CAT 2002

Quant

Instructions [1 - 2]

A boy is asked to put one mango in a basket when ordered 'One', one orange when ordered 'Two', one apple when ordered 'Three', and is asked to take out from the basket one mango and an orange when ordered 'Four'.

A sequence of orders is given as: 1 2 3 3 2 1 4 2 3 1 4 2 2 3 3 1 4 1 1 3 2 3 4

1. **How many total oranges were in the basket at the end of the above sequence?**

A 1

B 4

C 3

D 2

Answer: D

Explanation:

First counting only nos. 1,2 and 3.

So, we have 6 mangoes, 6 oranges and 7 apples.

We have 4 times 4 so finally we have 2 mangoes, 2 oranges and 7 apples, which is a total of 11 fruits.

2. **How many total fruits will be in the basket at the end of the above order sequence?**

A 9

B 8

C 11

D 10

Answer: C

Explanation:

On counting only numbers 1,2 and 3, we have 6 mangoes, 6 oranges and 7 apples.

We have 4 times number 4 => Finally we have 2 mangoes , 2 oranges and 7 apples. So, a total of 11 fruits.

Instructions [3 - 4]

Directions for the next two questions: Answer the questions based on the following information.

Each of the 11 letters A, H, I, M, O, T, U, V, W, X and Z appears same when looked at in a mirror. They are called symmetric letters. Other letters in the alphabet are asymmetric letters.

3. **How many four-letter computer passwords can be formed using only the symmetric letters (no repetition allowed)?**

A 7,920

B 330

C 14,640

D 4,19,430

  Answer: A

Explanation:
The number of ways in which this can be done is 11*10*9*8 = 7920

  4. **How many three-letter computer passwords can be formed (no repetition allowed) with at least one symmetric letter?**

A 990

B 2,730

C 12,870

D 15,600

  Answer: C

Explanation:
If there are 3 symmetric letters, it can be formed in 11*10*9 ways

If there are 2 symmetric letters, it can be formed in 11C2 * 15C1 * 3! ways

If there is only 1 symmetric letter, the password can be formed in 15C2*11C1*3! ways

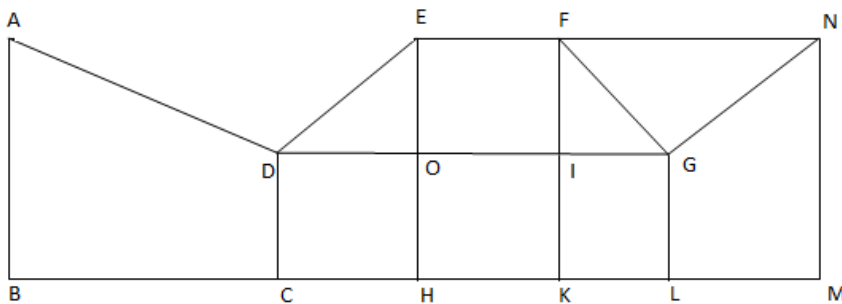Total = 990+330*15+630*11 = 12870 ways

Instructions [5 - 6]

Directions for the next two questions: Answer the questions based on the following diagram

In the following diagram, $\angle ABC$ = 90° = $\angle DCH$ = $\angle DOE$ = $\angle EHK$ = $\angle FKL$ = $\angle GLM$ = $\angle LMN$

AB = BC = 2CH = 2CD = EH = FK = 2HK = 4KL = 2LM = MN

  5. **The magnitude of $\angle FGO$ =**

A 30°

B 45°

C 60°

D None of these

Answer: D

Explanation:

The length of FI is twice the length of IG.

So, the sides of the triangle FIG are in the ratio 2:1: $\sqrt{5}$.

So, angle FGO = angle FGI, which is definitely not equal to 30 or 45 or 60.

Hence, option D is the answer.

6. **What is the ratio of the areas of the two quadrilaterals ABCD to DEFG?**

A 1 : 2

B 2 : 1

C 12 : 7

D None of these

Answer: C

Explanation:

Area of ABCD = Area of triangle + Area of rectangle = Let AB = x. So, area = $3/2 * x^2/2 = 3/4 * x^2$
Area of ODE = $\frac{1}{2} * \frac{x}{2} * \frac{x}{2} = x^2/8$
Area of OEFI = $\frac{x}{2} * \frac{x}{2} = x^2/4$
Area of FGI = $x^2/16$
Total area of DEFG = $7x^2/16$
Required ratio = 12:7

7. **How many numbers greater than 0 and less than a million can be formed with the digits 0, 7 and 8?**

A 486

B 1,084

C 728

D None of these

Answer: C

Explanation:

According to given condiitons, number of 1 digit nos. = 2, number of 2 digit nos. = 2*3 , number of 3 digit nos. = $2 * 3^2$, number of 4 digit nos. = $2 * 3^3$, number of 5 digit numbers. = $2 * 3^4$, Number of 6 digit nos. = $2 * 3^5$.

Total summation 2*(1+3+9+27+81+243) = 728 .

8. **If there are 10 positive real numbers $n_1 < n_2 < n_3 ... < n_{10}$, how many triplets of these numbers $(n_1, n_2, n_3), (n_2, n_3, n_4)$ can be generated such that in each triplet the first number is always less than the second number, and the second number is always less than the third number?**

A   45

B   90

C   120

D   180

   Answer: C

Explanation:

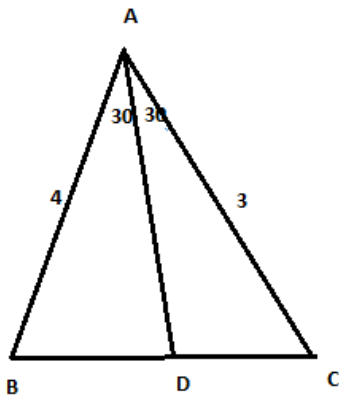For any selection of three numbers, there is only one way in which they can be arranged in ascending order.

So, the answer is $^{10}C_3 = 120$

9. **In triangle ABC, the internal bisector of $\angle A$ meets BC at D. If AB = 4, AC = 3 and $\angle A$ = 60° , then the length of AD is**

A $2\sqrt{3}$

B $\frac{12\sqrt{3}}{7}$

C $\frac{15\sqrt{3}}{8}$

D $\frac{6\sqrt{3}}{7}$

   **Answer:** B

Explanation:

By using cosine rule we can find BC = $\sqrt{13}$. By angle bisector theorem we have BA / BD = AC / DC . Also BD + DC = $\sqrt{13}$. So by substitution we get we get BD = 4*$\sqrt{13}$/7 . Now using cosine rule in triangle ABD taking AD = x, we get

$x^2 - 4 * \sqrt{13} * x + 16 * (36/49) = 0$. Solving the equation we get x = $\frac{12\sqrt{3}}{7}$.

10. **The length of the common chord of two circles of radii 15 cm and 20 cm, whose centres are 25 cm apart, is**

A 24 cm

B 25 cm

C 15 cm

D 20 cm

Answer: A

Explanation:
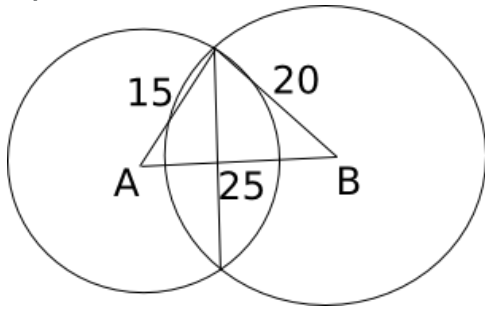
The radii of both the circles and the line joining the centers of the two circles form a right angled triangle. So, the length of the common chord is twice the length of the altitude dropped from the vertex to the hypotenuse.

Let the altitude be h and let it divide the hypotenuse in two parts of length x and 25-x
So, $h^2 + x^2 = 15^2$ and $h^2 + (25 - x)^2 = 20^2$
=> $225 - x^2 = 400 - x^2 + 50x - 625$
=> 50x = 450 => x = 9 and h = 12
So, the length of the common chord is 24 cm.

