- d) Some of the HMT watches of high standard are sold in that shop.

23-27.

- 1. Ashland is north of East Liverpool and west of Coshocton.
- 2. Bowling green is north of Ashland and west of Fredericktown.
- 3. Dover is south and east of Ashland.
- 4. East Liverpool is north of Fredericktown and east of Dover.
- 5. Fredericktown is north of Dover and west of Ashland.
- 6. Coshocton is south of Fredericktown and west of Dover.

23. Which of the towns mentioned is furthest of the north – west

- (a) Ashland                      (b) Bowling green                      (c) Coshocton
- (d) East Liverpool              (e) Fredericktown

24. Which of the following must be both north and east of Fredericktown?

- (a) Ashland                      (b) Coshocton                      (c) East Liverpool

I a only      II b only III c only      IV a & b      V a & c

25. Which of the following towns must be situated both south and west of at least one other town?

- A. Ashland only
- B. Ashland and Fredericktown
- C. Dover and Fredericktown
- D. Dover, Coshocton and Fredericktown
- E. Coshocton, Dover and East Liverpool.

26. Which of the following statements, if true, would make the information in the numbered statements more specific?

- (a) Coshocton is north of Dover.
- (b) East Liverpool is north of Dover
- (c) Ashland is east of Bowling green.
- (d) Coshocton is east of Fredericktown
- (e) Bowling green is north of Fredericktown

27. Which of the numbered statements gives information that can be deduced from one or more of the other statements?

- (A) 1      (B) 2      (C) 3      (D) 4      (E) 6

28. Eight friends Harsha, Fakis, Balaji, Eswar, Dhinesh, Chandra, Geetha, and Ahmed are sitting in a circle facing the center. Balaji is sitting between Geetha and Dhinesh. Harsha is third to the left of Balaji and second to the right of Ahmed. Chandra is sitting between Ahmed and Geetha and Balaji and Eshwar are not sitting opposite to each other. Who is third to the left of Dhinesh?

29. If every alternative letter starting from B of the English alphabet is written in small letter, rest all are written in capital letters, how the month " September" be written.

- (1) SeptEMbEr      (2) SEpTeMBER      (3) SeptembeR

(4) SepteMber (5) None of the above.

30. The length of the side of a square is represented by  $x+2$ . The length of the side of an equilateral triangle is  $2x$ . If the square and the equilateral triangle have equal perimeter, then the value of  $x$  is \_\_\_\_\_.

31. It takes Mr. Karthik  $y$  hours to complete typing a manuscript. After 2 hours, he was called away. What fractional part of the assignment was left incomplete?

32. Which of the following is larger than  $3/5$ ?

(1)  $\frac{1}{2}$  (2)  $\frac{39}{50}$  (3)  $\frac{7}{25}$  (4)  $\frac{3}{10}$  (5)  $\frac{59}{100}$

33. The number that does not have a reciprocal is \_\_\_\_\_.

34. There are 3 persons Sudhir, Arvind, and Gauri. Sudhir lent cars to Arvind and Gauri as many as they had already. After some time Arvind gave as many cars to Sudhir and Gauri as many as they have. After sometime Gauri did the same thing. At the end of this transaction each one of them had 24. Find the cars each originally had.

35. A man bought a horse and a cart. If he sold the horse at 10 % loss and the cart at 20 % gain, he would not lose anything; but if he sold the horse at 5% loss and the cart at 5% gain, he would lose Rs. 10 in the bargain. The amount paid by him was Rs. \_\_\_\_\_ for the horse and Rs. \_\_\_\_\_ for the cart.

**Answers:**

1. **Answer:**

30 days.

