Problem Solving and Data Interpretation Aptitude Test

Help Book

Tips and the Formulae List

For the series questions i.e., the number series/picture series/alphabet series, find (or) establish the relationship between the first two sequences or for the odd and the even sequences, then apply it continuously.

- $Area\ of\ triangle = \frac{1}{2} \times base \times height$
- $Area\ of\ circle = \pi r^2$
- $Perimeter\ of\ circle = 2\pi r$
- $Area\ of\ square = side \times side$
- $Volume\ of\ square = side \times side \times side$
- *Pythagoras theorem :*
  $H^2 = A^2 + O^2$
- $Volume\ of\ rectangle = length \times breadth \times height$
- $Area\ of\ rectangle = length \times breadth$
- $Area\ of\ Sphere = 4\pi r^2$
- $Volume\ of\ Sphere = \frac{4}{3}\pi r^3$
- $Area\ of\ Cylinder = 2\pi rh$
- $Area\ of\ Trapezium = \frac{1}{2}(a+b) \times h$
- *For the Pictogram questions understand the key for the pictogram then apply it.*
- *For average calculations,* $Average = \frac{A+B+C}{3}$
  Sum of all the data's divided by the total number of data's added.

- *For the ratio calculations the calculation the formula is*

  $$Ratio = \frac{A}{B}$$

- *For Percentage Calculations* $Percentage = \frac{A}{B} \times 100$
- *For Mean Calculations,* $Mean = \frac{A + B + C}{3}$
- *For Mode Calculations, the number of data's occurring for maximum number of times. If two data's are repeated for same number of times then both are the mode and if none of the data's are repeated more than once then it has no mode.*
- *For Median Calculations, arrange the number in increasing order and cancel the number at the left extreme and the right extreme one by one. If one number is left it is the median and if two numbers are left behind, the average of it will be the median.*
- *For the two dimensional graphical questions, follow the coordinates in both the X axis and the Y axis with the same intervals. The intervals should not be changed in an axis.*
- *The formula linking the total number, % Value and its Number (% Number)*

  $$\%\ Number = \frac{\%\ Value}{100} \times Total Number$$

- *For the change in Percentage i.e.,*

  $$Increase\ in\ Percentage = \frac{Bigger\ Value - Smaller\ Value}{Smaller\ Value} \times 100$$

  $$Decrease\ in\ Percentage = \frac{Bigger\ Value - Smaller\ Value}{Bigger\ Value} \times 100$$

- *Formula for Physics Problems:*

$Distance - S; Displacement - \vec{S}$

$Speed - v; InitialVelocity - \vec{u}; FinalVelocity - \vec{v}$

$Acceleration(Increasing\ Velocity) - \vec{a};$

$Deceleration/Retardation(Decreasing\ Velocity) - \vec{a};$

$$Speed(v) = \frac{distance(s)}{time(t)}; velocity(\vec{v}) = \frac{displacement(\vec{s})}{time(t)}$$

$$acceleration(\vec{a}) = \frac{\vec{v} - \vec{u}}{t}\ averagespeed = \frac{s_2 - s_1}{t_2 - t_1}$$

- *Conversion of value from one system to another system;*
- *The sum of the interior angles in the triangle is 180^0 and in the quadrilateral is 360^0.*
- *Rational numbers, Irrational numbers.*
- *Problems on Permutations and Combinations ${}^nC_r$, ${}^nP_r$.*
- *Questions on Economics and English synonyms...*
- *Problems on Inequalities (like conditions n > 2 > m).*
- *Questions on line numbers.*
- *Unscrambling the letters for framing the word*
- *Questions on relationships (Father , Mother, Uncle, Aunt, Niece, Nephew ,Brother, Sister….)*
- *Problems on Probability;* $P(A) = \frac{n(A)}{n(S)}$
- *Questions on G.P* $t_n = ar^{n-1}$
- *For calculating the sum of the nth term by using A.P.*

  $$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$
- *Conversion from one system to another system.*

$$1\frac{km}{hr} = \frac{5}{18}\,m/\sec$$

$$\frac{18}{5}\frac{km}{hr} = 1\,m/\sec$$

$$1km = 1000m$$

$$\frac{1}{1000}km = 1m$$

$$1m = 100cm$$

$$\frac{1}{100}m = 1cm$$

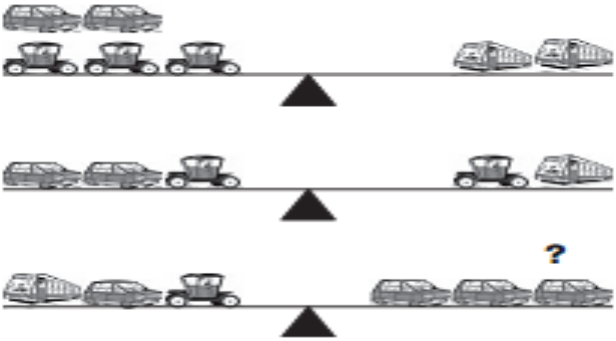
- *The total angle made in the Pie Chart/ Circle Graph is 360^0.*
- $\Pr ofit\% = \frac{Actual\ \Pr ofit}{Cost\ \Pr ice} \times 100\%$
- $SimpleInterest = \frac{PRT}{100}$

DATA INTERPRETATION

Types of Questions:

1. Questions on Picture series, Number series, Alphabet series.
2. Finding the missing letters, Numbers, Types of Numbers.
3. Unscramble the letters to frame the word.
4. Finding the odd one out from the given series.
5. Logical Questions.
6. Problems on Mean, Median and Mode.
7. Problems on basic formula such as Area of Triangle, Circle, Cylinder, Square, Rectangle, Parallelogram, Trapezium (Including Volume and Perimeter)
8. Problems on Pythagoras Theorem.
9. Problems on Average Calculations and General expressions.
10. Problems related to Bar graph, Pie Chart (Circle Graph), Histogram, Plot chart, Line graph, Pictograph, Double Bar.
11. Problems related to Ratio.
12. Percentage Calculations.
13. Increase (Rise in) (Change) Percentage calculations.
14. Decrease (fall in) (Change) Percentage calculations.
15. Problems on comparing data's and on difference between two values.
16. Problems on Physics such as Speed, Average Speed, Velocity, Average Velocity, Acceleration and Retardation.
17. Finding the co-ordinates in the graph.
18. Determining the Total value (Number) and Number related to the percentage.
19. Conversion of the units from one system to another system. (Example C.G.S to S.I system)
20. Problems on Venn diagram, Intersection, Union sets.
21. Questions on frequency (number of occurrence)
22. Problems on Line number.

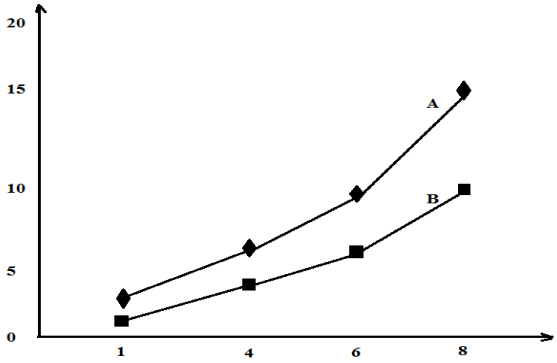
1. Which Figure should come in place of Question Mark to make the Beam Balance?



A. CAR **B.** BUS **C**.JEEP **D**.NONE

Ans: C.JEEP(Hint: 1 Bus is equal to 2 cars from second picture)

2. Which of the following relationships would likely produce line A & Line B?



i. Sales & Production

ii. Exercise& Body Weight

iii. Working hours & payment iv. Speed & travel time

A.i& ii **B**. i& iii **C**. ii & iii **D**. ii &iv.

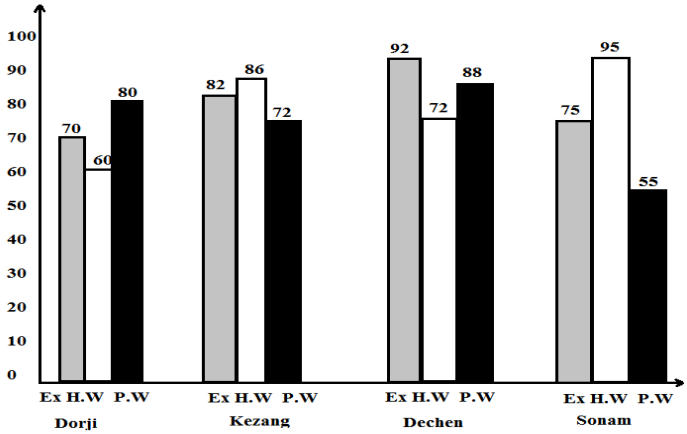
Answer:D. ii &iv

3. Find the missing number in figure.

A. 5 **B.** 2 **C.** 1 **D.** 0

Answer: D. 0

The following below graph shows mark obtained by students in 3 different types of assessments in the school. Each assessment is marked out of 100. However, at the end of academic session, the teacher sees following weightage to calculate the actual marks scored by each student: Exam-50%, Homework-20%, & Project 30%



4. Which student scored the marks with the least variation in their assessment?
A. DORJI B. KEZANG C. DECHEN D. SONAM

Answer: KEZANG

5. What is the actual mark obtained by Dorji at the end of academic session?
A. 65 **B.**74 **C**.70 **D**.71

Answer:D. 71

$$\textbf{Marks Obtained} = 50\% \textit{ of } 70 + 20\% \textit{ of } 60 + 30\% \textit{ of } 80 = 35 + 12 + 24 = 71$$

6. What is the ratio of average marks scored by Dorji to the average marks scored by Kezang in their 3 assessments?

A. 7 :8 **B.**3 : 2 **C.**5 : 6 **D.**6 : 7

Answer:A. 7 : 8

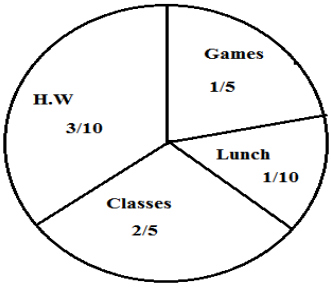
$$Ratio = \left(\frac{70+60+80/3}{82+86+72/3}\right) = \left(\frac{210/3}{240/3}\right) = \frac{7}{8}$$

The pie chart given below shows how Ms. Pema, a trainee of National Institute of Education at Paro, spends her time as week days.

7. What percentage of time Ms. Pema spends as attending her classes & doing Homework, in a day?

A. 40% **B**. 70%

C. 50% **D.** 60%



Answer: B. 70%

$$\%\ of\ H.W + \%\ of\ Classes = \frac{3}{10} \times 100 + \frac{4}{10} \times 100$$

$$= 30\% + 40\% = 70\%$$

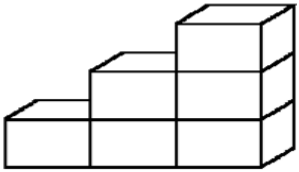
8. If the total time spend in a day by Ms. Pema is calculated from 6:00 Am to 6:00 PM with 20% spent on games, how many hours & minutes she spends in playing games?

A. 2hrs 24 mins **B**. 2hrs 40 mins

C. 2hrs 30 mins **D.** 2hrs 4 mins

Answer:A. 2 hrs 24 mins

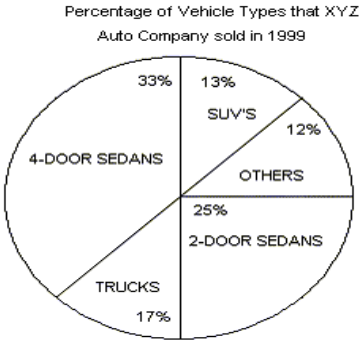
9. Use the diagram below for answering the question



How many cubes do you need to make the steps 8 steps high?