11. **If** $f(x) = \log \frac{(1+x)}{(1-x)}$**, then f(x) + f(y) is**

A $f(x + y)$

B $f \frac{(x+y)}{(1+xy)}$

C $(x + y) f \frac{1}{(1+xy)}$

D $\frac{f(x)+f(y)}{(1+xy)}$

Answer: B

Explanation:

If $f(x) = \log \frac{(1+x)}{(1-x)}$ then $f(y) = \log \frac{(1+y)}{(1-y)}$

Also Log (A*B)= Log A + Log B

f(x)+f(y) = $\log \frac{(1+x)(1+y)}{(1-x)(1-y)}$

=$\log \frac{(1+xy+x+y)}{(1+xy-x-y)}$

Dividing numberator and denominator by (1+xy)

$$\log \frac{\frac{(1+xy+x+y)}{1+xy}}{\frac{(1+xy-x-y)}{1+xy}}$$

$$=\log \frac{\frac{1+xy}{1+xy}+\frac{(x+y)}{1+xy}}{\frac{1+xy}{1+xy}-\frac{(x+y)}{1+xy}}$$

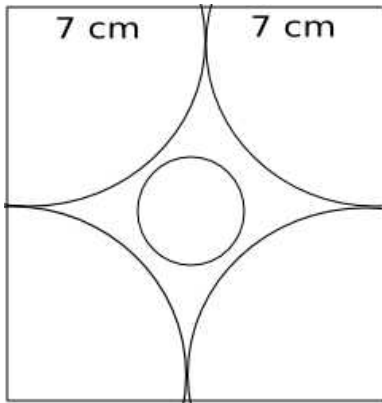$$= \log \frac{1+\frac{(x+y)}{(1+xy)}}{1-\frac{(x+y)}{(1+xy)}}$$

Hence option B.

12. **Four horses are tethered at four corners of a square plot of side 14 m so that the adjacent horses can just reach one another. There is a small circular pond of area 20 m^2 at the centre. Find the ungrazed area.**

A $22m^2$

B $42m^2$

C $84m^2$

D $168m^2$

   Answer: A

Explanation:

Length of the rope tied to each horse = 7 m.
Total area of the portion that the horses can graze = 4* $\pi 7^2$/4 = 49π
Area of the circular pond = 20 m^2
So, area left ungrazed = $14^2 - 20 - 49\pi m^2$ = 22 m^2 (approx)

13. **On a straight road XY, 100 m long, five heavy stones are placed 2 m apart beginning at the end X. A worker, starting at X, has to transport all the stones to Y, by carrying only one stone at a time. The minimum distance he has to travel is**

A   472 m

B   422 m

C   744 m

D   860 m

   Answer: D

Explanation:

The weights are at distances of 0 m, 2 m, 4 m, 6 m and 8 m from X.

Let us first keep all the weights at a distance of 8 m from X. This would be 8 + 6*2 + 4*2 + 2*2 = 32 m.

Now from the point where all the weights are kept is at a distance of 92 m from Y. So total distance required = 184+184+184+184+92 = 828 m.

So in all 860 m.

14. **In the figure given below, ABCD is a rectangle. The area of the isosceles right triangle ABE = 7 cm^2 ; EC = 3(BE). The area of ABCD (in cm^2) is**

A 21 cm^2

B 28 cm^2

C 42 cm^2

D 56 cm^2

   Answer: D

Explanation:

Let AB = BE = x

Area of triangle ABE = $x^2/2$ = 14; we get x = $\sqrt{14}$

So we have side BC = 4* $\sqrt{14}$

Now area is AB*BC = 14 *4 = 56 cm^2

15. **The area of the triangle whose vertices are (a,a), (a + 1, a + 1) and (a + 2, a) is**

   [CAT 2002]
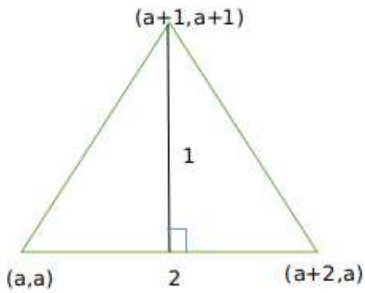
A a^3

B 1

C $2a$

D $2^{1/2}$

Answer: B

Explanation:
The triangle we have is :

The length of three sides is $\sqrt{2}$, $\sqrt{2}$ and 2.
This is a right-angled triangle.
Hence, it's area equals $1/2 * \sqrt{2} * \sqrt{2} = 1$
So, the correct answer is b)
Alternate Approach :
Area of triangle = $\frac{1}{2} \times base \times height$
So we get $\frac{1}{2} \times 2 \times 1$=1 square units

16. **Instead of walking along two adjacent sides of a rectangular field, a boy took a short cut along the diagonal and saved a distance equal to half the longer side. Then the ratio of the shorter side to the longer side is**

A 1/2

B 2/3

C 1/4

D 3/4

Answer: D

Explanation:
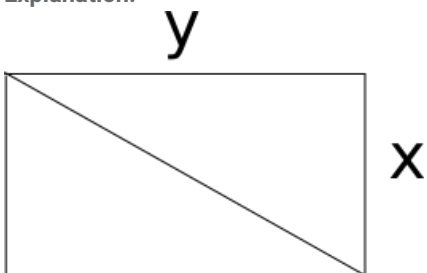
Let x be the shorter side and y be the longer one. The shortcut route would be of length $\sqrt{x^2 + y^2}$. According to given condition we know that (x+y)- $\sqrt{x^2 + y^2}$ = y/2 . Solving, we get 1=(x/y)+(1/4)

=> x : y = 3 : 4. Hence option D is the correct answer.

17. **Only a single rail track exists between stations A and B on a railway line. One hour after the northbound super fast train N leaves station A for station B, a south-bound passenger train S reaches station A from station B. The speed of the super fast train is twice that of a normal express train E, while the speed of a passenger train S is half that of E. On a particular day, N leaves for B from A, 20 min behind the normal schedule. In order to maintain the schedule, both N and S increased their speeds. If the super fast train doubles its speed, what should be the ratio (approximately) of the speeds of passenger train to that of the super fast train so that the passenger train S reaches exactly at the scheduled time at A on that day?**

A 1 : 3

B 1 : 4

C 1 : 5

D 1 : 6

Answer: D

Explanation:
Let the speed of an express train be 4x, normal train be 2x and passenger train be x.
Let the distance between the 2 stations be D.
Since there is only 1 railway track, train N must reach station B before train S leaves.
Therefore, D/4x + D/x = 60
5D/4x = 60
D/x = 48

Train N leaves 20 minutes late. Therefore, the 2 trains must have covered the distance within 40 minutes on this particular day.
Train N doubles its speed. Therefore, speed of train N will be 8x. Let the new speed of the passenger train be y.

D/8x + D/y = 40
48/8 + D/y = 40
D/y = 34.

Speed of super fast train = D/8x = 6
Speed of passenger train = D/y = 34

Ratio of the speeds = 6/34 = 3/17.
The ratio is approximately equal to 1:6. Therefore, option D is the right answer.

18. **On a 20 km tunnel, connecting two cities A and B, there are three gutters (1, 2 and 3). The distance between gutters 1 and 2 is half the distance between gutters 2 and 3. The distance from city A to its nearest gutter, gutter 1, is equal to the distance of city B from gutter 3. On a particular day, the hospital in city A receives information that an accident has happened at gutter 3. The victim can be saved only if an operation is started within 40 min. An ambulance started from city A at 30 km/hr and crossed gutter 1 after 5 min. If the driver had doubled the speed after that, what is the maximum amount of time would the doctor get to attend to the patient at the hospital.**

    Assume that a total of 1 min is elapsed for taking the patient into and out of the ambulance?

A 4 min

B 2.5 min

C 1.5 min

D The patient died before reaching the hospital

Answer: C

Explanation:

Let the distance between gutter 1 and A be x and between gutter 1 and 2 be y.

Hence, x + y + 2y + x = 20 => 2x+3y=20

Also x = 30kmph * 5/60 = 2.5km

Hence, y = 5km

After the ambulance doubles its speed it goes at 60kmph i.e. 1km per min. Hence, time taken for the rest of the journey = 15*2 + 2.5 = 32.5

It takes 1 min to load and unload the patient.

Hence, total time = 5 + 32.5 + 1 = 38.5 mins

So, the doctor would get 1.5 min to attend to the patient.