**Explanation:**

**Before:**

One day work =  $\frac{1}{20}$

$$\text{One man's one day work} = 1 / (20 * 75)$$

Now:

$$\text{No. Of workers} = 50$$

$$\text{One day work} = 50 * 1 / (20 * 75)$$

$$\text{The total no. of days required to complete the work} = (75 * 20) / 50 = 30$$

2. **Answer:**

0 %

**Explanation:**

$$\text{Since } 3x / 2 = x / (2 / 3)$$

3. **Answer:**

5.3 %

**Explanation:**

He sells 950 grams of pulses and gains 50 grams.

$$\text{If he sells 100 grams of pulses then he will gain } (50 / 950) * 100 = 5.26$$

4. **Answer:**

250 lines of codes

5. **Answer:**

7 days

**Explanation:**

The equation portraying the given problem is:

$$10 * x - 2 * (30 - x) = 216 \quad \text{where } x \text{ is the number of working days.}$$

Solving this we get  $x = 23$

Number of days he was absent was 7 (30-23) days.

6. **Answer:**

150 men.

**Explanation:**

$$\text{One day's work} = 2 / (7 * 90)$$

$$\text{One hour's work} = 2 / (7 * 90 * 8)$$

$$\text{One man's work} = 2 / (7 * 90 * 8 * 75)$$

The remaining work (5/7) has to be completed within 60 days, because the total number of days allotted for the project is 150 days.

So we get the equation

$$(2 * 10 * x * 60) / (7 * 90 * 8 * 75) = 5/7 \text{ where } x \text{ is the number of men working after the } 90^{\text{th}} \text{ day.}$$

We get  $x = 225$

Since we have 75 men already, it is enough to add only 150 men.

7. **Answer:**

(c) 1

**Explanation:**

$$\text{a percent of b : } (a/100) * b$$

$$\text{b percent of a : } (b/100) * a$$

$$\text{a percent of b divided by b percent of a : } ((a / 100) * b) / ((b/100) * a) = 1$$

8. **Answer:**

Cost price of horse = Rs. 400 & the cost price of cart = 200.

**Explanation:-**

Let x be the cost price of the horse and y be the cost price of the cart.

In the first sale there is no loss or profit. (i.e.) The loss obtained is equal to the gain.

$$\text{Therefore } (10/100) * x = (20/100) * y$$

$$X = 2 * y \text{ -----(1)}$$

In the second sale, he lost Rs. 10. (i.e.) The loss is greater than the profit by Rs. 10.

$$\text{Therefore } (5 / 100) * x = (5 / 100) * y + 10 \text{ -----(2)}$$

Substituting (1) in (2) we get

$$(10 / 100) * y = (5 / 100) * y + 10$$

$$(5 / 100) * y = 10$$

$$y = 200$$

$$\text{From (1) } 2 * 200 = x = 400$$

9. **Answer:**

3.

**Explanation:**

Since inclusion of any male player will reject a female from the team. Since there should be four member in the team and only three males are available, the girl, n should included in the team always irrespective of others selection.

10. **Answer:**

5

11. **Answer:**

1,2,3 & 4

12. **Answer:**

B

13. **Answer:**

11 & 9 apples per tree.

**Explanation:**

Let a, b, c, d & e be the total number of apples bored per year in A, B, C, D & E 's orchard. Given that  $a + 1 = b + 3 = c - 1 = d + 3 = e - 6$

But the question is to find the number of apples bored per tree in C and D 's orchard. If is enough to consider  $c - 1 = d + 3$ .

Since the number of trees in C's orchard is 11 and that of D's orchard is 13. Let x and y be the number of apples bored per tree in C & d 's orchard respectively.

Therefore  $11x - 1 = 13y + 3$

By trial and error method, we get the value for x and y as 11 and 9

14. **Answer:**

G.

**Explanation:**

The order in which they are climbing is R - G - K - H - J

15 - 18

**Answer:**

Novel Name	Author	Publisher
Spy thriller	Rathko	Heron
Murder mystery Gorky	Piegon	
Gothic romance Burchfield	Blueja	



Science fiction                  Hopper                  Sparrow

**Explanation:**

Given

Novel Name	Author	Publisher
Spy thriller	Rathko	Heron
Murder mystery Gorky		Piegon
Gothic romance Burchfield		Blueja
Science fiction	Hopper	Sparrow

Since Blueja doesn't publish the novel by Burchfield and Heron publishes the novel spy thriller, Piegon publishes the novel by Burchfield.