A. 20 cubes **B.** 30 cubes **C.** 28 cubes **D.** 36 cubes

Answer: D. 36 cubes (Hint: For every picture the number of steps increase by 1 $(1+2+3+4+5+6+7+8)$



10. If XYZ Auto Company sold 23,000 vehicles in 1999, how many were SUV's?

A. 2,990 **B.** 3,030 **C.** 3,450 **D.**4,760

Answer:A.2990

$$13\% \text{ of } 23000 = \frac{13}{100} \times 23000 = 2990$$

11. If 7,650 trucks were sold in 1999, how many total vehicles were sold in 1999 by XYZ Auto Company?

A. 35,000 **B.** 40,000 **C.** 45,000 **D.** 50,000

Answer: C. 45,000

Let the total vehicles be sold = *x*

$$7650 + 83\% \; of \; x = x$$

$$\Rightarrow x - 0.83x = 7650 \Rightarrow 0.17x = 7650 \Rightarrow x = \frac{7650}{0.17} = 45000$$

If 3,750 2-door sedans were sold in 1999, then how many 4-door sedans were sold in 1999 by XYZ Auto Company?

A. 3578 **B.** 4950 **C.** 5120 **D.** 5845

$$25\% \text{ of } x = 3750 \Rightarrow 0.25 \times x = 3750 \Rightarrow x = \frac{3750}{0.25} = 15000$$

Answer:B. 4950

4-door sedans were sold in 1999

$$33\% \text{ of } 15000 = \frac{33}{100} \times 15000 = 4950$$

12. There are 12 more apples than oranges in a basket of 36 apples & oranges. How many apples are in the basket?

A. 12 **B.** 24 **C.** 28 **D**. 36

Answer:B. 24

Let the oranges be'x" and the apples in basket is 12 + x

No of Apples + No of oranges = 36

12 + x + x = 36

12 + 2x = 36

2x = 36 - 12

2x = 24

x = 12

No of apples = x + 12 = 12 + 12 = 24

13. If $n > 0$, which of the following expression could have value less than 'n'?

i. 2n ii. n^2 iii.2-n

A.i& ii **B**. i& iii **C.**iii **D.** All

Answer:C. iii

14. Look at the series: 2, 5, 10, 13, 18, 21… &… fill the next two numbers?

A. 26, 29 **B.** 24, 29 **C**. 26, 31 **D**. 24, 27

Answer: C. 26, 29

2,5,10,13,18,21,.....&.....

*2,+**3** = 5,+**5** = 10,+**3** = 13,+**5** = 18,+**3** = 21,+**5** = 26,+**3** = 29*

Use the table given below for answering the questions following.

Sl.no	Region	%Change from 2011 to 2012	% change from 2012 to 2013
1	Thimphu	+10	+20
2	Bumthang	-8	+10
3	Gelephu	+10	-10
4	S/jongkhar	-5	-10

The table shows the annual % change in revenue of Bhutan collection from vehicle registration at four different regions from 2011 to 2013.

15. If the annual revenue collection from Gelephu region was Nu. 50 million in 2011, what was the annual revenue collection for the same region in 2013.

A. Nu.50.0million **B.** Nu.60.0million

C.Nu.49.5million **D**.Nu.50.5million

Answer: C. 49.5 million

For 2012 , + 10 %
i.e., in 2012 = 50million + 10%of50million = 50million + 5million
in 2012 = 55million
in 2013, - 10 %
i.e., in 2013 = 55million - 10% of 55 million = 55million - 5.5 million
in 2013 = 49.5 million

16. Assuming that the annual revenue collection in 2011 is Nu. 100m at Thimphu region, what is the percentage of the annual revenue of 2012 with that of the annual revenue of 2013 for the same region?

A. 76% **B.** 83% **C.** 91% **D.** 85%

Answer: B.83%

In 2012 for Thimphu region = 100 million + 10% of 100 million
= 100million + 10 million = 110 million
In 2013 for Thimphu region = 110 million + 20% of 110 million
= 110million + 22 million = 132 million

$$Percentage = \frac{110million}{132million} \times 100 = 83.33\%$$

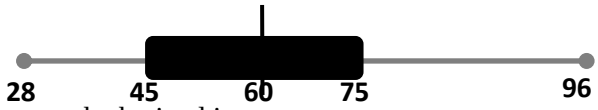
17.Which region has seen decrease in annual revenue collection for 2 consecutive years?

A.Thimphu **B.**Phuentsholing

C. Gelephu **D.** S/jongkhar

Answer:D. S/jongkhar

18. The box and whisker plot shows the spread of % marks of the 1000 students of a higher secondary school in the last BHSEC examination.



The median mark obtained is

A 45 **B** 75 **C** 60 **D** none

Ans: (C) 60

The following table shows number of Bhutanese Students who attained the given Band score on IELTS exam, so that they can go & study in Australian Universities.

No.of students	Band Score
4	5.5
9	6
10	6.5
9	7
8	8

19. What is the mean band score obtained by the students who appeared for IELTS exam?

A. 6.6 **B.** 6.7 **C.** 6.8 D.6.9

Answer: A. 6.6

$$Mean = \frac{5.5+6+6.5+7+8}{5} = 6.6$$

20. If the above band score is calculated within 29-40 marks obtained in the exam with two units interval & one student scored 36 marks, what is his band score?

A. 6.5 **B**. 8.0 **C**. 7.0 **D**.6.0

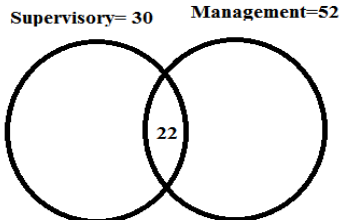
Answer: C. 7.0

21. In the given series $D^{2}MO$, $E^{1}NV$, $F^{1/2}OW$, $G^{1/4}PX$… Identify the next

A. $H^{1/6}Ry$ **B.** $H^{1/6}QY$ **C.** $H^{1/8}RY$ **D.** $H^{1/8}QY$

Answer: $H^{1/8}QY$

Following Venn diagram shows applications received by RCSC for recruitment of contract employees in two different positions. It is observed that some potential candidates have applied for both the position. Accordingly, the number of applicants is contacted for each position as shown in diagram.



22. In total, how many candidates have applied for the positions?

A. 82 **B.** 60 **C.** 22 **D.** 104

Answer: B. 60

Total number = 8 in supervisory + 22 in both + 30 in Management = 60

How many candidates have applied only for one of the position?

A. 8 **B.** 22 **C.** 30 **D.** 38

Answer: D. 38

23. How many different groups of 2 persons can be formed from these four persons: P_1, P_2, P_3, P_4?

A. 10 **B**. 8 **C**. 6 **D**. 12

Answer: C. 6

24. A pair coin is tossed in the air 2times.

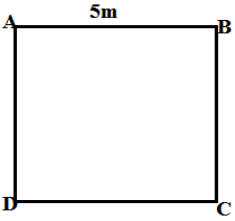
Left	Right
Chances of getting two heads	Chances of getting no heads

Which quantity is greater?

A. Equal **B**. Left is greater

C. Right is greater **D.**Cannot be determined

Answer: A Equal



Use the diagram below and answer the questions

25. Which among the following represents the area ?

A.$35m^2$ **B.** $25m^2$ **C.** $10m^2$ **D.** $5m^2$

Answer:B. 25 m^2

26. What is the perimeter of the above square?

A.10m **B.** 15m **C.** 20m **D.** 5m

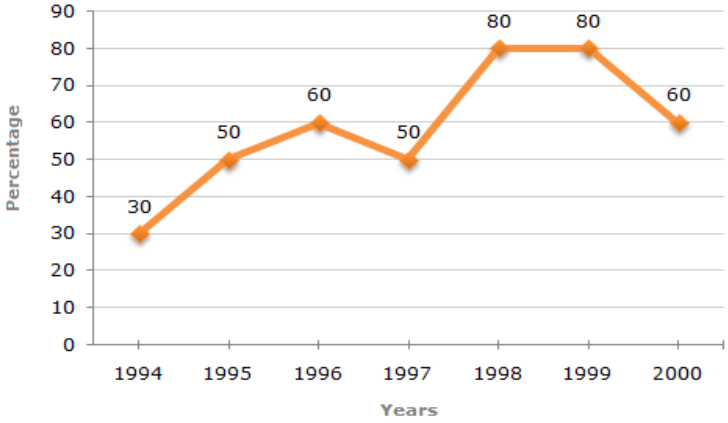
Answer: C.20 m

27. Tshering took a quiz with five friends. They each scored: 8 points, 7 points, 9 points, 4 points, 7 points,. What is their mode score?

A. 8 **B.** 7 **C.** 9 **D.** 4

Answer: B. 7

The following line graph gives the percentage of the number of candidates who qualified an examination out of the total number of candidates who appeared for the examination over a period of seven years from 1994 to 2000.



28. The difference between the percentages of candidates qualified to appeared was maximum in which of the following pairs of years?

A. 1994 and 1995 **B.** 1997 and 1998

C. 1998 and 1999 **D.** 1999 and 2000

Answer:B. 1997 & 1998

For 1994 and 1995 = 50 - 30 = 20.

For 1998 and 1999 = 80 - 80 = 0.

For 1997 and 1998 = 80 - 50 = 30.

For 1999 and 2000 = 80 - 60 = 20.

Thus, the maximum difference is between the years 1997 and 1998.

29. If the number of candidates qualified in 1998 was 21200, what was the number of candidates appeared in 1998?

A.32000 **B.** 28500 **C.**26500 **D.** 25000

Answer:C. 26500

The number of candidates appeared in 1998 be *x*.

Then, 80% of *x* = 21200

$$\Rightarrow \left(\frac{80}{100}\times x\right) = 21200 \Rightarrow x = \frac{21200\times 100}{80} = 26500$$

31. If Kuenga uses 40% of his time for recreation, the measurement of angle in the pie chart for recreation is

A. 11.1^0 **B.** 36^0 **C.** 54^0 **D.** 144^0

Answer:D. 144^0

For 100% $\rightarrow 360^0$

For 40% $\rightarrow 40\times\frac{360^0}{100} = 144^0$

32. A list of 5 pulse rates is: 70, 64, 80, 74, 92. What is the median for this list?

A 74 **B** 76 **C** 77 **D** 80

Answer: A. 74

The middle value after arranging the data in ascending order:

64, 70, **74**, 80, 92

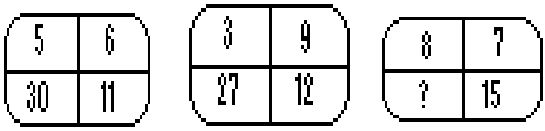
33. The following is the number of problems that Ms. Manisha assigned for homework on 10 different days. What is the mode?

8, 11, 9, 14, 9, 15, 18, 6, 9, 10

A. 8 **B.** 10 **C.** 9 **D.** 14

Answer:C. 9 (Hint: the score which occurs most often)

34. What should come in place of the question mark?



A. 52 **B** 56 **C.** 48 **D.** 60

Answer:B. 56 Hint: The upper digits multiply and add to form lower left half and lower left half numbers of the ellipse.

Fig:1: $5\times 6=30, 5+6=11$ Fig;2: $7\times 4=28, 4+7=11$

Fig:3: $7\times 8=56, 7+8=15$

35. Complete the series $11^2, 15^2, 19^2, 23^2$.....

A. 24^2 **B.** 25^2 **C.** 26^2 **D.** 27^2

Answer: 27^2

36. In each of the following questions, there are nine, twelve or sixteen cells in each square each with certain number or letter, with one with a question mark. In accordance with a particular rule eight , eleven or fifteen cells of each square have been filled. Pick from the answer choices the number or letter which will replace the question mark in the blank space according to the rule.