19. **Number S is obtained by squaring the sum of digits of a two-digit number D. If difference between S and D is 27, then the two-digit number D is**

A 24

B 54

C 34

D 45

   Answer: B

Explanation:
Consider the options:

24: (Square of sum of digits - the number) = 36 - 24 = 12

54: (Square of sum of digits - the number) = 81 - 54 = 27

34: (Square of sum of digits - the number) = 49 - 34 = 15

45: (Square of sum of digits - the number) = 81 - 45 = 36

So, option b) is the correct answer.

20. **The nth element of a series is represented as**

$$X_n = (-1)^n X_{n-1}$$
If $X_0 = x$ and $x > 0$, then which of the following is always true?

A X_n is positive if n is even

B X_n is positive if n is odd

C X_n is negative if n is even

D None of these

   Answer: D

Explanation:

Let x = 1, so, X_0 = 1

X_1 = -1

X_2 = -1

X_3 = 1

X_4 = 1

X_5 = -1

X_6 = -1

So, X_n need not be positive when n is even, X_n need not be positive when n is odd, X_n need not be negative when n is even. So, none o the first three options are correct.

21. **If x, y and z are real numbers such that x + y + z = 5 and xy + yz + zx = 3, what is the largest value that x can have?**

A 5/3

B $\sqrt{19}$

C 13/3

D None of these

Answer: C

Explanation:

The given equations are x + y + z = 5 -- (1) , xy + yz + zx = 3 -- (2)

xy + yz + zx = 3

x(y + z) + yz = 3

=> x (5 -x) +y (5 - x - y) = 3

=> $-y^2 - y(5 - x) - x^2 + 5x = 3$

=> $y^2 + y(x - 5) + (x^2 - 5x + 3) = 0$

The above equation should have real roots for y, => Determinant >= 0

=>$b^2 - 4ac > 0$

=> $(x - 5)^2 - 4(x^2 - 5x + 3) \geq 0$

=> $3x^2 - 10x - 13 \leq 0$

=> $-1 \leq x \leq \frac{13}{3}$

Hence maximum value x can take is $\frac{13}{3}$, and the corresponding values for y,z are $\frac{1}{3}$, $\frac{1}{3}$

22. **Neeraj has agreed to mow a lawn, which is a 20 m × 40 m rectangle. He mows it with 1 m wide strip. If Neeraj starts at one corner and mows around the lawn toward the centre, about how many times would he go round before he has mowed half the lawn? (Round off the answer to two decimal digits)**
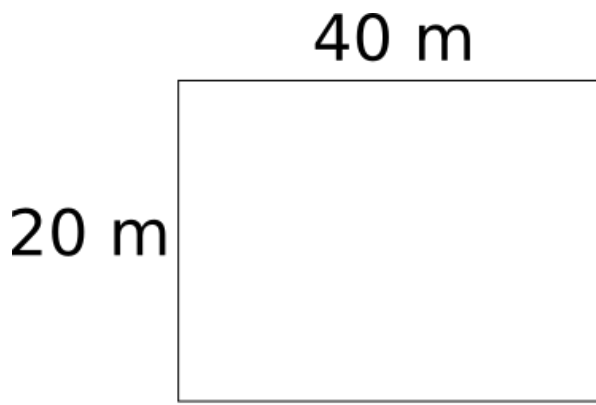
A 2.5

B 3.5

C 3.75

D None of these

Answer: D

Explanation:

40 m

20 m

To mow half of lawn is to mow 400 squares of 1m width each. Neeraj mows 40+18+40+18 = 116 squares of 1m width each in 1st round, in 2nd round he mows 38+16+38+16 = 108 squares and in 3rd round, he mows 36+14+36+14 = 100 squares. So, in total, he mows 324 squares; but he needs 400-324 = 76 more.

If he covers the 4th round completely, he mows 92 squares, to cover only 76, he needs to cover 76/92 = 0.826 round.

So in total 3.826 ≈ 3.83 rounds are required.

23. **The owner of a local jewellery store hired three watchmen to guard his diamonds, but a thief still got in and stole some diamonds. On the way out, the thief met each watchman, one at a time. To each he gave 1/2 of the diamonds he had then, and 2 more besides. He escaped with one diamond. How many did he steal originally?**

A   40

B   36

C   25

D   None of these

   Answer: B

Explanation:
Suppose the thief stole 'x' diamonds. \

After giving the share to the first watchman, the thief has (x/2)-2 diamonds.

After giving to the second watchman, the thief has (x/4)-3 diamonds.

After giving to the third watchman, the thief has (x/8)-(7/2) diamonds.

This is equal to 1. So, (x/8) - 7/2 = 1

Solving this equation, we get x = 36

24. **Mayank, Mirza, Little and Jaspal bought a motorbike for $60. Mayank paid one-half of the sum of the amounts paid by the other boys. Mirza paid one-third of the sum of the amounts paid by the other boys. Little paid one-fourth of the sum of the amounts paid by the other boys. How much did Jaspal have to pay?**

A $15

B $13

C $17

D   None of these

   Answer: B

Explanation:

Let the amount paid by Mayank be x. So, amount paid by the other three = 2x

=> Total bill = x+2x = 3x = 60 => x = 20. So, Mayank paid 20

Similarly, amount paid by Mirza + 3*Amount paid by Mirza = 60

=> Amount paid by Mirza = 15

Amount paid by Little + 4*Amount paid by Little = 60

=> Amount paid by Little = 12

So, amount paid by Jaspal = 60 - (20+15+12) = 60 - 47 = $13

25. **A rich merchant had collected many gold coins. He did not want anybody to know about him. One day, his wife asked, " How many gold coins do we have?" After a brief pause, he replied, "Well! if I divide the coins into two unequal numbers, then 48 times the difference between the two numbers equals the difference between the squares of the two numbers." The wife looked puzzled. Can you help the merchant's wife by finding out how many gold coins the merchant has?**

A 96

B 53

C 43

D None of these

   Answer: D

Explanation:

Let x = y+z such that z > y.

We know that $48 * (z - y)^2 = z^2 - y^2$

Solving the above equation, we get z + y = 48

So, option d) is the correct answer.

26. **Shyam visited Ram during his brief vacation. In the mornings they both would go for yoga. In the evenings they would play tennis. To have more fun, they indulge only in one activity per day, i.e. either they went for yoga or played tennis each day. There were days when they were lazy and stayed home all day long. There were 24 mornings when they did nothing, 14 evenings when they stayed at home, and a total of 22 days when they did yoga or played tennis. For how many days Shyam stayed with Ram?**

A 32

B 24

C 30

D None of these

   Answer: C

Explanation:

Let the number of total days=N
They played tennis for=N-14 days
They did yoga for =N-24 days
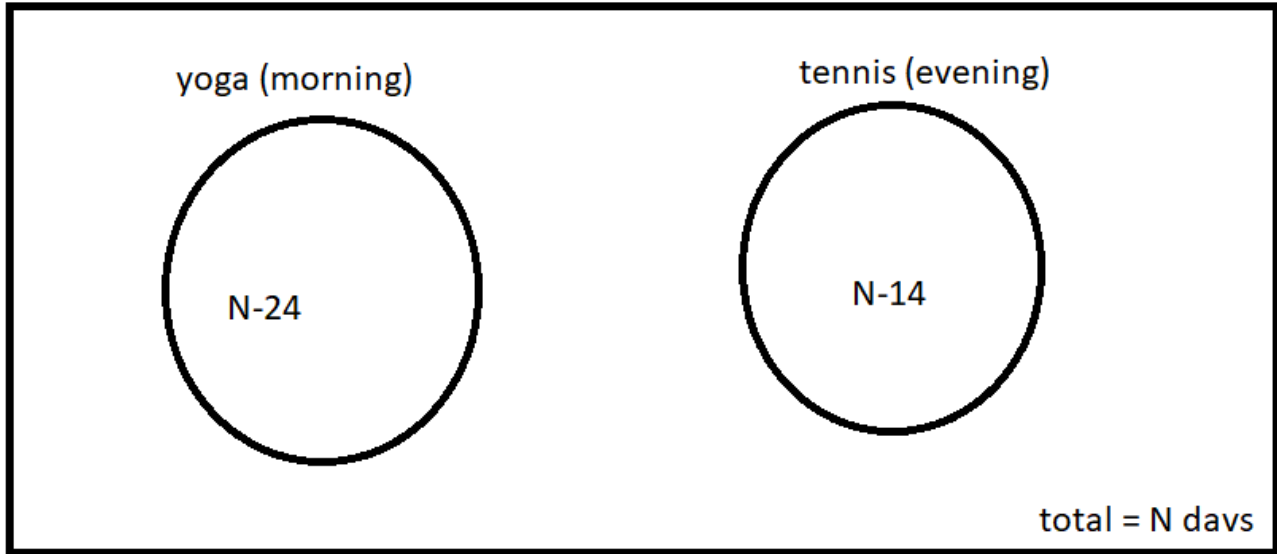
And the question says that total days when they did yoga or played tennis are 22

which means

N-14 + N-24 = 22

2N - 38 = 22

2N = 60

N = 30

Hence total days they stayed together were 30

27. **Let S denotes the infinite sum** $2 + 5x + 9x^2 + 14x^3 + 20x^4 + \dots$ **, where |x| < 1 and the coefficient of** x^{n-1} **is n(n + 3)/2 , (n = 1, 2 , . . .) . Then S equals:**