Since Hopper writes Gothic romance and Heron publishes the novel spy thriller, Blueja publishes the novel by Hopper.

Since Heron publishes the novel spy thriller and Heron publishes the novel by Gorky, Gorky writes Spy thriller and Rathko writes Murder mystery.

19. **Answer:**

451 times.

**Explanation:**

There are 60 minutes in an hour.

In  $\frac{3}{4}$  of an hour there are  $(60 * \frac{3}{4})$  minutes = 45 minutes.

In  $\frac{3}{4}$  of an hour there are  $(60 * 45)$  seconds = 2700 seconds.

Light flashed for every 6 seconds.

In 2700 seconds  $2700/6 = 450$  times.

The count start after the first flash, the light will flashes 451 times in  $\frac{3}{4}$  of an hour.

20. **Answer:**

(4)

**Explanation:**

A                      P                      B

Since p is a point on the line segment AB,  $AB > AP$

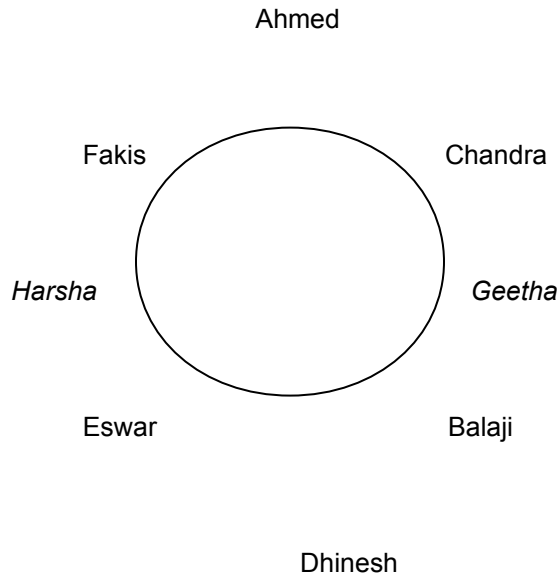
21. **Answer:** (c)

22. **Answer:** (b) & (d).

23 - 27. **Answer:**

28. **Answer:** Fakis

**Explanation:**



29. **Answer:**

(5).

**Explanation:**

Since every alternative letter starting from B of the English alphabet is written in small letter, the letters written in small letter are b, d, f...

In the first two answers the letter E is written in both small & capital letters, so they are not the correct answers. But in third and fourth answers the letter is written in small letter instead capital letter, so they are not the answers.

30. **Answer:**

$$x = 4$$

**Explanation:**

Since the side of the square is  $x + 2$ , its perimeter =  $4(x + 2) = 4x + 8$

Since the side of the equilateral triangle is  $2x$ , its perimeter =  $3 * 2x = 6x$

Also, the perimeters of both are equal.

$$(i.e.) \quad 4x + 8 = 6x$$

$$(i.e.) \quad 2x = 8 \rightarrow x = 4.$$

31. **Answer:**

$$(y - 2) / y.$$

**Explanation:**

To type a manuscript karthik took  $y$  hours.

Therefore his speed in typing =  $1/y$ .

He was called away after 2 hours of typing.

Therefore the work completed =  $1/y * 2$ .

Therefore the remaining work to be completed =  $1 - 2/y$ .

(i.e.) work to be completed =  $(y-2)/y$

32. **Answer:**

(2)

33. **Answer:**

1

**Explanation:**

One is the only number exists without reciprocal because the reciprocal of one is one itself.

34. **Answer:**

Sudhir had 39 cars, Arvind had 21 cars and Gauri had 12 cars.

**Explanation:**

	Sudhir	Arvind	Gauri
Finally	24	24	24
Before Gauri's transaction	12	12	48
Before Arvind's transaction	6	42	24
Before Sudhir's transaction	39	21	12

35. **Answer:**

Cost price of horse: Rs. 400 &

Cost price of cart: Rs. 200

**Explanation:**

Let x be the cost of horse & y be the cost of the cart.