A. 12 **B.** 14

B. C. 18 **D.**10

Answer:D. 10

4	**10**	**16**
6	**12**	**18**
8	**?**	**20**

Solution: Horizontally, each figure increases by 6, and, vertically it increases by 2.

37.

14	**7**	**56**
21	**X**	**59**
28	**35**	**?**

A. 25 **B**. 30 **C.** 42 **D.**30

Answer: C.42

Solution: Each time 7 is added as we move in anticlockwise direction.

38.

A. A **B. D**

B. C. C **D.** F

S	**Q**	**O**
M	**K**	**I**
G	**E**	**?**

Answer : C. C

Solution: In each row the alternate letters run in reverse direction. i.e., S (r) Q (p) O ; G (f) E (d) C

39. 285, 253, 221, 189, ...*Complete the sequence*

A. 150 **B.** 182 **C.** 157 **D.** 156

Answer: C. 157 Solution: The numbers decrease by 32 at each step.

40. Which letter is midway between 22nd letter from original sequence and 21st letter from the reverse side?

A. L **B.** M **C.** O **D.** None of these

Answer: D. None of these

Solution: 22nd letter from the left is V and 21st from the right is F. The midway between F and V is N.

41. "To be angry with the Right Person, to the right degree, at the right time, for the right purpose, and in the right way", in your view , is a/an:

A. Outstanding quality of the man's character.
B. Wish with everyone but difficult to fulfill.
C. Rare skill with an emotionally intelligent person.
D. God-gifted attribute of personality.

Answer: C. Rare skill with an emotionally intelligent person

42. Now that education has been declared a fundamental right in our country, what, in your opinion , should the government need not necessarily do?

A. open new schools. Bprovide incentives to parents.
C. Allocate more funds for education.
D. Update the syllabi and produce quality curriculum.

Answer:B provide incentives to parents

43. Five young college girls are sitting in a row. A is to the right of B; E is the left of B; but to the right of C. If A is left of D, who is in the middle?

A. E B. B C. A D.C

Answer: B. B Solution: **C E B A D**

44. Six animals are placed in a circle facing the centre. Cat is between Dog and Rabbit. Hen, which is to the intermediate right of parrot, is not Adjacent to the Dog. Which animal is on the intermediate right of Dog?

A. Monkey B. Cat C. Parrot D. Data inadequate

Answer:D. Data inadequate

Solution; First make a circle with six points and place cat, dog and rabbit on three points. Now place the other animals at the requisite points. All we know is

that hen is not adjacent to the dog. This leaves parrot and monkey. Since nothing is given about the monkey, so data are inadequate to solve the question.

45. In a queue, Aruna is the 10^{th} From the front while Shakti is the 25^{th} from behind. Marry is in the middle of the two. If there are 50 people in a queue, what position does Marry occupy from the front?

A. 17^{th} **B**. 18^{th} **C**.19^{th} **D**. 20^{th}

Answer: B. 18^{th}

Solution: Shakti's position is 26^{th} from front and Aruna at 10^{th}. There are 10+8=18 people in front.

46. When 80 is added to 80% of a number, the resultant number is itself. Name the number.

A. 160 **B**. 80 **C**.400 **D**.480

Answer:C. 400

47. If 70% of students in a school are boys and the number of girls is 483, what is the number of boys?

A.1150 **B**. 1127 **C.** 1247 **D**.1617

Answer: B. 1127

48. It takes 30 hours for 12 machines to print a job. In how many hours will 16 machines finish the same job?

A .25 ½ **B**. 22 ½ **C**. 34 **D**. None of these

Answer: B. 22 ½

49. If xyz is=240, which of the following cannot be the value of Y?

A. 0 **B.**2 **C.**5 **D.**3

Answer : A. 0

Solution: The product of zero with any whole number is zero. if y is zero, xyz is not equal to 240.

50. There are 27 students in a chemistry class and 22 in a physics class. Seven of these students are common to both the classes. What is the ratio of the number of students taking only physics to those taking chemistry?

A. 3:4 B. 4:3 C. 7:6 D.22:27

Answer: A. 3:4

Solution: Observe that 7 students take both chemistry and physics ; 20 students take chemistry only and 25 students physics only. The ratio of those taking Physics only to those taking chemistry only is 15/20 or ¾ =3:4.

51. At a luncheon table only 12 men are seated, one half of the men belong to club A , one third belong to Club B and the one fourth belong to both clubs. How many of them belong to neither?

A.3 B.4 C. 5 D. 6

Answer C. 5

Solution: ½ of 12 (or 6) belong to group A but 3 of these seat belong to both the group A and B.1/3 of 12 (or 4) belong to Club B but of these 3 also belong to group A. So far only 7 men have been accounted for. So, 5 men belong to neither group.

52. Think of a number. Increase it by 6. To the 1/3 of what you got add 8. The answer is 11, the number is:

A. 3 B. 6 C. 4 D. 7

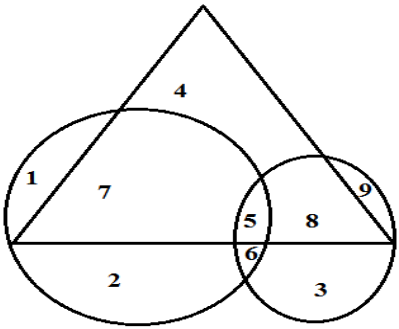
Answer:A. 3

53. Which of the following numbers shall reflect exactly the same when put before a mirror?

A. 1801 B. 1081 C. 1881 D. 1961

Answer: C. 1881

54. From the above figure, the triangle represents female graduates, small



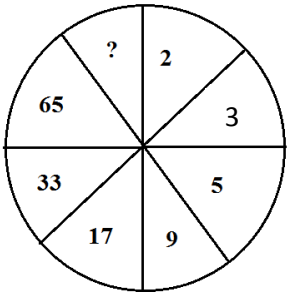
circle represents self employed females, and the big circle represents self employed with bank loan facility. How many graduates are self employed?

A. 12 **B.** 13.

C. 20 **D.**15

Answer: B. 13

55. Insert the missing number

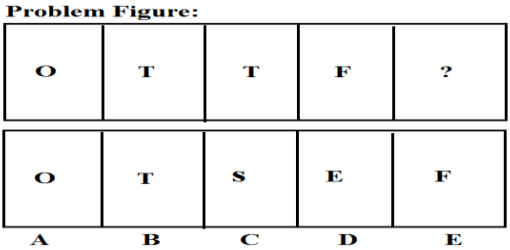


A. 129 **B.** 136.

C. 78 **D.34**

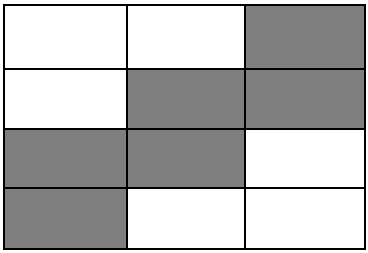
Answer: A.129

56. Answer from the following figure:



Answer: E. F

57. The maximum number of squares in the following is:



A. 14 **B**.13

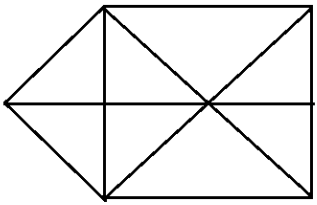
C.10 **D**.9

Answer: A. 14

58. How many triangles are there in the figure given below?

15 **B**.16

22



C.17 **D**.18

Answer: C. 17

59. Find the value of x in the following:

9	**1**	**25**	**64**
16	**4**	**X**	**81**
25	**9**	**49**	**100**

A. 36 B. 121 C. 25 D. 49

Answer:A. 36

60. Which of the following pair is odd?

A.Oil, Bottle **B.** Letter and Postman
C. Arrow and Quiver **D**. Mercury and Barometer
Answer: B. Letter and Postman

61. If the third Saturday in the month is 21st , what will be the date 3 days before the second Wednesday?

A. 8 **B**. 14 **C**. 9 **D.** 16
Answer :A. 8

62. Find the odd one out.
A. Rice **B**. Jute **C**. Millet **D**. Wheat

Answer :B. Jute

63. Indicate the smallest numbers of ducks that could swim in the information: 'two ducks in front of the duck, two ducks behind a duck and a duck between two ducks'.
A. 3 **B**. 4 **C**. 5 **D.** 7

Answer :A. 3

64. If 5 and 8, 3 and 9, 2 and 1, and 4 and 6 exchange their values. What will be the value of 315269

A. 928243 **B**. 928143 **C**. 928343 **D**. 984213

Answer :B. 928143

65. The average of a, b and c is 50. If d =10, what will be the total average of a,b,c and d?

A.15 **B**.30 **C**.60 **D**.40

Answer:D. 40

66. One fine morning, Harish left home and cycled 10 km southwards: he turned right and cycled 5 km and turned right and cycled 10 km and turned left and cycled 10 km. how many km did he have to cycle to reach straight?

A. 10km **B**. 15km **C**. 20km **D**. 25km

Answer: B. 15 km

67. While a train is running at 60 km/h, and a car is speeding at 100 m per second, which of the two is faster?

A. The train **B**. The Car

C. both are processing at the same speed **D** .Impossible to determine

Answer: B. The Car

Final Results Matrix of an intercollegiate Football League-2003-2004

Team	Matches won	Matches Lost	Matches Drawn	Goals Scored	Goal conceded
A	2	Nil	3	8	6
B	3	Nil	2	7	6
C	Nil	3	2	4	10
D	4	Nil	1	7	2
E	2	3	Nil	4	8
F	1	3	1	4	10

68. How many matches did each team play?

A. 3 B. 4 C. 5 D.6

Answer:C.5

In a simple league fixture no of matches each team play is n-1. Hence it is 6-1.

69. What is the highest difference in goals scored and goals conceded by a team?

A.2 B.4 C.6 D.8

Answer:C.6

70. On the Basis of the System of awarding points and the performance data, which team secured the number of points so as to be ranked No.1?

A. Team B B. Team C C. Team A D. Team D

Answer :D.Team D

71. In the final result–analysis, in which of the following order were the team marked?

A. B,A,D,F,E,C **B.**D,B,A,E,F,C

C. A,B,C,D,E,F **D**. D,C,A,B,F,E

Answer:B. D,B,A,E,F,C

72. By what % margin of goals, did a team secure the First rank in the tournament.

A. 55.53% B.77.77% C. 22.23% D. None of these

Answer: A.55.5%

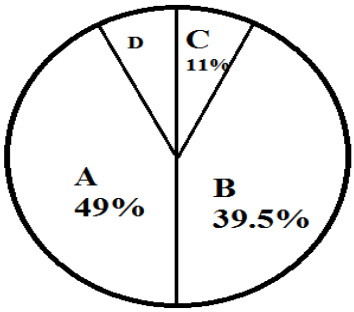
73. Find out the ratio between the total number of goal secured and conceded by all teams.

A. 7:17 B. 7:21 C.21:17 D.17:21

Answer:D .17:21

Solution: The total no. of goals scored by their team in favor were 34 and no. of goals conceded by them were 42: hence ratio was 34:42 or 17:21.

The pie chart given below represents the total cost of construction of a multipurpose gymnasium at one of the sports authority of the regional centres. Study the diagram and answer the questions given below.