A $(2 - x)/(1 - x)^3$

B $(2 - x)/(1 + x)^3$

C $(2 + x)/(1 - x)^3$

D $(2 + x)/(1 + x)^3$

Answer: A

Explanation:
Let $S = 2 + 5x + 9x^2 + \dots$
$S * x = 2x + 5x^2 + 9x^3 + \dots$
$S(1 - x) = 2 + 3x + 4x^2 + \dots$
$S(1 - x) * x = 2x + 3x^2 + 4x^3 + \dots$
$S(1 - x)(1 - x) = 2 + x + x^2 + x^3 + \dots = 2 + x/(1 - x)$
So, $S = [2(1 - x) + x]/(1 - x)^3 => S = (2 - x)/(1 - x)^3$

28. **If** $x^2 + 5y^2 + z^2 = 2y(2x + z)$**, then which of the following statements is(are) necessarily true?**

A. x = 2y B. x = 2z C. 2x = z

A Only A

B B and C

C A and B

D None of these

   Answer: C

Explanation:

The equation is not satisfied for only x = 2y.

Using statements B and C, i.e., x = 2z and 2x = z, we see that the equation is not satisfied.

Using statements A and B, i.e., x = 2y and x = 2z, i.e., z = y = x/2, the equation is satisfied.

Option c) is the correct answer.

29. **Amol was asked to calculate the arithmetic mean of 10 positive integers, each of which had 2 digits. By mistake, he interchanged the 2 digits, say a and b, in one of these 10 integers. As a result, his answer for the arithmetic mean was 1.8 more than what it should have been. Then |b - a| equals**

A 1

B 2

C 3

D None of these

   Answer: B

Explanation:

Let the actual average be n. So, the new average is n + 1.8
Actual total = 10n
New total = 10n + 18

Let the number which was miswritten = ab(a is the tenth's digit and b is the units digit) = 10a+b

and reversed number ba = 10b+a

So, 10b + a - (10a + b) = 18
=> 9(b-a) = 18
=> b-a = 2

30. **A car rental agency has the following terms. If a car is rented for 5 hr or less, then, the charge is Rs. 60 per hour or Rs. 12 per kilometre whichever is more. On the other hand, if the car is rented for more than 5 hr, the charge is Rs. 50 per hour or Rs. 7.50 per kilometre whichever is more. Akil rented a car from this agency, drove it for 30 km and ended up playing Rs. 300. For how many hours did he rent the car?**

A 4 hr

B 5 hr

C 6 hr

D None of these

   Answer: C

Explanation:

Suppose Akil drove the car for less than 5 hrs. In this case, by distance basis, Rs 360 should be charged. This is not the case.

So he dove for more than 5 hrs. Cost comes more using time basis; which is Rs 300, i.e. he used the car for 6 hours.

31. **A child was asked to add first few natural numbers (i.e. 1 + 2 + 3 + …) so long his patience permitted. As he stopped, he gave the sum as 575. When the teacher declared the result wrong, the child discovered he had missed one number in the sequence during addition. The number he missed was**

A   less than 10

B   10

C   15

D   more than 15

   Answer: D

Explanation:

If the child adds all the numbers from 1 to 34, the sum of the numbers would be 1+2+3+...+34 = 34*35/2 = 595
Since the child got the sum as 575, he would have missed the number 20.

32. **Suppose for any real number x, [x] denotes the greatest integer less than or equal to x. Let L(x, y) = [x] + [y] + [x + y] and R(x, y) = [2x] + [2y]. Then it is impossible to find any two positive real numbers x and y for which**

A   L(x, y) = R(x, y)

B   L(x, y) ≠ R(x, y)

C   L(x, y) < R(x, y)

D   L(x, y) > R(x, y)

   Answer: D

Explanation:

Consider different values of x and y:

x = -1.5 and y = -1.5; x = 1.5 and y = -1.5; x = -1.5 and y = 1.5; x = 1.5 and y = 1.5.

For these possibilities, options A,B and C gets satisfied , but it is impossible to find any two positive real numbers x and y for which L(x, y) > R(x, y).

33. **Ten straight lines, no two of which are parallel and no three of which pass through any common point, are drawn on a plane. The total number of regions (including finite and infinite regions) into which the plane would be divided by the lines is**

A   56

B   255

C   1024

D not unique

    Answer: A

Explanation:

If there are 'm' non-parallel lines, then the maximum number of regions into which the plane is divided is given by

[m(m+1)/2]+1

In this case, 'm' = 10

So, the number of regions into which the plane is divided is (10*11/2) + 1 = 56

34. **When 2^{256} is divided by 17, the remainder would be**

A 1

B 16

C 14

D None of these

    Answer: A

Explanation:
$2^4 = 16 = -1 \text{ (mod 17)}$
So, $2^{256} = (-1)^{64} \text{(mod 17)}$
$= 1 \text{ (mod 17)}$
Hence, the answer is 1. Option a).

35. **The number of real roots of the equation $A^2/x + B^2/(x-1) = 1$, where A and B are real numbers not equal to zero simultaneously, is**

A 3

B 1

C 2

D Cannot be determined

    Answer: D

Explanation:
The given equation can be written as : $A^2 * (x-1) + B^2 * x = x^2 - x$
=> $x^2 + x(-1 - A^2 - B^2) + A^2 = 0$
Discriminant of the equation = $(-1 - A^2 - B^2)^2 - 4A^2$
=$A^4 + B^4 + 1 - 2A^2 + 2B^2 + 2A^2B^2$
= $A^4 + B^4 + 1 - 2A^2 - 2B^2 + 2A^2B^2 + 4B^2$
= $(A^2 + B^2 - 1)^2 + 4B^2$

>= 0, 0 when B =0 and A =1

Hence, the number of roots can be 1 or 2.

Option d) is the correct answer.

36. **At a bookstore, 'MODERN BOOK STORE' is flashed using neon lights. The words are individually flashed at the intervals of 2.5 s, 4.25 s and 5.125 s respectively, and each word is put off after a second. The least time after which the full name of the bookstore can be read again for a full second is**

A 49.5 s

B 72.5 s

C 1744.5 s

D 855 s

Answer: B

Explanation:

In this problem, the lights are flashed at the intervals 2.5, 4.25 and 5.125 seconds and put off after one second each.

The total duration of intervals of these lights are (2.5+1) = 3.5 s, (4.25+1) = 5.25 s and (5.125+1) = 6.125 s.

We have to find the minimum duration. It would be the LCM of thes three numbers.

Since each word is put after a second. So LCM $[(\frac{5}{2} + 1)(\frac{17}{4} + 1)(\frac{41}{8} + 1)]$ = LCM of numerator / HCF of denominator = 49*3/2 = 73.5. Hence they will glow for full one second after 73.5-1 =72.5 sec.

37. **Three pieces of cakes of weights 4.5 lb, 6.75 lb and 7.2 lb respectively are to be divided into parts of equal weight. Further, each part must be as heavy as possible. If one such part is served to each guest, then what is the maximum number of guests that could be entertained?**

A 54

B 72

C 20

D None of these

Answer: D

Explanation:

HCF of [(9/2), (27/4), (36/5)] = HCF of numerators / LCM of denominators = 9/20

Total weight = 18.45 lb

So no. of parts = 18.45 / (9/20) = 18.45*20/9 = 41

Hence option d) is the correct answer.