10 % of loss in selling horse = 20 % of gain in selling the cart

Therefore  $(10 / 100) * x = (20 * 100) * y$

$$\rightarrow x = 2y \text{ -----(1)}$$

5 % of loss in selling the horse is 10 more than the 5 % gain in selling the cart.

Therefore  $(5 / 100) * x - 10 = (5 / 100) * y$

$$\rightarrow 5x - 1000 = 5y$$

Substituting (1)

$$10y - 1000 = 5y$$

$$5y = 1000$$

$$y = 200$$

$$x = 400 \quad \text{from (1)}$$

**Exercise 2.1**

For the following, find the next term in the series

1. 6, 24, 60, 120, 210

a) 336      b) 366      c) 330      d) 660

**Answer :** a) 336

**Explanation :** The series is 1.2.3, 2.3.4, 3.4.5, 4.5.6, 5.6.7, ..... ('.' means product)

2. 1, 5, 13, 25

**Answer :** 41

**Explanation :** The series is of the form  $0^2+1^2, 1^2+2^2, \dots$

3. 0, 5, 8, 17

**Answer :** 24

**Explanation :**  $1^2-1, 2^2+1, 3^2-1, 4^2+1, 5^2-1$

4. 1, 8, 9, 64, 25 (Hint : Every successive terms are related)

**Answer :** 216

**Explanation :**  $1^2, 2^3, 3^2, 4^3, 5^2, 6^3$

5. 8, 24, 12, 36, 18, 54

**Answer :** 27

6. 71,76,69,74,67,72

**Answer :** 67

7. 5,9,16,29,54

**Answer :** 103

**Explanation :**  $5*2-1=9$ ;  $9*2-2=16$ ;  $16*2-3=29$ ;  $29*2-4=54$ ;  $54*2-5=103$

8. 1,2,4,10,16,40,64 (Successive terms are related)

**Answer :** 200

**Explanation :** The series is powers of 2 ( $2^0, 2^1, \dots$ ).

All digits are less than 8. Every second number is in octal number system.

128 should follow 64. 128 base 10 = 200 base 8.

### **Exercise 2.2**

**Find the odd man out.**

1. 3,5,7,12,13,17,19

**Answer :** 12

**Explanation :** All but 12 are odd numbers

2. 2,5,10,17,26,37,50,64

**Answer :** 64

**Explanation :**  $2+3=5$ ;  $5+5=10$ ;  $10+7=17$ ;  $17+9=26$ ;  $26+11=37$ ;  $37+13=50$ ;  $50+15=65$ ;

3. 105,85,60,30,0,-45,-90

**Answer :** 0

**Explanation** :  $105-20=85$ ;  $85-25=60$ ;  $60-30=30$ ;  $30-35=-5$ ;  $-5-40=-45$ ;  $-45-45=-90$ ;

### Exercise 3

Solve the following.

1. What is the number of zeros at the end of the product of the numbers from 1 to 100?

**Answer** : 127

2. A fast typist can type some matter in 2 hours and a slow typist can type the same in 3 hours. If both type combinely, in how much time will they finish?

**Answer** : 1 hr 12 min

**Explanation** : The fast typist's work done in 1 hr =  $1/2$

The slow typist's work done in 1 hr =  $1/3$

If they work combinely, work done in 1 hr =  $1/2+1/3 = 5/6$

So, the work will be completed in  $6/5$  hours. i.e.,  $1+1/5$  hours = 1hr 12 min

3. Gavaskar's average in his first 50 innings was 50. After the 51st innings, his average was 51. How many runs did he score in his 51st innings. (supposing that he lost his wicket in his 51st innings)

**Answer** : 101

**Explanation** : Total score after 50 innings =  $50*50 = 2500$

Total score after 51 innings =  $51*51 = 2601$

So, runs made in the 51st innings =  $2601-2500 = 101$

If he had not lost his wicket in his 51st innings, he would have scored an unbeaten 50 in his 51st innings.