A.Cost of materials and supplies
B.Cost of land
C.Cost of Labour
D.Cost of basic fixtures

74. If the total cost of construction of the MPH Gymnasium is Rs.128.3 Lakh, what would be the value of D (Basic fixture)

A. 0.06 Lakh **B**. 0.6 Lakh **C**. 6 Lakh **D**. 6.6 Lakh

Answer:B. 0.6 Lakh

Solution: 0.5% of Rs 128.3 Lakh=Rs 0.6 Lakh

75. If the total cost of construction of the MPH Gymnasium is doubled, what will be the D's value?

A. 1.03 Lakh **B**. 0.13 Lakh **C**. 13 Lakh **D**. 1.3 Lakh

Answer:D.1.3 Lakh

Solution: Doubling a sum implies multiplying by 2. So the new cost of construction would be Rs 1.2 Lakh or 1.3 Lakh

76. If there is four times increase in the cost of land, what would be the likely expenditure on purchase of land?

A. 202.8 Lakh **B**. 200.8 Lakh **C.** 220.8 Lakh **D**. 228 Lakh

Answer:A.202.8 Lakh

Four times increase in the price of land means 39.5% of Rs. 128.3 Lakh is = 128.3x39.5/100=50.7=50.7x4=202.8 Lakh

77. If the cost of basic fixtures increases from 0.6 Lakh to 2.4 Lakh, what will be the percent increase?

A. 120% **B**. 400% **C**. 300% **D**. 75%

Answer:C.300%

Solution: (2.4-0.6)/0.6x100=300%]

78. In case the total cost of the project is increased by five times, what would be the percent increase?

A. 57.6% **B**. 400% **C**. 300% **D**.115%

Answer:B.400%

Solution: Five times increase=400% increase]

79. If the cost of the land increases by 2%, how much amount would be involved in acquiring the land?

A. 25.6 Lakh **B**. 52 Lakh **C**. 52.24 Lakh **D**. 58 Lakh

Answer:B.52 Lakh

80.

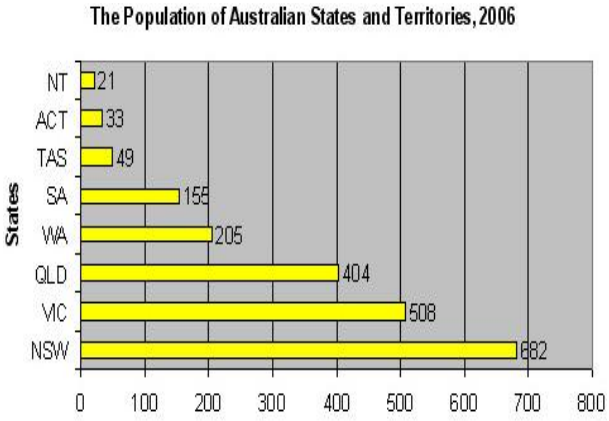
In the bar graph, the mean population (in 10,000) is

A 257

B 237

C 207

D 217



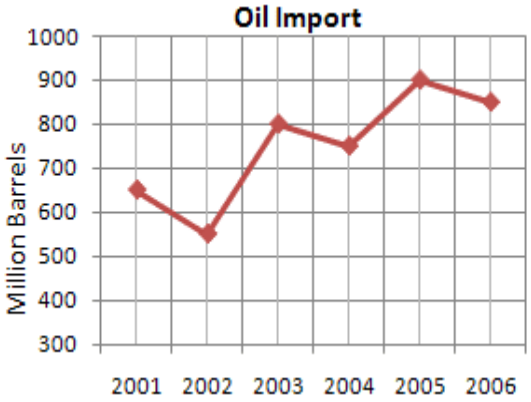
Ans: **A** 257

$$\text{Mean} = \frac{21+33+49+155+205+404+508+682}{8} = \frac{2057}{8} = 257$$

81. Oil import for a country is shown by the line graph. In which year did the country saw strongest decline in oil import?

A 2002
B 2003
C 2004
D 2005

Ans: **A** 2002

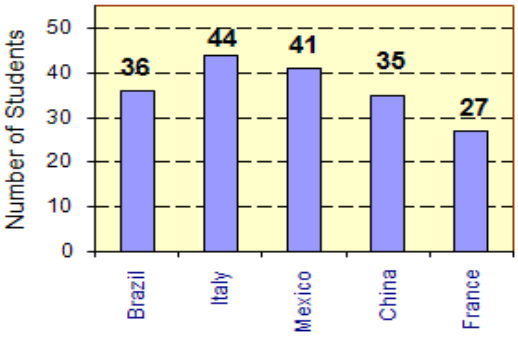


Number of foreign students in a University is shown below.

82. What is the average number of foreign student from a country?

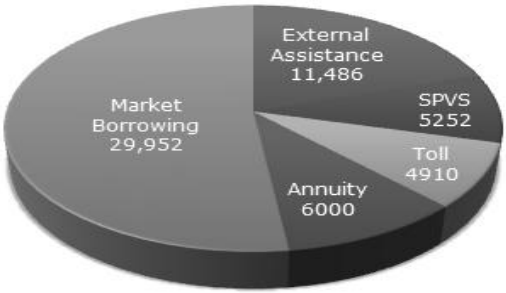
A 36.9
B 37
C 36.6
D 38

Ans: **C** 36.6



$$\frac{36+44+41+35+27}{5}=\frac{183}{5}=36.6$$

The following pie-chart shows the sources of funds to be collected by the National Highways Authority of India (NHAI) for its Phase II projects. Study the pie-chart and answers the question that follow.Sources of funds to be arranged by NHAI for Phase II projects (in crores Rs)



83. Near about 20% of the funds are to be arranged through:

A	SPVS	**B**	External Assistance
C	Annuity	**D**	Market Borrowing

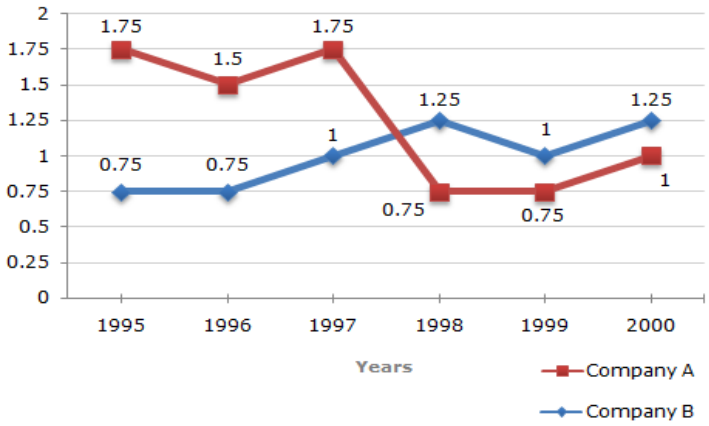
Ans: **B** External Assistance
20% of the total funds to be arranged = Rs. (20% of 57600)
= Rs. 11520 crores ≈ Rs. 11486 crores.

84. The central angle corresponding to Market Borrowing is

A 187.2^0 **B** 137.8^0 **C** 107.2^0 **D** 192.8^0

Ans: **(A)** 187.2^0 $\frac{29952}{57600}\times 360^0=187.2^0$

Ratio of Exports to Imports (in terms of money in Rs. crores) of Two Companies over the Years



85. In how many of the given years were the exports more than the imports for Company A?

A 1 **B** 2 **C** 3 **D** 4

Ans: **C** 3

The exports are more than imports in those years for which the exports to imports ratio are more than 1.

For Company A, such years are 1995, 1996 and 1997. Thus, during these 3 years, the exports are more than the imports for Company A.

86. If the exports of Company A in 1998 were Rs. 237 crores, what was the amount of imports in that year?

A Rs. 189.6 crores **B** Rs. 243 crores
C Rs. 281 crores **D** Rs. 316 crores

Ans: **(D)** Rs. 316 crores

Let the amount of imports of Company A in 1998 be Rs. x crores.

Then $\frac{237}{x} = 0.75 \Rightarrow x = \frac{237}{0.75} = 316$

$\therefore$ Amount of imports of Company A in 1998 = Rs. 316 crores

.

PROBLEM SOLVING

Types of Questions:

1. Problems on Age.
2. Problems on Time Zone.
3. Questions on relationship.
4. Questions on Permutations.
5. Problems on Ratio and Percentage.
6. Logical Questions.
7. Questions on Economics.
8. Questions on Number relations, alphabet sequences, missing numbers and letters.
9. Questions based on basic Physics Formulae.
10. Questions relating days, no. of Men, required for the Work and hours.
11. Questions on Simple Interest, Venn diagram .
12. Picture relating questions.
13. Problems on Combinations.
14. Few Critical questions.
15. Reasoning questions.
16. Questions on English Synonyms.
17. Establishing the relations and calculating.
18. Problems on Profit Percent and Loss Percent.
19. Questions on basic Mathematics Formulae.
20. Determining the Cost Price, Selling Price, Profit and Loss.

1. Two numbers are in the ratio of 10 : 7. The sum of the numbers is 34. What is the smaller number?

A. 14 **B.**20 **C.**34 **D.**17

Answer: 14

$10x + 7x = 34$

$17x = 34$

$x = \frac{34}{17} = 2$

$smallest\ number = 7x = 7 \times 2 = 14$

2. In a shop for every pant there are 3 shirts and for every 9 shirts there are 27 pairs of shoes. Express the ratio of pants to shirts to shoes in the shop.

A. 2 : 3 : 4 B. 1 : 3 : 9

C. 3 : 7 : 10 D. 4 : 7 : 11

Answer: 1 : 3 : 9

$1pant = 3shirts$
$9shirts = 27pairs\ of\ shoes$
$1shirt = 3\ pairs\ of\ shoes$
$pant : shirt : shoes$
$1 : 3 : 9$

3. Kado has 57 decimals of wetland and 3 time as many dry land. How many decimals of land does he have?

A.228 decimals **B.** 171 decimals

C. 60 decimals **D.** 110 decimals

Answer: 228 decimals

$Total\ Decimal = Wet\ land + Dry\ Land$

$= 57 + (57 \times 3) = 57 + 171 = 226$

4. In olden days, people need the following exchange rate.

1 Betam(Tibetan coin) = 50 drey(unit of measurement)rice

2 drey of rice = 8 drey of wheat; 100 drey of wheat = 1 horse

How many Betam equal 1 horse?

A. 1 **B.**½ **C.**2 **D.**2 ½

Answer: $\frac{1}{2}$

$1Betam = 50\ drey\ rice = 200drey\ Wheat$

$1Betam = 200drey\ Wheat$

$Dividing\ by\ 2$

$\frac{1}{2}\ Betam = 100drey\ Wheat = 1\ horse$

5. If SOAP is represented as 2549, HAIR is represented as 3456 and PREACH is represented as 961473, which of the following represents RESEARCH?

A. 21497316 **B**. 61214673

C. 61121467 **D**. 45612146

Answer: 61214673

6. Yongba is 30 years older than his youngest daughter. In 17 years, he will be twice his daughter's age. What is the age of the daughter at present?

A. 15 **B.** 17 **C.** 11 **D.** 13

Answer: 13

$Let\ the\ youngest\ daughter\ age\ be\ 'x'.$

$Yongba's\ age = 30 + x$

$After\ 17\ yrs,$

$daughters\ age = x + 17$

$Yongba's\ age = 30 + x + 17$

$Yongba's\ age = 2 \times daughters\ age$

$30 + x + 17 = 2 \times (x + 17)$

$47 + x = 2x + 34$

$47 - 34 = x$

$13 = x$

7. Kado, Chado &N ado are good friends in the village. one day, Kado on his way to village found a bucket with some apples. He took it to their playing field and divided all apples into three equal portions. He took away his share and left. Chado came later to the same field and saw two equal portion of apples. He mind them of divided into three equal portion but there was one extra apple left. He took the extra apple along with his own potion, after sometime, Nado arrived at the field and took away all the apples. When all of them met in the evening to their surprise all of them got equal number of apples. What is the total number of apple in total.