38. **After the division of a number successively by 3, 4 and 7, the remainders obtained are 2, 1 and 4 respectively. What will be the remainder if 84 divides the same number?**

A 80

B 75

C 41

D 53

Answer: D

Explanation:

Since after division of a number successively by 3, 4 and 7, the remainders obtained are 2, 1 and 4 respectively, the number is of form $((((4*4)+1)*3)+2)k = 53K$

Let k = 1; the number becomes 53

If it is divided by 84, the remainder is 53.

Option d) is the correct answer.

Alternative Solution.

Consider only for 3 and 4 and the remainders are 2 and 1 respectively.

So 5 is the first number to satisfy both the conditions. The number will be of the form 12k+5. Put different integral values of k to find whether it will leave remainder 5 when divided by 7. So the first number to satisfy such condition is 48x4+5= 53

39. **Six persons are playing a card game sitting around a circular table. Suresh is facing Raghubir who is to the left of Ajay and to the right of Pramod. Ajay is to the left of Dhiraj. Yogendra is to the left of Pramod. If Dhiraj exchanges his seat with Yogendra and Pramod exchanges with Raghubir, who will be sitting to the left of Dhiraj?**

A Yogendra

B Raghubir

C Suresh

D Ajay

Answer: C

Explanation:
The correct original circular arrangement sequence in clockwise manner is Suresh, Dhiraj, Ajay, Raghuveer, Pramod, Yogendra.
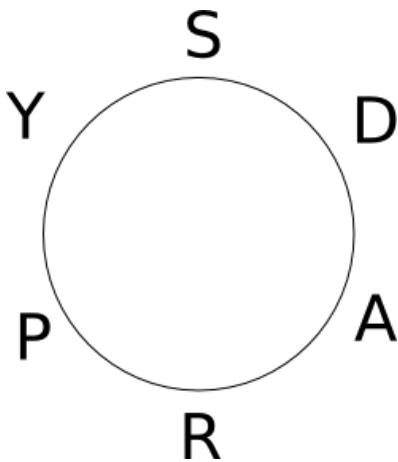
So after the changes, Suresh is to the left of Dhiraj.

40. **A train approaches a tunnel AB. Inside the tunnel is a cat located at a point that is 3/8 of the distance AB measured from the entrance A. When the train whistles the cat runs. If the cat moves to the entrance of the tunnel A, the train catches the cat exactly at the entrance. If the cat moves to the exit B, the train catches the cat at exactly the exit. What is the ratio of speed of train and cat ?**

A 3 : 1

B 4 :1

C 5 : 1

D None of these

Answer: B

Explanation:

Let the length of the tunnel be x and distance of the train to entrance A be y. Let the speeds of train and cat be t and c respectively.

Hence, when the cat runs 3x/8, the train covers y.

=> (3x/8)/c = y/t --- (1)

When the cat runs 5x/8 to the other end, the train covers x+y

=>(5x/8)/c = (x+y)/t ---(2)

Taking ratio of (1) to (2)

3/5 = y/(x+y) => 3x = 2y ---(3)

Substituting (3) in (1)

(2y/8)/c = y/t

=> t = 4c

Hence the ratio t:c is 4:1.

41. **A piece of string is 40 cm long. It is cut into three pieces. The longest piece is three times as long as the middle-sized and the shortest piece is 23 cm shorter than the longest piece. Find the length of the shortest piece.**

A 27

B 5

C 4

D 9

Answer: C

Explanation:

Let the longest piece be x
Shortest piece = x - 23
Middle-sized piece = x/3
So, x + x - 23 + x/3 = 40 => 7x/3 = 63 => x = 27
Shortest piece = 27 - 23 = 4

42. **Three travellers are sitting around a fire, and are about to eat a meal. One of them has 5 small loaves of bread, the second has 3 small loaves of bread. The third has no food, but has 8 coins. He offers to pay for some bread. They agree to share the 8 loaves equally among the three travellers, and the third traveller will pay 8 coins for his share of the 8 loaves. All loaves were the same size. The second traveller (who had 3 loaves) suggests that he will be paid 3 coins, and that the first traveller be paid 5 coins. The first traveller says that he should get more than 5 coins. How much should the first traveller get?**

A 5

B 7

C 1

D None of these

   Answer: B

Explanation:
Suppose A, B and C have 5 pieces of bread, 3 pieces of bread and 8 coins respectively. Since in total there are 8 pieces of bread, each one should get around 2.66 bread. So A must give 2.33 part of his bread to C and B must give 0.33. Distributing the amount in the same ratio of bread contribution, A must get 7 coins and B must get 1 coin.

43. **In the following figure, ACB is a right-angled triangle. AD is the altitude. Circles are inscribed within the triangle ACD and triangle BCD. P and Q are the centers of the circles. The distance PQ is**

   The length of AB is 15 m and AC is 20 m
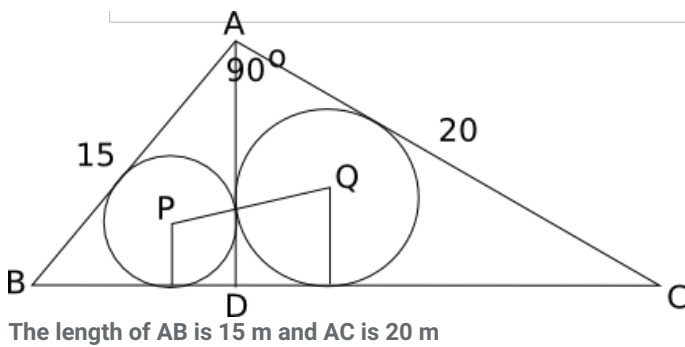
A 7 m

B 4.5 m

C 10.5 m

D 6 m

   Answer: A

Explanation:
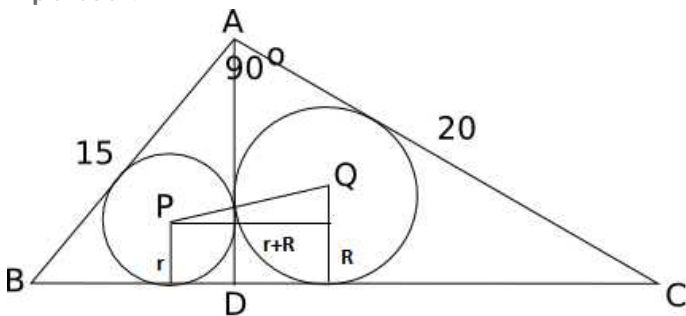
By Pythagoras theorem we get BC = 25 . Let BD = x;Triangle ABD is similar to triangle CBA => AD/15 = x/20 and also triangle ADC is similar to triangle ACB=> AD/20 = (25-x)/15. From the 2 equations, we get x = 9 and DC = 16

We know that AREA = (semi perimeter) * inradius

For triangle ABD, Area = 1/2 x BD X AD = 1/2 x 12 x 9 = 54 and semi perimeter = (15 + 9 + 12)/2 = 18. On using the above equation we get, inradius, r = 3.

Similarly for triangle ADC we get inradius R = 4 .

PQ = R + r = 7 cm

44. **If u, v, w and m are natural numbers such that $u^m + v^m = w^m$, then which one of the following is true?**

A m >= min(u, v, w)

B m >= max(u, v, w)

C m < min(u, v, w)

D None of these

   Answer: D

Explanation:
Substitute value of u = v = 2, w = 4 and m = 1. Here the condition holds and options A and B are false. Hence, we can eliminate options A and B.

Substitute u = v = 1, w=2 and m= 1. Here m=min(u, v, w). Hence, option C also does not hold. Hence, we can eliminate option C.

Option d) is the correct answer.

45. **In how many ways is it possible to choose a white square and a black square on a chessboard so that the squares must not lie in the same row or column?**

A 56

B 896

C 60

D 768

   Answer: D

Explanation:
First a black square can be selected in 32 ways. Out of remaining rows and columns, 24 white squares remain. 1 white square can them be chosen in 24 ways. So total no. of ways of selection is 32*24 = 768.

46. $7^{6n} - 6^{6n}$, **where n is an integer > 0, is divisible by**

A 13

B 127

C 559

D All of these

   Answer: D

Explanation:

Consider n=1 we have $7^6 - 6^6$ which is = $(7^3 + 6^3)(7^3 - 6^3)$ = 13 * 127 * 43 which is divisible by all the 3 options.