4. Out of 80 coins, one is counterfeit. What is the minimum number of weighings needed to find out the counterfeit coin?

**Answer** : 4

5. What can you conclude from the statement : All green are blue, all blue are red. ?

- (i) some blue are green
  - (ii) some red are green
  - (iii) some green are not red
  - (iv) all red are blue
- (a) i or ii but not both
  - (b) i & ii only
  - (c) iii or iv but not both
  - (d) iii & iv

**Answer :** (b)

6. A rectangular plate with length 8 inches, breadth 11 inches and thickness 2 inches is available. What is the length of the circular rod with diameter 8 inches and equal to the volume of the rectangular plate?

**Answer :** 3.5 inches

**Explanation :** Volume of the circular rod (cylinder) = Volume of the rectangular plate

$$\left(\frac{22}{7}\right) \cdot 4 \cdot 4 \cdot h = 8 \cdot 11 \cdot 2$$

$$h = \frac{7}{2} = 3.5$$

7. What is the sum of all numbers between 100 and 1000 which are divisible by 14 ?

**Answer :** 35392

**Explanation :** The number closest to 100 which is greater than 100 and divisible by 14 is 112, which is the first term of the series which has to be summed.

The number closest to 1000 which is less than 1000 and divisible by 14 is 994, which is the last term of the series.

$$112 + 126 + \dots + 994 = 14(8+9+ \dots + 71) = 35392$$



8. If  $s(a)$  denotes square root of  $a$ , find the value of  $s(12+s(12+s(12+ \dots$  upto infinity.

**Answer :** 4

**Explanation :** Let  $x = s(12+s(12+s(12+ \dots$

We can write  $x = s(12+x)$ . i.e.,  $x^2 = 12 + x$ . Solving this quadratic equation, we get  $x = -3$  or  $x=4$ . Sum cannot be -ve and hence sum = 4.

9. A cylindrical container has a radius of eight inches with a height of three inches. Compute how many inches should be added to either the radius or height to give the same increase in volume?

**Answer :** 16/3 inches

**Explanation :** Let  $x$  be the amount of increase. The volume will increase by the same amount if the radius increased or the height is increased.

So, the effect on increasing height is equal to the effect on increasing the radius.

$$\text{i.e., } (22/7)*8*8*(3+x) = (22/7)*(8+x)*(8+x)*3$$

Solving the quadratic equation we get the  $x = 0$  or  $16/3$ . The possible increase would be by  $16/3$  inches.

10. With just six weights and a balance scale, you can weigh any unit number of kgs from 1 to 364. What could be the six weights?

**Answer :** 1, 3, 9, 27, 81, 243 (All powers of 3)

11. Diophantus passed one sixth of his life in childhood, one twelfth in youth, and one seventh more as a bachelor; five years after his marriage a son was born who died four years before his father at half his final age. How old is Diophantus?

**Answer :** 84 years

**Explanation :**  $x/6 + x/12 + x/7 + 5 + x/2 + 4 = x$

12 . If time at this moment is 9 P.M., what will be the time 23999999992 hours later?

**Answer :** 1 P.M.

**Explanation :** 24 billion hours later, it would be 9 P.M. and 8 hours before that it would be 1 P.M.

13. How big will an angle of one and a half degree look through a glass that magnifies things three times?

**Answer :** 1 1/2 degrees

**Explanation :** The magnifying glass cannot increase the magnitude of an angle.

14. Divide 45 into four parts such that when 2 is added to the first part, 2 is subtracted from the second part, 2 is multiplied by the third part and the fourth part is divided by two, all result in the same number.