A. 15 **B.** 9 **C.** 6 **D.** 21

Answer:6

In 6 apples, kado divided in to three share;
kado took one share i.e., 2 apples
chado divided the remaining i.e., 4 apples in to three share
Chado took one share and one apple with him i.e., 2 apples
Nado took the remaining i.e., 2 apples

8. The following sentence is jumbled up and in correct. Rearrange the part of the sentence labeled as A, B, C, D to produce the correct sentence. Choose the proper sequence accordingly.

A. an increasing share of rural employment.

B. improving the business environment.

C. which account for.

D. Can spur development of rural non foreign economy.

The correct sequence should be,

A. ADCB **B**. BCDA **C**. DACB **D**.BDCA
Answer: BDCA

9. Phuntsho, Sonam, Karma, Dorji and Pema can be scheduled for a medical checkup at hospital in a week from Monday to Friday. But only one candidate can be examined each day. Tuesday is Karmas bad day and so he cannot be scheduled on Tuesday. Dorji is available on Tuesday, Sonam has to be scheduled immediately after the day of Karma and Pema has to be scheduled immediately before the day of Karma. Who is scheduled for medical checkup on Monday?

A. Phuntsho **B.**Karma **C.**Sonam **D.**Pema

Answer: Phuntsho

The sequence is Phuntsho, Dorji, Pema, Karma, Sonam.

10. At the archery contest of 28 players in total, each archer gets 12 rounds to play within the allocated hours of play time. If the number of players increases to 32, how many rounds can each archer play within the same hours of play time?

A. 10.5 **B.**11.5 **C.**12.5 **D.**11

Answer: 10.5

28 Players - 12 rounds

32 Players - x

$$\Rightarrow \frac{28\times 12}{32} = 10.5$$

11. At a GNH conference, 7 members shook hands with each other before and after the meeting. How many total numbers of hand shakes occurred?

A. 42 **B**. 43 **C**. 14 **D.** 7

Answer : 42

12. Out of 21 passengers in a bus plying from from T/phu to P/ling, 1/3 of them got off the bus in Chimakoti and $2/7^{th}$ of the remaining got off in Gyeddu. If no additional passenger were allowed to board the bus throughout the journey, how many passenger actually reached phuntsholing?

A. 10 passengers B. 11 passengers

C. 15 passengers D.14 passengers

Answers: 10 Passengers

$At\ Chimmakotti, \frac{1}{3} rd\ got\ off\ the\ bus \Rightarrow \frac{1}{3} \times 21$

$\Rightarrow 7 Passengers got\ off$

$Number\ of\ Passengers\ in\ Bus \Rightarrow 21 - 7 = 14$

$At\ geddu, \frac{2}{7}\ got\ off\ = \frac{2}{7} \times 14 = 4$

$Number\ of\ Passengers\ in\ Bus = 14 - 4 = 10$

13. Dorji and kencho are young ones of chenga. If chenga is the father of Dorji but kencho is not the son of chenga. How are kencho and chenga related?

A. Niece and uncle **B.** Daughter and father

C .Daughter and mother **D** They are not related

Answer: Daughter and Father

14. The ratio of the number of boys and girls in a class is 7:8 .If the number of boys is 21, what is the total number of student in the class?

A. 40 **B**.45 **C.**47 **D.**50

Answer: 45

$\frac{Boys}{Girls};$

$\frac{7}{8} = \frac{21}{Girls}$

$Girls = \frac{21 \times 8}{7} = 24$

$Total\ number\ is 21 + 24 = 45$

15. Karma buys old scoter for Nu. 5200 and spend Nu. 800. on its repairs. If he sells the scooter for Nu.8000, What is his gain Percent?

A. 31.3% **B**.32.3% **C**.33.3% **D**.34.3%

Answer: 33.3%

$$Gain\% = \frac{2000}{6000} \times 100 = 33.33\%$$

16. Look at this serials: 48, 46, 42, 40,36 ……what come next?

A. 32 **B**.34 **C**.35 **D.**38

Answer: 34

The odd sequence and the even sequence is decreased by 6.

17. Jigme is older than his cousin Pema. Pema's brother Wangchuk is older than Jigme .When three of then get together, they like to play Chinese checkers. Pema wins more often than Jigme does. Find the statement that must be true according to the given information.

A. of the tree,Jigme is the oldest.

B. Wangchuk does not like to love the game.

C. Of the three, Pema is the youngest

D. Jigme always win the game.

Answer: Of the three, Pema is the youngest.

18. What is 50% of a number is 12 is equal to 15% of a number?

A. 12 **B**. 33 **C**. 40 **D**. 62

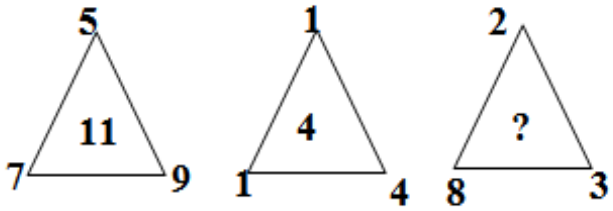
Answer: 40

$$\frac{50}{100} \times 12 = 6$$

$$6 = \frac{15}{100} \times x$$

$$x = 40$$

19. Which number replaces the question mark in Triangle?



A. 7 **B.** 5 **C.** 9 **D.** 11

Answer: 9

$7 + 9 - 5 = 11$
$1 + 4 - 1 = 4$
$8 + 3 - 2 = 9$

20. The school principal has received complaints from parents about the bullying in the school. To investigate the matter, the principal appointed four senior teachers to watch students closely and report to him any unpleasant incidence in the school. Which situation should the four teachers report to the principal?

A. Seven boys are playing Basket Ball and three other are arguing over the Basket Ball Scenes.

B. Five girls are surrounding another girl and are attempting to snatch her lunch box.

C. Five boys are clumped under the study table in the class and playing with mini video game.

D. Three boys and four girls are reading in library and not speaking to each other.

Answer: Five girls are surrounding another girl and are attempting to snatch her lunch box.

21. 36 men can complete a work in 18 days. In how many days will 27 men complete the same work?

A. 24 **B**. 12 **C**. 18 **D.** 22

Answer: 24

36 Men - 18 days

27 Men - x days

$x \Rightarrow \frac{36 \times 18}{27} = 24 days$

22. How many 4 colour codes can be made from a collection of 5 different colours if the same colours cannot be repeated in a colour code?

A. 360 **B**. 120 **C**. 60 **D**. 100

Answer: 120 $^5P_4 = 120$

23. The underlined word is followed by four common choice, choose the word that is an essential element of the underlined word. College

A. Learning B. Exam

C. Students D. Result

Answer: C. Students

24. Find out the missing number?

9 = 72

8 = 56

7 = 42

6 = 30

4 = ?

A. 16 **B**. 24 **C**. 20 **D.** 12

Answer: 12

$9 \times 8 = 72$

$8 \times 7 = 56$

$7 \times 6 = 42$

$6 \times 5 = 30$

$4 \times 3 = 12$

25. Below is a statement, followed by argument statement should Bhutan make efforts to harness hydro energy to earn revenue to meet its recurrent expenditure.

Argument.

1. Yes : The recurrent expenditure is increasing every year and Bhutan needs more revenues.

2. No: The Hydro energy is non renewable.

Choose one valid option based on your logical reasoning.

- **A.** Only argument 1 is valid
- **B.** Only argument 2 is valid.
- **C.** Both 1 & 2 is valid
- **D.** Neither 1 nor 2 is valid.

Answer: Only argument 1 is valid

26. What simple interest rate will Tashi need to secure to make Nu.2,500 in interest on a Nu.10,000 principal over 5 years?

A. 4% B. 5%. C. 6% D. 7%.

Answer: 5%

$$I = \frac{PTR}{100} \Rightarrow 2500 = \frac{10,000 \times 5 \times R}{100} \Rightarrow R = \frac{2500}{500} = 5$$

27. Which of the following is the result of the expression

$2^2 + \left[(3 \times 4) - 72\right] \times 4 + 236$?

A. 234 B. 240. C. 10 D. 0.

Answer: 0

$= 2^2 + \left[(3 \times 4) - 72\right] \times 4 + 236$

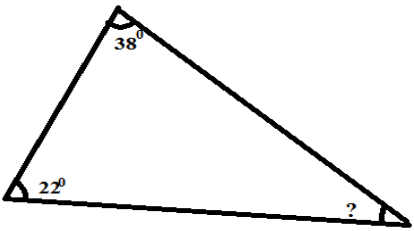
$= 4 + \left[12 - 72\right] \times 4 + 236$

$= 240 + \left[-60\right] \times 4$

$= 240 - 240$

$= 0$

28. What should come in place of question mark, in the figure below?



A. 180 B. 160 C. 20 D. 120

Answer: 120

$22 + 38 + x = 180$

$60 + x = 180$

$x = 180 - 60 = 120$

29. Find the odd one in the series given below:

10, 25, 45, 54, 60, 75, 80

A. 45 B. 54 C. 25 D. 80

Answer: 54

Each of the numbers except 54 is multiple of 5.

30. Dorji earns Nu.20 per hour. Last week, he worked 5 hours on Monday, 7 hours on Tuesday, and 5 hours on Wednesday. He had Thursday off, and then he worked 6 hours on Friday. How much money did he earn in all last week?

A Nu.450 **B** Nu.455 **C** Nu.460 **D** Nu.465

Answer: Nu.460

Total number of hours worked = 5 + 7 + 5 + 6 = 23

Total amount of money earned = Nu .20 × 23 = Nu.460

31. If MAN is coded as 28, code number for RAN would be

A 30 **B** 33 **C** 43 **D** 53

Answer: 33

It is a simple addition of position numbers.

MAN = (13 +1+14) = 28: RAN = (18 +1+14) = 33

32. Head is related to body in the same way arc is related to

A. lamp **B.** square **C.** cube **D.** circle

Answer: circle

33. W is the father of X.X is the brother of Y.Y is the wife of Z.how is Z related to X?

A. father in law **B.** Brother in law

C. Brother **D.** uncle

Answer : **Brother in law**

34. If one fifth of a number decreased by 5, is 5 then the number is

A.70 **B.** 60 **C.** 50 **D.** 40

Answer : **50**

Let the number be x.

$$\frac{1}{5}x-5=5$$

$$\Rightarrow \frac{x-25}{5}=5$$

$$\Rightarrow x-25=25 \Rightarrow x=50$$

35. Kamal is twice and shubash is 5 times as old as prakash . Two years ago shubash was twice as old as Kamal and Parkash together. Find Kamal's present age.

A.6 years **B.**12 years **C.**15 years **D.**20 years

Answer : **12 years.**

	Kamal	Subash	Prakash
	$2x$	$5x$	x
2 years ago:	$2x-2$	$5x-2$	$x-2$

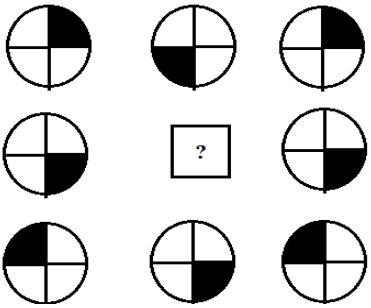
$$5x-2=2\left(2x-2+x-2\right)$$

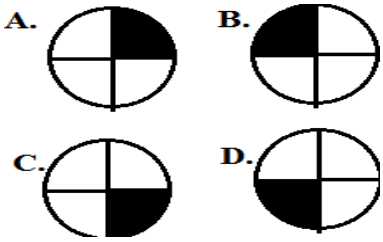
$$\Rightarrow 5x-2=2\left(3x-4\right)$$

$$\Rightarrow 5x-2=6x-8 \Rightarrow x=6$$

$\therefore$ Kamal's Present age = $2x$ = 12 years.