Option d) is the correct answer.

47. **If pqr = 1, the value of the expression** $1/(1 + p + q^{-1}) + 1/(1 + q + r^{-1}) + 1/(1 + r + p^{-1})$

A   p+q+r

B   1/(p+q+r)

C   1

D $p^{-1} + q^{-1} + r^{-1}$

Answer: C

Explanation:

Let p = q = r = 1

So, the value of the expression becomes 1/3 + 1/3 + 1/3 = 1

If we substitute these values, options a), b) and d) do not satisfy.

Option c) is the answer.

48. **It takes six technicians a total of 10 hr to build a new server from Direct Computer, with each working at the same rate. If six technicians start to build the server at 11 am, and one technician per hour is added beginning at 5 pm, at what time will the server be completed?**

   [CAT 2002]

A   6.40 pm

B   7 pm

C   7.20 pm

D   8 pm

Answer: D

Explanation:

Let the work done by each technician in one hour be 1 unit.
Therefore, total work to be done = 60 units.
From 11 AM to 5 PM, work done = 6*6 = 36 units.
Work remaining = 60 - 36 = 24 units.
Work done in the next 3 hours = 7 units + 8 units + 9 units = 24 units.
Therefore, the work gets done by 8 PM.

49. **Davji Shop sells samosas in boxes of different sizes. The samosas are priced at Rs. 2 per samosa up to 200 samosas. For every additional 20 samosas, the price of the whole lot goes down by 10 paise per samosa. What should be the maximum size of the box that would maximise the revenue?**

A 240

B 300

C 400

D None of these

 Answer: B

Explanation:
Let the optimum number of samosas be 200+20n

So, price of each samosa = (2-0.1*n)

Total price of all samosas = (2-0.1*n)*(200+20n) = $400 - 20n + 40n - 2n^2$ = $400 + 20n - 2n^2$

This quadratic equation attains a maximum at n = -20/2*(-2) = 5

So, the number of samosas to get the maximum revenue = 200 + 20*5 = 300

50. **Three small pumps and a large pump are filling a tank. Each of the three small pump works at 2/3 the rate of the large pump. If all four pumps work at the same time, they should fill the tank in what fraction of the time that it would have taken the large pump alone?**

 [CAT 2002]

A 4/7

B 1/3

C 2/3

D 3/4

 Answer: B

Explanation:
Let the work done by the big pump in one hour be 3 units.
Therefore, work done by each of the small pumps in one hour = 2 units.
Let the total work to be done in filling the tank be 9 units.
Therefore, time taken by the big pump if it operates alone = 9/3 = 3 hours.
If all the pumps operate together, the work done in one hour = 3 + 2*3 = 9 units.
Together, all of them can fill the tank in 1 hour.
Required ratio = 1/3

Data Interpretation

Instructions [51]

Four students — Ashish, Dhanraj, Felix and Sameer sat for the Common Entrance Exam for Management (CEEM). Each of the students has one profession among the four: Doctor, Chartered Accountant, Engineer, and Economist. One student got admission offers from three NIMs (National Institutes of Management), another from two NIMs, the third from one NIM, while the fourth got none. Below are some of the facts about who got admission offers from how many NIMs and what is their educational background.

I. The one who is an engineer didn't get as many admissions as Ashish.

II. The one who got the offer for admissions in two NIMs isn't Dhanraj nor is he a chartered accountant.

III. Sameer is an economist.

IV. Dhanraj isn't an engineer and received more admission offers than Ashish.

V. The doctor got the most number of admission offers.

51. **Which one of the following statements is necessarily true?**

A   Ashish is a chartered accountant and got offer for admission in three NIMs.

B   Dhanraj is a doctor and got admission offer in one NIM.

C   Sameer is an economist who got admission offers in two NIMs.

D   Felix who is not an engineer did not get any offer for admission.

Answer: C

Explanation:
From Statement I, we know that Ashish is not an engineer, and from Statement IV Dhanraj is not an engineer either. Since Sameer is an Economist, Felix must be the engineer.

Name	Ashish	Dhanraj	Felix	Sameer
Profession			Engineer	Economist

From Statement IV, Dhanraj got more offers than Ashish. Since Doctor got the most number of offers, Ashish is not the doctor:

Name	Ashish	Dhanraj	Felix	Sameer
Profession	CA	Doctor	Engineer	Economist

We know that the doctor got offers from 3 NIMs and Ashish got more offers than the engineer. Since Ashish is a CA and did not get 2 offers, he can only get 1 offer and the engineer gets none. The final table will look like this:

Name	Ashish	Dhanraj	Felix	Sameer
Profession	CA	Doctor	Engineer	Economist
No. of offers	1	3	0	2

Here, we can see that Sameer is an economist with offers from 2 NIMs. Hence only Option C is correct.

52. **Five boys went to a store to buy sweets. One boy had Rs. 40. Another boy had Rs. 30. Two other boys had Rs. 20 each. The remaining boy had Rs. 10. Below are some more facts about the initial and final cash positions.**

   I. Alam started with more than Jugraj.

   II. Sandeep spent Rs. 1.50 more than Daljeet.

   III. Ganesh started with more money than just only one other person.

   IV. Daljeet started with 2/3 of what Sandeep started with.

   V. Alam spent the most, but did not end with the least.

   VI. Jugraj spent the least and ended with more than Alam or Daljeet.

   VII.Ganesh spent Rs.3.50.

   VIII. Alam spent 10 times than what Ganesh did.

   In the choices given below, all statements except one are false. Which one of the following statements can be true?

A Alam started with Rs. 40 and ended with Rs. 9.50

B Sandeep started with Rs. 30 and ended with Re. 1

C Ganesh started with Rs. 20 and ended with Rs. 4

D Jugraj started with Rs. 10 and ended with Rs. 7

Answer: D

Explanation:

According to given condition we know that Alam started with 40 spent 35 and saved 5 , Daljeet started with 20 , ganesh started with 20 and saved 16.5 , Jugraj started with 10 and spent less than 3 rs , sandeep started with 30 and spent more than 1.5 rs. So among the options only option D satisfies given requirements.

53. **In a hospital there were 200 diabetes, 150 hyperglycaemia and 150 gastro-enteritis patients. Of these, 80 patients were treated for both diabetices and hyperglycaemia. Sixty patients were treated for gastro-enteritis and hyperglycaemia, while 70 were treated for diabetes and gastroenteritis. Some of these patients have all the three diseases. Dr. Dennis treats patients with only gastro-enteritis. Dr. Paul is a generalist. Therefore, he can treat patients with multiple diseases. Patients always prefer a specialist for their disease. If Dr. Dennis had 80 patients, then the other three doctors can be arranged in terms of the number of patients treated as:**

A Paul > Gerard > Hormis

B Paul > Hormis > Gerard

C Gerard > Paul > Hormis

D Cannot be determined

Answer: D

Explanation:

We dont know out of other 2 doctors which doctor is specialist in which disease.

So it is not possible to find out the exact order.

54. **Three children won the prizes in the Bournvita Quiz contest. They are from the schools: Loyola, Convent and Little Flowers, which are located at different cities. Below are some of the facts about the schools, the children and the city they are from.**

I. One of the children is Bipin.

II. Loyola School's contestant did not come first.

III. Little Flower's contestant was named Riaz.

IV. Convent School is not in Hyderabad.

V. The contestant from Pune is not from Loyola School.

VI. The contestant from Bangalore did not come first.

VII. Convent School's contestant's name is not Balbir.

VIII. The contestant from Pune came in third.

Which of the following statements is true?

A 1st prize: Riaz (Little Flowers), 2nd prize: Bipin (Convent), 3rd prize: Balbir (Loyola)

B 1st prize: Bipin (Convent), 2nd prize: Riaz (Little Flowers), 3rd prize: Balbir (Loyola)

C 1st prize: Riaz (Little Flowers), 2nd prize: Balbir (Loyola), 3rd prize: Bipin (Convent)

D 1st prize: Bipin (Convent), 2nd prize: Balbir (Loyola), 3rd prize: Riaz (Litttle Flowers)

Answer: C

Explanation:
We can get the following from the information provided.