**Answer:** 8, 12, 5, 20

**Explanation:**  $a + b + c + d = 45$ ;  $a+2 = b-2 = 2c = d/2$ ;  $a=b-4$ ;  $c = (b-2)/2$ ;  $d = 2(b-2)$ ;  
 $b-4 + b + (b-2)/2 + 2(b-2) = 45$ ;

15. I drove 60 km at 30 kmph and then an additional 60 km at 50 kmph. Compute my average speed over my 120 km.

**Answer :** 37 1/2

**Explanation :** Time reqd for the first 60 km = 120 min.; Time reqd for the second 60 km = 72 min.; Total time reqd = 192 min

$$\text{Avg speed} = (60 \times 120) / 192 = 37 \frac{1}{2}$$

*Questions 16 and 17 are based on the following :*

Five executives of European Corporation hold a Conference in Rome

Mr. A converses in Spanish & Italian

Mr. B, a Spaniard, knows English also

Mr. C knows English and belongs to Italy

Mr. D converses in French and Spanish

Mr. E, a native of Italy knows French

16. Which of the following can act as interpreter if Mr. C & Mr. D wish to converse

- a) only Mr. A    b) Only Mr. B    c) Mr. A & Mr. B    d) Any of the other three

**Answer :** d) Any of the other three.

**Explanation :** From the data given, we can infer the following.

A knows Spanish, Italian

B knows Spanish, English

C knows Italian, English

D knows Spanish, French

E knows Italian, French

To act as an interpreter between C and D, a person has to know one of the combinations Italian&Spanish, Italian&French, English&Spanish, English&French

A, B, and E know atleast one of the combinations.

17. If a 6th executive is brought in, to be understood by maximum number of original five he should be fluent in

a) English & French    b) Italian & Spanish    c) English & French    d) French & Italian

**Answer :** b) Italian & Spanish

**Explanation :** No of executives who know

i) English is 2

ii) Spanish is 3

iii) Italian is 3

iv) French is 2

Italian & Spanish are spoken by the maximum no of executives. So, if the 6th executive is fluent in Italian & Spanish, he can communicate with all the original five because everybody knows either Spanish or Italian.

18. What is the sum of the first 25 natural odd numbers?

**Answer :** 625

**Explanation :** The sum of the first n natural odd nos is square(n).

$$1+3 = 4 = \text{square}(2) \quad 1+3+5 = 9 = \text{square}(3)$$

19. The sum of any seven consecutive numbers is divisible by

- a) 2 b) 7 c) 3 d) 11

### **Exercise 3**

**Try the following.**

1. There are seventy clerks working in a company, of which 30 are females. Also, 30 clerks are married; 24 clerks are above 25 years of age; 19 married clerks are above 25 years, of which 7 are males; 12 males are above 25 years of age; and 15 males are married. How many bachelor girls are there and how many of these are above 25?

2. A man sailed off from the North Pole. After covering 2,000 miles in one direction he turned West, sailed 2,000 miles, turned North and sailed ahead another 2,000 miles till he met his friend. How far was he from the North Pole and in what direction?

3. Here is a series of comments on the ages of three persons J, R, S by themselves.

S : The difference between R's age and mine is three years.

J : R is the youngest.

R : Either I am 24 years old or J 25 or S 26.

J : All are above 24 years of age.

S : I am the eldest if and only if R is not the youngest.

R : S is elder to me.

J : I am the eldest.

R : S is not 27 years old.

S : The sum of my age and J's is two more than twice R's age.

One of the three had been telling a lie throughout whereas others had spoken the truth. Determine the ages of S,J,R.

4. In a group of five people, what is the probability of finding two persons with the same month of birth?
5. A father and his son go out for a 'walk-and-run' every morning around a track formed by an equilateral triangle. The father's walking speed is 2 mph and his running speed is 5 mph. The son's walking and running speeds are twice that of his father. Both start together from one apex of the triangle, the son going clockwise and the father anti-clockwise. Initially the father runs and the son walks for a certain period of time. Thereafter, as soon as the father starts walking, the son starts running. Both complete the course in 45 minutes. For how long does the father run? Where do the two cross each other?
6. The Director of Medical Services was on his annual visit to the ENT Hospital. While going through the out patients' records he came across the following data for a particular day :  
" Ear consultations 45; Nose 50; Throat 70; Ear and Nose 30; Nose and Throat 20; Ear and Throat 30; Ear, Nose and Throat 10; Total patients 100." Then he came to the conclusion that the records were bogus. Was he right?
7. Amongst Ram, Sham and Gobind are a doctor, a lawyer and a police officer. They are married to Radha, Gita and Sita (not in order). Each of the wives have a profession. Gobind's wife is an artist. Ram is not married to Gita. The lawyer's wife is a teacher. Radha is married to the police officer. Sita is an expert cook. Who's who?
8. What should come next?