36. Which of the figure occupies the blank space in the matrix given below?





Answer: B

37. 20 Unskilled workers can finish a job in 50 hrs. The same job can be finished by 25 skilled workers in 20 hrs. If 10 unskilled & 10 skilled are employed , how long will they take ?

A. 30.3 hrs B. 33.0 hrs C. 43.0 hrs D. 45.0 hrs

Ans: 33.0 hrs

$$20\ unskilled\ worker's = 50\ hrs$$

$$1\ unskilled\ worker = \frac{50}{20}\ hrs$$

$$25\ skilled\ worker's = 20\ hrs$$

$$1\ skilled\ worker's = \frac{20}{25}\ hrs$$

$$10unskilled + 10skilled =$$

$$10 \times \frac{50}{20} + 10 \times \frac{20}{25} = 25hrs + 8hrs = 33hrs$$

38. A piece of wood 10 metre long is cut in to three smaller pieces. If the first one is 2.7 m long and the second is 3.5 metre longer than the third one, how long is the shortest of three pieces?

A. 3.0 m B.3.8 m C.2.8 m D. 1.9 m

Ans: 1.9 m

Let *x be the smallest length.*

$2.7m + (3.5m + x) + x = 10$

$6.2 + 2x = 10$

$2x = 10 - 6.2$

$2x = 3.8$

$x = \frac{3.8}{2} = 1.9m$

39. Four men are trying to catch a crazy bull. Jigme is directly behind the bull. Rinzin is behind Jigme. Rada is behind Rinzin. Migmar is a head of the bull walking down the street in opposite direction. As the men and bull run, Migmar turn around and join the team. He runs in behind Rinzin. Jigme runs faster & is along side the bull on the left. Rinzin runs faster and is alongside the ball on the right. Which man is directly behind the bull?

A. Jigme B. Rinzin C. Rada D.Migmar

Answer: Migmar

40. Five teams from Thimphu Schools are participating in a summer School Football League. If each team plays the other teams 2 times, the total number of games the League will play is

A. 10 **B.**20 **C.**30 **D.**40

Answer: 20

Total number of games = $5P_2 = 20$

41. If a dove cost Rs.92, what would a PIGEON cost?

A. Rs.142 B. Rs.122 C. Rs.122 D. Rs.132

Ans: D

Explanation: since each letter is given the rupee value of twice is position in the alphabet i.e.: A=Rs.2,B=Rs.4,Z=Rs.52.the total value is the sum values of all the letters in the word.

42. Find the missing Numbers **2, 5, 9, 14, 20, ?**

A.23 B. 25 C. 27 D. 29

Ans: C

41. In which of the given number series is the third power of a number the determining factors?

Number series

I. $4, 64, 5, 125, 6, x$

II. $6, 37, 7, 50, 8, 65, 9, x$

III. $5, 25, 125, 7, 49, 343, 9, 81, x$

IV. $9, -7, 18, -18, 31, x$

V. $4, 16, 80, 480, 3360, x$

VI. $25, 24, 22, 19, 15, 10, x$

VII. 100,81,64,49,36,x

A.I and III **B.**I, IV and V

C.I, III and VII **D.**II, III and VI

Answer: (A)

Solution: In series I, 64 is the third power of 4(4x4x4);125 is the third power of 5(5x5x5). The next number should be the third power of 6 i.e., 216 or (6x6x6)

In series III, a pattern of three elements is found i.e., 25=5x5; 125=5x5x5. Similarly 49=7x7; 343=7x7x7. From this pattern, we may assume that *x* will be 729=9x9x9.

42. In each of the following questions is a series of letters and numbers having an inherent pattern. Discover that pattern and select the correct answer from the choice given

Series 12 12 12 A B A B A B 1212_ B A B
A. 1 2 A B C B. A B A B A B
C. 12 A B A D. 1 2 1 2 A B
Answer: C 12 A B A
Solution: The sequence runs: 12 three times, A B three times, then, 12 three times, then, A B three times

43. Series
ABROAD, BLONDE, LANCER, ACCORD, CHORDS

A. HARASS **B.** HERPES

C. OLDISH **D.**MARKER

Answer :(A) HARASS.

Solution: Second, fourth and sixth letters of each word become first, third and fifth of next.

44. When the English alphabet is read in the reverse order, which letter will be 12^{th} to the left of 16 letters from your left?

A. D B. V C.W D. X

Answer: C. W

Solution: In the reverse order of alphabet, the 16 letters from the left is K. Counting from K towards left, the 12^{th} alphabet is W.

45. In the following questions, a group of 6 letters is given- each letter being numbered 1, 2, 3, 4, 5 and 6. Below that are given four answer choices containing combination of these numbers in certain ways. Select the best letter combination, which when arranged logically, gives out a meaningful word.

G	**T**	**A**	**E**	**N**	**M**
1	**2**	**3**	**4**	**5**	**6**

A. 1, 3, 2, 5, 4, 6 **B.** 1, 3, 2, 6, 4, 5
B. 6, 3, 5, 1, 4, 2 **D.** 6, 3, 1, 5, 4, 2.

Answer D. 6, 3, 1, 5, 4, 2. Solution: MAGNET

46. In a certain code, TRIPLE is written as SQHOKD. How is DISPOSE written in that code?

A. CHRONRD B. DSOESPI

B. ESJTPTF D. ESOPSID

Answer (A). CHRONRD

Solution: Each letter in the word is moved on step backward to obtain the corresponding letter of the code.

47. A businessman uses a code of URBIC DATE = Rs. 45 for secret prices of certain commodities where he takes U for Re. 1, R for Rs.2, B for Rs. 3, I for Rs. 4, and so on.

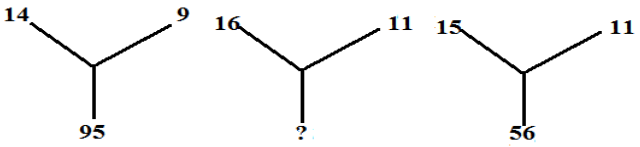
By using the above code, how will you read Rs. 2976?

A. BREAD **B**. RUBI **C**. READ **D**. DEAR

Answer : C. READ

Solution: 2=R, 9=E, 7=A,6=D; so 2576 = READ

48. In each of the following questions, a set of figure carrying certain characters, which are assumed to follow some similar pattern in each set, are given. Find the missing character in each case to replace the question mark.



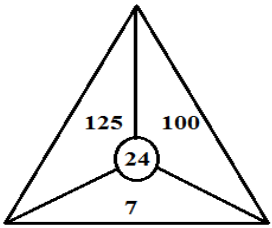
A. 135 **B.** 145 **C.** 140 **D.**130

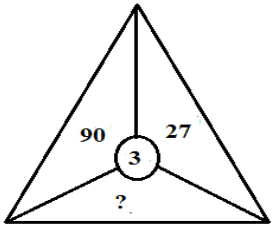
Answer: A. 135

Solution: 135: The number at the bottom is the difference in the squares of two numbers at the top.

Fig A: (14x14=196)-(9x9=81) =95.
Fig B: (16x16=256)-(11x11=121)135.
Fig C: (15x15=225)-(13x13=169) =56.

49.





A.8 **B.**6 **C.**9 **D.**5

Answer: A. 8

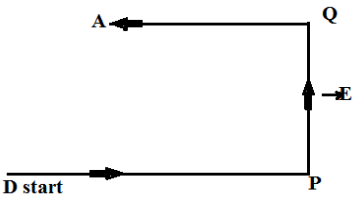
Solution: Starting with left side, let the three inset triangles be called A, B (right side) and C (bottom) and the central circle called X. Now the formula applied is $C^2-(A-B)=X$, i.e. 90 - 27=61, the nearest squaring will be 64 to 3 in the Centre (64-61)

50. Facing the rising Sun, a fitness freak starts running at a fairly fast speed. After 10 minutes, he feels completely out of breath. So, he turns left and again left to get to a park for some rest and relaxation. Which direction is the man moving now?

A. South B. North C. East D. West

Answer: D. West

Solution: Judging from the diagram, the fitness freak starts running from O towards east; he turns left at P and again left at Q. Now he is heading towards west.



51. Two towns A and B are 60km apart. There is a need to build a school to serve 150 students of town A, and 50 students of town B. If the total distance to be travelled by the whole lot of 200 students is to be as small as possible, then where must the school be located?

A. In a town **B**. 45km from town B
C. In a town A **D**. 45km from town A
Answer: C In a town A

52. In a Olympic Games, the flags of 6 (six) nations were flown on the mast in the following way. The US flag found hoisted to the left of Indian Tricolor and to the right of French flag. The Australian flag was fixed on the right of Indian flag but to the left of Japanese flag, which was placed to the left of the Chinese flag. Determine which two flags were placed in the Centre.
A. The US and Indian **B**. The Japanese and Australian

C. The US and Australian **D.** The Indian and Australian

Answer: D The Indian and Australian

53. Personal assistance is related to an officer, as Personal Secretary is related to a (an):
A. IAS officer **B**. MLA

C. Minister **D**. District Magistrate

Answer :C. Minister

Solution: Both do the same kind of work for their respective bosses.

54. Librarians are related to **Books** in the same way **Bankers** are related to :
A. Creditors **B**. Money **C**. Customers **D**. Banks

Answer :B. Money

Solution: Librarians deal with books, bankers with money.

55. Receptionist is related to an **office** in the same way as **Hostess** related to :

A. Crew **B**. Airport

C. Aeroplane **D**. Hospital

Answer:C. Aeroplane

Solution: A receptionist in office does the same work as hostess does in plane.

56. A is father of X, and B is mother of Y. the sister of X and Z is Y. Which of the following statements is definitely ***not*** true?

A. B is wife of A **B.** B has no daughter
C. Y is the son of A **D**. X is the sister of Z
Answer:C. Y is the son of A
Solution: Since Y is the sister, statement (C) is wrong.

57. Looking at a portrait of a man, Hemant said, "His mother is the wife of my father's son. Brothers and sisters I have none". At whose portrait was Hemant looking for?

A. His son **B**. His cousin
C. His uncle **D**. His nephew
Answer: A. His son

Solution: Hemant's father's son's wife is his own wife, as he has no brother and sister. His wife I.e. his own son.

58. Pointing to a man, a lady said: " His mother is the only daughter of my mother." How is woman related to the man?

A. Daughter **B**. Mother
C. Sister **D**. Son
Answer: D. Son

Read the information given in each of the statements given below carefully and answer the question that follow after each statement.

- **B** is **C's** son, but **C** is not **B's** mother.

- **A** and **C** make a married couple.
- **E** is the brother of **C**
- **D** is the daughter of **A**
- **F** is the brother of **B.**

59. The number of males in the family is:

A. 1 **B**. 2 **C**. 3 **D**. 4

Answer:D.

Solution: E,C,B, and F are four males.

60. Who is the mother of B?

A. A B. **B** C**. C** D.**D**

Answer: A

Solution:C is not the mother so A has to be the mother.

61. How many children does A have?

A. 1 B. 2 C. 3 D. 4

Answer(C) Solution: B, F and D are the Children.

62. Who is the wife of **E**?

A. D B**. A** C**. F** D. **cannot say**

Answer:D

Solution: That is not given in the Statement.

63. Which of the following is a pair of females?

A. **AE** B**. BD** C**. DF** D. **AD**

Answer:D.