	Student	City	School
1	Riaz	Hyderabad	Little Flower
2	Balbir	Bangalore	Loyola
3	Bipin	Pune	Convent

Hence, Option C is right.

55. Two boys are playing on a ground. Both the boys are less than 10 years old. Age of the younger boy is equal to the cube root of the product of the age of the two boys. If we place the digit representing the age of the younger boy to the left of the digit representing the age of the elder boy, we get the age of father of the younger boy. Similarly, if we place the digit representing the age of the elder boy to the left of the digit representing the age of the younger boy and divide the figure by 2, we get the age of mother of the younger boy. The mother of the younger boy is younger to his father by 3 years. Then, what is the age of the younger boy?

A 3

B 4

C 2

D None of these

Answer: C

Explanation:
Let x and y be the age of older and younger boy respectively(both single digit). According to given condition we know that $y^2 = x$.

Also Father's age = 10y + x and Mother's age = (10x+y)/2.

Only value which satisfies above equations is x=4 and y=2 .

56. **Flights A and B are scheduled from an airport within the next one hour. All the booked passengers of the two flights are waiting in the boarding hall after check-in. The hall has a seating capacity of 200, out of which 10% remained vacant. 40% of the waiting passengers are ladies. When boarding announcement came, passengers of flight A left the hall and boarded the flight. Seating capacity of each flight is two-third of the passengers who waited in the waiting hall for both the flights put together. Half the passengers who boarded flight A are women. After boarding for flight A, 60% of the waiting hall seats became empty. For every twenty of those who are still waiting in the hall for flight B, there is one air hostess in flight A. What is the ratio of empty seats in flight B to the number of air hostesses in flight A?**

A 10 : 1

B 5 : 1

C 20 : 1

D 1 : 1

Answer: A

Explanation:

Out of 200 of the seating capacity, 180 seats are filled out of which 108 are males and 72 are females. Remaining 20 seats are vacant. According to given condition seating capacity in both the planes is 120 . Considering flight A - we can find that 100 passenger in waiting hall will be taking fight A . So 80 people remain in in the waiting hall who will be taking flight B . Now for every 20 people taking flight B we have a air hostess in flight A . So in total there are 4 air hostess in flight A. Flight B having 120 as seating capacity, 40 remain vacant. So required ratio 40:4 = 10:1 .

Instructions [57 - 60]

A country has the following types of traffic signals.

3 red lights = stop

2 red lights = turn left

1 red light = turn right

3 green lights = go at 100 km/hr speed

2 green lights = go at 40 km/hr speed

1 green light = go at 20 km/hr speed

A motorist starts at a point on a road and follows all traffic signals. His car is heading towards the north. He encounters the following signals (the time mentioned in each case below is applicable after crossing the previous signal).

Starting point - 1 green light

After half an hour, 1st signal - 2 red and 2 green lights

After 15 min, 2nd signal - 1 red light

After half an hour, 3rd signal - 1 red and 3 green lights

After 24 min, 4th signal - 2 red and 2 green lights

After 15 min, 5th signal - 3 red lights

57. **The total distance travelled by the motorist from the starting point till the last signal is**

A   90 km

B   100 km

C   120 km

D   None of these

   Answer: A

Explanation:

The distance traveled by the car in particular direction is as follows : First 10 km in north then 10 km in west then 20 km north then 40 km east then again 10 km north.

So in all total distance traveled is 10+10+20+40+10 = 90 kms.

58. **What is the position (radial distance) of the most motorist when he reaches the last signal?**

A   45 km directly north of the starting point

B   30 km directly to the east of the starting point

C 50 km away to the north-east of the starting point

D 45 km away to the north-west of the starting point

Answer: C

Explanation:
According to given conditions, the car first travels 10 km north then 10 km to west then gain 20 km north then further travels east for 40 km then travel north for another 10 km before finally stopping. So in all the car travels 30 km to the east and 40 km north. Hence, calculating the distance radially we get 50 km in North-East direction.

59. **After the starting point if the 1st signal were 1 red and 2 green lights, what would be the final position of the motorist?**

A 30 km to the west and 20 km to the south

B 30 km to the west and 40 km to the north

C 50 km to the east and 40 km to the north

D Directly 30 km to the east

Answer: A

Explanation:
Now if after starting point at first point the 1st signal were 1 red and 2 green lights then distance traveled by the car would be as follows : 10 km in north then 10 km east then 20 km south then 40 km to west then 10 km to south . So overall the position of car is 30 km to the west and 20 km to south as compared to original position.

60. **If at the starting point, the car was heading towards south, what would be the final position of the motorist?**

A 30 km to the east and 40 km to the south

B 50 km to the east and 40 km to the south

C 30 km to the west and 40 km to the south

D 50 km to the west and 20 km to the north

Answer: C

Explanation:
If at the starting point, the car was heading towards south then following would have occured : 1st 10 km in south ,2nd 10 km east, 3rd 20 km in south ,4th 40 km west, 5tht 10 km in south so overall 30 km to the west and 40 km to the south from starting point.

Instructions [61 - 63]

The following table provides data on the different countries and location of their capitals. (the data may not match the actual Latitude, Longitudes) Answer the following questions on the basis of this table.

S. No.	Country	Capital	Latitude	Longitude
1	Argentina	Buenos Aires	34.30 S	58.20 E
2	Australia	Canberra	35.15 S	149.08 E
3	Austria	Vienna	48.12 N	16.22 E
4	Bulgaria	Sofia	42.45 N	23.20 E
5	Brazil	Brasilia	15.47 S	47.55 E
6	Canada	Ottawa	45.27 N	75.42 E
7	Cambodia	Phnom Penh	11.33 N	104.55 E
8	Equador	Quito	0.15 S	78.35 E
9	Ghana	Accra	5.35 N	0.6 E
10	Iran	Teheran	35.44 N	51.30 E
11	Ireland	Dublin	53.20 N	6.18 E
12	Libya	Tripoli	32.49 N	13.07 E
13	Malaysia	Kuala Lumpur	3.9 N	101.41 E
14	Peru	Lima	12.05 S	77.0 E
15	Poland	Warsaw	52.13 N	21.0 E
16	New Zealand	Wellington	41.17 S	174.47 E
17	Saudi Arabia	Riyadh	24.41 N	46.42 E
18	Spain	Madrid	40.25 N	3.45 W
19	Sri Lanka	Colombo	6.56 N	79.58 E
20	Zambia	Lusaka	15.28 S	28.16 E

61. **What percentage of cities located within 10 E° and 40 E° (10° East and 40° East) lie in the Southern Hemisphere?**

A   15%

B   20%

C   25%

D   30%

  Answer: B

Explanation:
There are 5 countries which lie from 10 Deg E to 40 Deg E , but out of those only 1 lie in southern hemisphere. hence 1*100/5 = 20%.

62. **The number of cities whose names begin with a consonant and are in the Northern Hemisphere in the table**

A   exceeds the number of cities whose names begin with a consonant and are in the southern hemisphere by 1

B   exceeds the number of cities whose names begin with a consonant and are in the southern hemisphere by 2

C   is less than the number of cities whose names begin with a consonant and are in the east of the meridian by 1

D   is less than the number of countries whose name begins with a consonant and are in the east of the meridian by 2

  Answer: D

Explanation:
There are 11 cities whose names begin with a consonant and are in the Northern Hemisphere in the table and there are 13 number of countries whose name begins with a consonant and are in the east of the meridian. Hence option D.

63. **The ratio of the number of countries whose name starts with vowels and located in the southern hemisphere, to the number of countries, the name of whose capital cities starts with a vowel in the table above is**

A   3 : 2

B 3 : 3

C 3 : 1

D 4 : 3

Answer: A

Explanation:

Number of countries whose name starts with vowels and located in the southern hemisphere are 3 and number of countries, the name of whose capital cities starts with a vowel in the table is 2.

Hence the ratio 3:2.

Instructions [64 - 67]

The following table gives details regarding the total earnings of 15 employees and the number of days they have worked on complex, medium and simple operation in the month of June 2002. Even though the employees might have worked on an operation, they would be eligible for earnings only if they have minimum level of efficiency.