1, 2, 4, 10, 16, 40, 64,

*Questions 9-12 are based on the following :*

Three adults – Roberto, Sarah and Vicky – will be traveling in a van with five children – Freddy, Hillary, Jonathan, Lupe, and Marta. The van has a driver's seat and one passenger seat in the front, and two benches behind the front seats, one bench behind the other. Each bench has room for exactly three people. Everyone must sit in a seat or on a bench, and seating is subject to the following restrictions: An adult must sit on each bench.

Either Roberto or Sarah must sit in the driver's seat.

Jonathan must sit immediately beside Marta.

9. Of the following, who can sit in the front passenger seat ?
- (a) Jonathan    (b) Lupe    (c) Roberto    (d) Sarah    (e) Vicky
10. Which of the following groups of three can sit together on a bench?
- (a) Freddy, Jonathan and Marta    (b) Freddy, Jonathan and Vicky
- (c) Freddy, Sarah and Vicky    (d) Hillary, Lupe and Sarah
- (e) Lupe, Marta and Roberto
11. If Freddy sits immediately beside Vicky, which of the following cannot be true ?
- a. Jonathan sits immediately beside Sarah
- b. Lupe sits immediately beside Vicky
- c. Hillary sits in the front passenger seat
- d. Freddy sits on the same bench as Hillary
- e. Hillary sits on the same bench as Roberto
12. If Sarah sits on a bench that is behind where Jonathan is sitting, which of the following must be true ?
- a. Hillary sits in a seat or on a bench that is in front of where Marta is sitting
- b. Lupe sits in a seat or on a bench that is in front of where Freddy is sitting
- c. Freddy sits on the same bench as Hillary
- d. Lupe sits on the same bench as Sarah
- e. Marta sits on the same bench as Vicky
13. Make six squares of the same size using twelve match-sticks. (Hint : You will need an adhesive to arrange the required figure)
14. A farmer has two rectangular fields. The larger field has twice the length and 4 times the width of the smaller field. If the smaller field has area  $K$ , then the area of the larger field is greater than the area of the smaller field by what amount?
- (a)  $6K$     (b)  $8K$     (c)  $12K$     (d)  $7K$

15. Nine equal circles are enclosed in a square whose area is 36sq units. Find the area of each circle.

16. There are 9 cards. Arrange them in a 3\*3 matrix. Cards are of 4 colors. They are red, yellow, blue, green. Conditions for arrangement: one red card must be in first row or second row. 2 green cards should be in 3<sup>rd</sup> column. Yellow cards must be in the 3 corners only. Two blue cards must be in the 2nd row. At least one green card in each row.

17. Is z less than w? z and w are real numbers.

(I)  $z^2 = 25$

(II)  $w = 9$

To answer the question,

a) Either I or II is sufficient

b) Both I and II are sufficient but neither of them is alone sufficient

c) I & II are sufficient

d) Both are not sufficient

18. A speaks truth 70% of the time; B speaks truth 80% of the time. What is the probability that both are contradicting each other?

19. In a family 7 children don't eat spinach, 6 don't eat carrot, 5 don't eat beans, 4 don't eat spinach & carrots, 3 don't eat carrot & beans, 2 don't eat beans & spinach. One doesn't eat all 3. Find the no. of children.

20. Anna, Bena, Catherina and Diana are at their monthly business meeting. Their occupations are author, biologist, chemist and doctor, but not necessarily in that order. Diana just told the neighbour, who is a biologist that Catherina was on her way with doughnuts. Anna is sitting across from the doctor and next to the chemist. The doctor was thinking that Bena was a good name for parent's to choose, but didn't say anything. What is each person's occupation?