Solution:D and A are Females.

64. How is **E** related to **D**?

A. Father B. Mother C. Uncle D. Brother

Answer:C

Solution;A and c are Parents, so E must be Uncle.

65. Kamal is twice and Shubhedu five times as old as Parkesh. Two years ago Shubhedu was twice as old as Kamal and Prakesh . Find the Kamal present age.

A. 6 years B.12 years C. 18 years D. 20 years

Answer :B. 12 years.

66. How much times will a train, moving at a rate of 90km an hour , take to cover a distance of 5/8 km ?

A. 30sec B. 25sec C.35sec D.50sec

Answer :B. 25 sec

67. If 5.4=2515
4.5=1624
3.2=93 Then the value of 2.1 is –

A. 40 B. 14 C.0 D.24

Answer:A. 40

Solution: Square the first number and subtract 1 from the square of the second number, so 2.1=40.

68. Eight years from now, Raj Laxmi will be twice the age she was six years ago.what is her present age?

A. 4 years **B**. 8 years **C**. 12 years **D**. 20 years

Answer: D 20 Years

Solution. Let x = Raj Laxmi's present age

Then x +8= her age 8 years hence, and x-6=her age six years ago
x+8=2(x-6)
x+8= 2x -12
20=x

69. One number is twice the other number. The sum of two number is 27. Find the number?

A.10,17 **B**. 20,7 **C**. 18,9 **D**. None of these

Answer: C. The ratio is 2:1

70. One number is twice the second number , second number is twice the third number and third number is twice the fourth. How many times the first number of the fourth number?

A. 8 times B. 4 times C. 6 times D. ¼ time

Answer: A. 8 times

Solution: Each step is double the previous one and there are four step.

71. The distance between two town A and B is 410 km, a bus starts from A to B at a speed of 70km/h. After half an hour , a car stars from B to A at a speed of 80km/h. The meeting point of both car and bus from A is:

A. 220 km **B.** 210 km **C**. 230km **D**. 240 km

Answer: B. 210 km

72. A 1km long train travelling at a speed of 60km/h enters a tunnel 1km long. What time will the train take to come out of the tunnel fully?

A.2 minutes **B**.2hours **C**. 1 hour **D**. 1 minute

Answer: A. 2 minutes

73. The average of 13 numbers is 68. If the average of the first number is 63 and that of the last 7 number is 70, find the 7^{th} number?

A.47 **B**.49 **C**.56 **D**.10

Answer: A. 47

74. If $\frac{3}{4}$ of a number equals $\frac{4}{3}$ of another number, find the ratio between them.

A.7:12 B.16:9 C.9:16 D. 6:8

Answer: B. 16 : 9

75. 28 students are divided in three groups in such a way that group B has twice the number of students than group C and Group A has half the number of students Group C has. How many students are there in group C?

A. 4 **B**. 6 **C**. 8 **D.** 10

Answer: C. 8

76. Pema Dorji and Kesang Choden are two children in a big family. Pema Dorji has thrice as many sisters as he has brothers. Kesang choden has two less brothers than she has sisters. How many children are there in the family?

A. 13 children: 10 girls and 3 boys

B. 12 children: 9 girls and 3 boys

C. 9 children: 6 girls and 3 boys

D. 8 children: 6 girls and 2 boys

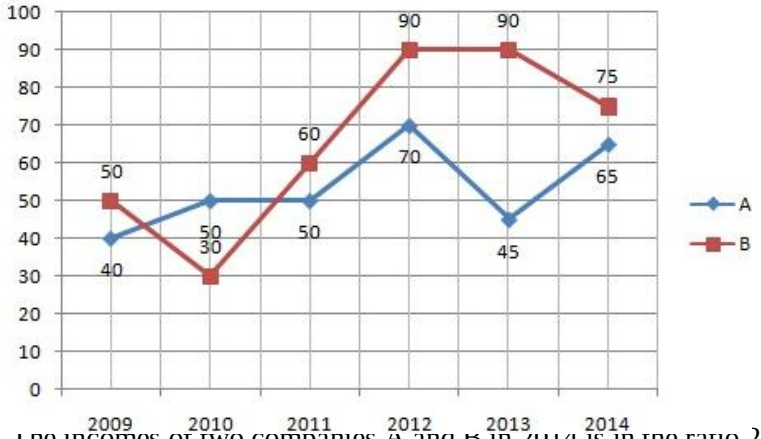
Ans: **(C)** 9 children: 6 girls and 3 boys

Mock Exams
DATA INTERPRETATION (1 set)

Read the instructions carefully and circle only the best option from the given options.
You have exactly one hour for completing the two examinations.

The following line graph gives the percent profit earned by two Companies A and B during the period 2009 to 2014.

$$\textbf{Percentage Profit} = \frac{\textbf{Income} - \textbf{Expenditure}}{\textbf{Expenditure}} \times 100\%$$



1. The incomes of two companies A and B in 2014 is in the ratio 2 : 3 respectively
   A. 17 : 19 **B. 29 : 57**
   C. 70 : 99 **D. 31 : 67**

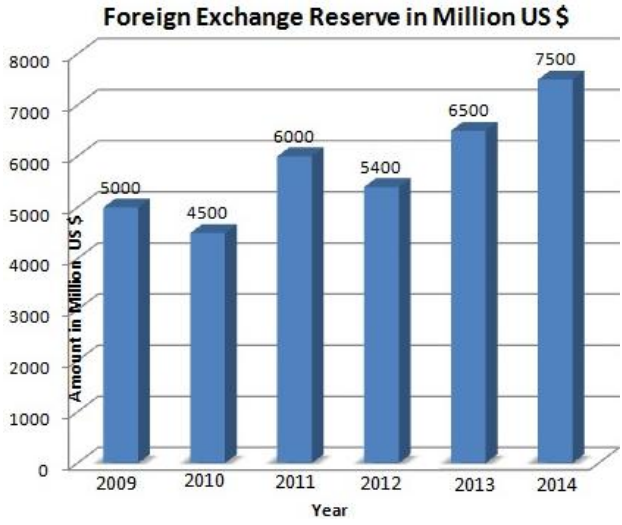
2. The profit of company A in 2013 is reflected as Nu 70 billion. What is the profit earned by company B in the same year (in billion ngultrum)
   A. 90 **B. 100**
   C. 120 **D. 140**

3. The expenditure of company B in 2014 is reflected as Nu 220 million. What is its income for the same year (in million ngultrum)?
   A. Nu 170 **B. Nu 175** **C. Nu 180** **D. Nu 385**

4. If the incomes of two Companies are equal in 2011, then what is the ratio of expenditure of Company A to that of Company B in 2011?
A. 14 : 15 **B. 15 : 14** **C. 16 : 15** **D. 15 : 16**

5. In which year was the difference in profit minimum for the two companies?
A. 2010 **B. 2011** **C. 2012** **D. 2013**

The bar graph alongside shows the foreign exchange reserve of our country calculated at the end of the year each year.



6. What is the average foreign exchange reserve over the six year period in million US$?
A. 5815 **B. 5850**
C. 5875 **C. 6000**

7. The ratio of number of years the foreign exchange reserve is above the average to the number of years it is below the average is
A. 2 : 3 **B. 1 : 2**
C. 1 : 1 **D. 3 : 2**

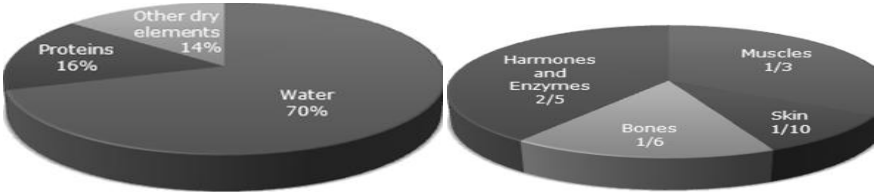
8. What is the percentage increase in foreign exchange reserve in 2014 compared to the previous year?
A. 14% **B. 15%** **C. 16%** **D. 17%**

9. The foreign exchange reserves in 2010 was approximately what percent of the average foreign exchange reserves over the period?

A. 75.4 **B. 76.4** **C. 77.4** **D. 78.4**

10. For which year, the percent increase of foreign exchange reserves over the previous year, is the highest?
A. 2011 **B. 2013** **C. 2014** **D. No basis**

The pie charts below show the percentage composition of a human body by weight and by parts in two categories. Use the information from the pie charts to answer the questions that follow.



11. What percent of the total weight of human body is equivalent to the weight of the proteins in skin in human body?
A. 1.6 **B. 0.16**
C. 0.016 **D. 0.0016**

12. What will be the quantity of water in the body of a person weighing 50 kg?
A. 20 kg **B. 25 kg** **C. 30 kg** **D. 35 kg**

13. What is the ratio of the distribution of proteins in the muscles to that of the distribution of proteins in the bones?
A. 1 : 2 **B. 2 : 1** **C. 18 : 1** **D. 1 : 18**

14. What should be the angle to represent the distribution of proteins and other dry elements in the human body?
A. 54^{o} **B. 126^{o}** **C. 108^{o}** **D. 212^{o}**

15. What part of human is made of neither bones nor skin?
A. $\frac{1}{30}$ **B.** $\frac{11}{15}$ **C.** $\frac{14}{30}$ **D.** $\frac{14}{15}$

The following table gives the percentage distribution of population of five Dzongkhags, P, Q, R, S and T on the basis of literacy and also on the basis of sex.

Dzongkhag	Percentage of Illiterate Population	Proportion of Males and Females	
		Illiterate	Educated
		M : F	M : F
P	15	5 : 6	6 : 7
Q	20	3 : 5	4 : 5
R	40	1 : 2	2 : 3
S	30	3 : 2	4 : 3
T	10	5 : 3	3 : 2

16. The male population of Dzongkhag R who are educated is 3000, what is the total population of Dzongkhag R?

A. 7500 **B. 8000**
C. 9000 **D. 12,500**

17. What is the number of illiterate female in the Dzongkhag P if its total population is 11000?

A. 600 **B. 700** **C. 800** **D. 900**

18. The educated female population of Dzongkhag T is 9000. What is the total population of that Dzongkhag?

A. 13,500 **B. 22,500** **C. 25,000** **D. 27,500**

19. Dzongkhag Q has 5000 illeterate population. What is the total population of the Dzongkhag?

A 25,000 **B. 27,500** **C. 30,000** **D. 32,500**

20. The total population of Dzongkhag S is 15,000. What is the ratio of educated to illiterate population of the Dzongkhag?

A. 7 : 3 **B. 3 : 7** **C. 3 : 5** **D. 5 : 3**

Use the table below to answer questions 21 to 23

Region of vehicle registration	% Change of revenue between 2012 to 2013	% Change of revenue between 2013 to 2014
Thimphu (01)	+10	+20
Phuentsholing (02)	+12	+15
Geylegphug (03)	+10	-10
Samdrupzongkhar(04)	-5	-5

21. If the revenue from vehicle registration in 2012 in Thimphu was Nu 25 million, what is the revenue in the year 2013? [in million ngultrum]

A. 25.5 **B. 26.5** **C. 27.5** **D. 28.5**

22. Taking the same value as in Q 21, what is the revenue only from Thimphu region in the year 2014? [in million ngultrum]

A. 32 **B. 33** **C. 34** **D. 35**

23. If the revenue from Gyelegphu in 2012 was Nu 50 million, what is its revenue in 2014? [in million ngultrum]

A. 52 **B. 50.5** **C. 50** **D. 49.5**

Use the data below to answer questions 24 and 25.

Twenty students of class X got the following marks in mathematics conducted out of 50 marks.

22, 30, 35, 45, 50, 32, 15, 18, 46, 35
24, 48, 47, 35, 36, 28, 42, 43, 44, 50

24. The modal mark from the given data is

A. 34 **B. 35** **C. 40** **D. 50**

25. The median mark from the given data is

A. 35 **B. 35.5** **C. 36** **D. 36.5**

Mock Exams
PROBLEM SOLVING (1 set)

1. A boat can travel with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, find the time taken by the boat to go 68 km downstream.
   A. 2 hours B. 3 hours C. 4 hours D. 5 hours

2. Nima and Dawa together have Nu. 12,100. If $\frac{4}{15}$ of Nima's amount is equal to $\frac{2}{5}$ of Dawa's amount, how much amount does Dawa have?
   A. Nu 4600 B. Nu 4840 C. Nu 5500 D. Nu 7260

3. Find the odd one out from the given series
   2, 3, 5, 7, 11, 10, 13, 17, 19, …
   A. 2 B. 10 C. 11 D. 19

4. Dorji wants to sell his maruti car. He has two options, either to sell at Nu 110,000 cash down to Hemant or to sell to Choden on credit for one year at Nu 120,000 if money is worth 20%. Which is a better option?
   A. Sell to Hemant B. Sell to Choden
   C. Equally good D. None

5. When Pema heard a sudden banging sound at night,
   Q. and reported the incidence in detail
   W. she was nervous
   E. but managed to call the police
   R. and did not know what to do
   The correct sequence to complete the sentence is
   A. QWER B. REWQ C. WREQ D. EQWR

6. All the trees in the park are flowering trees.
   Some of the trees in the park are flowering trees.
   Dogwood blooms for around four months and is a flowering tree.
   If the first two statements are true, the third statement is
   A. True B. False C. Uncertain D. No relation

7. Two numbers are respectively 20% and 50% more than a third number. The ratio of the two numbers is:

A. 2 : 5 **B. 3 : 5** **C. 4 : 5** **D. 6 : 7**

8. The price of 10 chairs is equal to that of 4 tables. The price of 15 chairs and 2 tables together is Nu 4000. The total price of 12 chairs and 3 tables is:

A. Nu 3500 **B. Nu 3750** **C. Nu 3840** **D. Nu 3900**

9. The sum of the digits of a two-digit number is 15 and the difference between the digits is 3 with the units place having higher value. What is the two-digit number?

A. 69 **B. 78**

C. 96 **D. cannot be determined**

10. An accurate wall clock shows 9 o'clock in the morning. Through how many degrees will the hour hand rotate when the clock shows 2 o'clock in the afternoon?

A. 144^{o} **B. 150^{o}** **C. 168^{o}** **D. 180^{o}**

11. In an election between two candidates, one got 60% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 10,000; the number of valid votes that the other candidate got is

A. 8000 **B. 6800** **C. 3200** **D. 2000**

12. What is the probability of getting a sum 9 from two throws of a dice?

A. $\frac{1}{6}$ **B. $\frac{1}{8}$** **C. $\frac{1}{9}$** **D. $\frac{1}{12}$**

13. Two pipes A and B can fill a tank in 20 and 30 minutes respectively. If both the pipes are used together, then how long will it take to fill the tank?

A. 12 min **B. 15 min** **C. 25 min** **D. 50 min**

14. If $5^{a} = 3125$, then the value of $5^{(a-3)}$ is

A. 25 **B. 125** **C. 625** **D. 1625**

15. 0.04×0.0162 is same as

A. 6.48×10^{-3} **B. 6.48×10^{-4}**

C. 6.48×10^{-5} **D. 6.48×10^{-6}**

16. January 1, 2015 was Thursday. What day will January 1, 2020 be?

A. Tuesday **B. Wednesday**
C. Thursday **D. Friday**

17. A sum of Nu 100,000 is deposited in a bank in fixed deposit at 8% interest rate per year. The interest earned is Nu 16000. What was the term in years of the fixed deposit period?

A. 1 **B. 2** **C. 3** **D. 4**

18. Ugyen covers a distance of 900 m in 5 minutes. What is his speed in km per hour?

A. 7.2 kmh^{-1} **B. 8.4 kmh^{-1}**
C. 9 kmh^{-1} **D. 10.8 kmh^{-1}**

19. Ganga can do a work in 4 days; Pema and Dema together can do it in 3 days while Ganga and Dema together can do it in 2 days. How long will Pema alone take to do the same work?

A. 8 days **B. 10 days** **C. 12 days** **D. 24 days**

20. Karchung bought a car for Nu 200,000 but later sold at a loss of 20%. What is the selling price of the car?

A. Nu 160,000 **B. Nu 165,000**
C. Nu 170,000 **D. Nu 175,000**

21. Ap Dorji said to his son Dawa, "I was as old as you are now when you were born". Ap Dorji is 50 years now. How old was Dawa five years ago?

A. 5 years **B. 10 years**
C. 15 years **D. 20 years**

22. A family consists of two grandparents, two parents and three grandchildren. The average age of the grandparents is 68 years, that of the parents is 35 years and that of the grandchildren is 6 years. What is the average age of the family?

A. 28 years **B. 30 years** **C. 32 years** **D. 34 years**

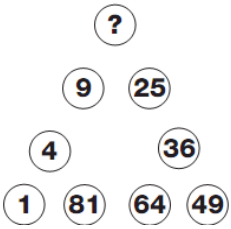
23. In how many ways can a team of 5 men and 2 women be made from 7 men and 3 women?

A. 63 **B. 70** **C. 72** **D. 78**

24. A room is 18 feet long and 10 feet wide. What is the minimum number of 1 square foot tiles needed to floor its surface?

A. 160 **B. 170** **C. 180** **D. 200**

25.



What number comes in the circle having question mark (?)?

A. 10 **B. 12**

C. 14 **D. 16**

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SOLUTION

1.

Ans: Relative speed = (13 + 4) km/hr

Time = $\frac{68}{17} = 4$ hour

C. 4 hours

2.

Ans: Let Nima's amount be N and Dawa's amount be D

$\frac{4}{15} \times N = \frac{2}{5} \times D$

$\frac{N}{D} = \frac{15 \times 2}{4 \times 5} = \frac{3}{2}$ **shows that the ratio N : D = 3 : 2**

Total of ratio, 5 corresponds to Nu 12100

Dawa's share, 2 corresponds to ?

= $\frac{2 \times 12100}{5}$ = Nu 7260

D. Nu 7260

3.

Ans: 2, 3, 5, 7, 11, 13, 17, 19, … is a set of prime numbers when 10 is taken out. B. 10

4.

Ans: **Selling to Hemant : Nu 110,000** **Selling to Choden : Nu 120,000**

What would Nu 110,000 be with the worth of money added to it: $\frac{120}{100} \times 110000 = Nu\ 132000$ **and hence the first sale is better.**

A. Sell to Hemant

5.

Ans: **C. WREQ**

6.

Ans: **A. True**

7.

Ans: **Let the number be *x*; one is 120% of *x* and other is 150% of *x*.**

Ratio: $\frac{120}{100} \times x : \frac{150}{100} \times x = 4 : 5$

C. 4 : 5

8.

Ans: **Let the price of 10 chairs and 4 tables is x**

10 chairs ------- Nu *x* **4 tables ------ x** $\frac{3x}{2} + \frac{x}{2} = 4000$

15 chairs -------- ? **2 tables ------ ?** $\frac{4x}{2} = 4000$

$\frac{15\,x}{10} = \frac{3x}{2}$ $\frac{2\,x}{4} = \frac{x}{2}$ $x =$ **2000**

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10 chairs ---- Nu 2000 **4 tables ---- Nu 2000**

12 chairs ----- ? $\frac{12 \times 2000}{10} = Nu\ 2400$ **3 tables ---- ?** $\frac{3 \times 2000}{4} = Nu\ 1500$

Total cost of 12 chairs and 3 tables = 2400 + 1500 = Nu 3900

D. Nu 3900

9.

Ans: **A. 69** **working backwards**

10.

Ans: **9 to 2 is 5 hours**

12 hours ---- 360^o

5 hours ----- ? $\frac{5\times360}{12} = 150^o$

B. 150^o

11.

Ans: **Total valid votes = 80% of total 10,000 votes**

Total valid votes = $\frac{80}{100} \times 10,000 = 8,000$

The loser got 40 % of valid votes.

$\frac{40}{100} \times 8000 = 3200$

C. 3200

12.

Ans: **Two throws = 6 × 6 = 36 possibilities; Reqired throws (3, 6), (6,3), (4, 5), (5, 4)**

Required Probability = $\frac{4}{36} = \frac{1}{9}$

C. $\frac{1}{9}$

13. **Ans: Pipe A: Part filled in 1 minute,** $\frac{1}{20}$ **Pipe B: Part filled in 1 minute,** $\frac{1}{30}$

Together, part filled: $\frac{1}{20} + \frac{1}{30} = \frac{5}{60} = \frac{1}{12}$

Time taken = $\frac{12}{1} = 12\ min$

A. 12 min

14.

Ans: **On factoring, a = 5 and hence** 5^{5-3} **= 25**

A. 25

15.

Ans: **B.** 6.48×10^{-4}

16.

Ans: **B. Wednesday**

17.

Ans: **SI =** $\frac{PRT}{100}$ **and Time =** $\frac{100I}{PR} = \frac{100\times16000}{100000\times8} = 2$

B. 2

18.

Ans: $\frac{900}{1000} \div \frac{5}{60} = \frac{900}{1000} \times \frac{60}{5} = 10.8\ kmh^{-1}$

D. $10.8 kmh^{-1}$

19. **Ans: Ganga's 1 day's work=$\frac{1}{4}$;**

Pema and Dema's 1 day's work=$\frac{1}{3}$;

Ganga and Dema's 1 day's work=$\frac{1}{2}$

From Ganga and Dema's one day's work, take away Ganga Dema's 1 day's work $= \frac{1}{2} - \frac{1}{4} = \frac{1}{4}$

From Pema and Dema's one day's work, take away Dema which becomes Pema's 1 day's work

$$\frac{1}{3} - \frac{1}{4} = \frac{1}{12}$$

Hence, Pema can complete in 12 days

C. 12 days

20.

Ans: Loss of 20 % gives him only 80 %.

80% of 200,000 $= \frac{80}{100} \times 200000 = Nu\ 160,000$

A. Nu 160,000

21.

Ans: Let Dawa's present age be *x* and ApDorji's present age = 2*x*

2*x* = 50; $x = \frac{50}{2} = 25$ **which means Dawa is 25 years old now.**

5 years ago, 25 – 5 = 20 years

D. 20 years

22.

Ans: $\frac{GP_1+GP_2}{2} = 68;\ hence\ \ GP_1 + GP_2 = 136;$

$$\frac{P_1 + P_2}{2} = 35;\ \ hence\ \ P_1 + P_2 = 70;$$

$$\frac{C_1 + C_2}{3} = 6;\ \ hence\ C_1 + C_2 = 18$$

Therefore Average = $\frac{136+70+18}{7} = 32$

C. 32 years

23.

Ans: $({}^{7}C_5 \times {}^{3}C_2) = ({}^{7}C_2 \times {}^{3}C_1) = 63$

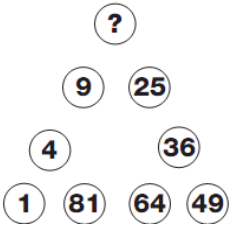
A. 63

24.

Ans : Area in square feet = $18 \times 10 = 180$

180 tiles of 1 square foot each are required.

25.



Ans: **Starting from left bottom, the series is built up clock wise having squares of natural numbers**

$$1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2, 8^2, 9^2$$

D. 16