Emp No.	Total Earning				Total Days			
	Complex	Medium	Simple	Total	Complex	Medium	Simple	Total
2001147	82.98		636.53	719.51	3	0	23	26
2001148	51.53		461.73	513.26	3.3	1.67	16	21
2001149	171.10		79.10	250.81	5.5	4	8.5	18
2001150	100.47		497.47	597.95	6	4.67	7.33	18
2001151	594.43	159.64		754.06	9.67	13.33	0	23
2001156	83.70			89.70	8	0	1	9
2001158	472.31	109.73		582.04	1.39	9.61	0	11
2001164	402.25	735.22	213.67	1351.14	5.27	12.07	0.67	18
2001170	576.57			576.57	21	0	0	21
2001171	286.47	6.10		292.57	8.38	4.25	0.38	13
2001172	512.10	117.46		629.56	10	8.5	3.5	22
2001173	1303.88			1303.88	25.5	0	0.5	26
2001174	1017.94			1017.9	26	0	0	26
2001179	46.56	776.19		822.75	2	19	0	21
2001180	116.40	1262.79		1379.19	5	19	0	24

64. **The number of employees who have earned more than Rs. 50 per day in complex operations is**

A 4

B 3

C 5

D 6

Answer: C

Explanation:

Average income can be found by dividing the total income by total number of days.
The average income is calculated as show in the table given below.

	Total Earning				Total Days				Average		
Emp No.	Complex	Medium	Simple	Total	Complex	Medium	Simple	Total	Complex	Medium	Simple
2001147	82.98	0	636.53	719.51	3	0	23	26	27.66	-	27.67522
2001148	51.53	0	461.73	513.26	3.3	1.67	16	21	15.61515	0	28.85813
2001149	171.10	0.61	79.10	250.81	5.5	4	8.5	18	31.10909	0.1525	9.305882
2001150	100.47	0.01	497.47	597.95	6	4.67	7.33	18	16.745	0.002141328	67.86767
2001151	594.43	159.64	0	754.06	9.67	13.33	0	23	61.47156	11.975994	-
2001156	83.70	0	6	89.70	8	0	1	9	10.4625	-	6
2001158	472.31	109.73	0	582.04	1.39	9.61	0	11	339.7914	11.41831426	-
2001164	402.25	735.22	213.67	1351.14	5.27	12.07	0.67	18	76.32827	60.91300746	318.9104
2001170	576.57	0	0	576.57	21	0	0	21	27.45571	-	-
2001171	286.47	6.10	0	292.57	8.38	4.25	0.38	13	34.18496	1.435294118	0
2001172	512.10	117.46	0	629.56	10	8.5	3.5	22	51.21	13.81882353	0
2001173	1303.88	0	0	1303.88	25.5	0	0.5	26	51.13255	-	0
2001174	1017.94	0	0	1017.9	26	0	0	26	39.15154	-	-
2001179	46.56	776.19	0	822.75	2	19	0	21	23.28	40.85210526	-
2001180	116.40	1262.79	0	1379.19	5	19	0	24	23.28	66.46263158	-

Using this formula, we can find that there are 5 employees (Employee IDs: 1151, 1158, 1164, 1172, and 1173) who earned more than Rs 50 per day.

65. **The number of employees who have earned more than Rs. 600 and having more than 80% attendance (there are 25 regular working days in June 2002; some might be coming on overtime too) is**

A 4

B 5

C 6

D 7

Answer: D

Explanation:

80% of attendance comes out to 20 days.

We can see from the table that there are 7 such employees who have earned more than Rs. 600 and having more than 80% of attendance.

Hence option D.

66. **The employee number of the person who has earned the maximum earnings per day in medium operation is**

A 2001180

B 2001164

C 2001172

D 2001179

Answer: A

Explanation:

We need to find the person who has the highest average per-day earnings in medium operations.

So, we divide the total income in medium operations by the total number of day in these operations.

Employee no. 2001180 earned 1262.9 by working 19 daysfor medium operation which is highest. Hence option A.

67. **Among the employees who were engaged in complex and medium operations, the number of employees whose average earning per day in complex operations is more than average earning per day in medium operations is**

A 2

B 3

C 5

D 8

Answer: D

Explanation:
The average income is calculated as show in the table given below.

Emp No.	Total Earning				Total Days				Average		
	Complex	Medium	Simple	Total	Complex	Medium	Simple	Total	Complex	Medium	Simple
2001147	82.98	0	636.53	719.51	3	0	23	26	27.66	-	27.67522
2001148	51.53	0	461.73	513.26	3.3	1.67	16	21	15.61515	0	28.85813
2001149	171.10	0.61	79.10	250.81	5.5	4	8.5	18	31.10909	0.1525	9.305882
2001150	100.47	0.01	497.47	597.95	6	4.67	7.33	18	16.745	0.002141328	67.86767
2001151	594.43	159.64	0	754.06	9.67	13.33	0	23	61.47156	11.975994	-
2001156	83.70	0	6	89.70	8	0	1	9	10.4625	-	6
2001158	472.31	109.73	0	582.04	1.39	9.61	0	11	339.7914	11.41831426	-
2001164	402.25	735.22	213.67	1351.14	5.27	12.07	0.67	18	76.32827	60.91300746	318.9104
2001170	576.57	0	0	576.57	21	0	0	21	27.45571	-	-
2001171	286.47	6.10	0	292.57	8.38	4.25	0.38	13	34.18496	1.435294118	0
2001172	512.10	117.46	0	629.56	10	8.5	3.5	22	51.21	13.81882353	0
2001173	1303.88	0	0	1303.88	25.5	0	0.5	26	51.13255	-	0
2001174	1017.94	0	0	1017.9	26	0	0	26	39.15154	-	-
2001179	46.56	776.19	0	822.75	2	19	0	21	23.28	40.85210526	-
2001180	116.40	1262.79	0	1379.19	5	19	0	24	23.28	66.46263158	-

From the table given we can make out that number of employees whose average earning per day in complex operations is more than average earning per day in medium operations for 8 employees (2001148, 2001149, 2001150, 2001151, 2001158, 2001164, 2001171, 2001172)

Instructions [68 - 75]

The following table shows the revenue and expenses in millions of Euros (European currency) associated with REPSOL YPF company's oil and gas producing activities in operations in different parts of the world for 1998-2000.

S. No.	Item	Year	Total World	Spain	North Africa & Middle East	Argentina	Rest of Latin America	Far East	North Sea	Rest of the World
1	Revenue	1998	916	70	366	281	34	82	78	5
		1999	3374	55	666	2006	115	301	140	91
		2000	8328	394	1290	5539	482	603	0	20
2	Expenses	1998	668	39	255	187	57	63	52	15
		1999	1999	48	325	1168	131	204	65	58
		2000	3709	43	530	2540	252	311	0	33
3	Income Before Taxes & Charges (Revenue - Expenses)	1998	248	31	111	94	−23	19	26	−10
		1999	1375	7	341	838	−16	97	75	33
		2000	4619	351	760	2999	230	292	0	−13
4	Taxes and Charges	1998	152	6	104	33	−3	9	6	−3
		1999	561	3	169	338	−6	39	21	−3
		2000	1845	126	404	1150	61	103	0	1
5	Net Income = (3)-(4)	1998	96	25	7	61	−20	10	20	−7
		1999	814	4	172	500	−10	58	54	36
		2000	2774	225	356	1849	169	189	0	−14

68. **How many operations (Spain, North Africa and Middle East,..) of the company accounted for less than 5% of the total revenue earned in 1999?**

A 2

B 3

C 4

D None of these

 Answer: C

Explanation:
5% of total revenue in the year 1999 is 168.7 . Manually counting number of countries where the revenue is less than 168.7, we see that 4 countries have revenue less than 168.7

69. **How many operations (Spain, North Africa and Middle East...) of the company witnessed more than 200% increase in revenue from 1999 to 2000?**

A 1

B 2

C 3

D None of these

 Answer: B

Explanation:
Spain and rest of latin america has witnessed more than 200% increase in revenue from 1999 to 2000 for the company.

70. **How many operations registered a sustained yearly increase in income before taxes and charges from 1998 to 2000?**

A 3

B 4

C 5

D None of these

 Answer: B

Explanation:
There are 4 such operations - North Africa & Middle East, Argentina, Rest of Latin America and Far East - that registered a sustained yearly increase in income before taxes and charges from 1998 to 2000.

71. **Ignoring the loss making operations of the company in 1998, for how many operations was the percentage increase in net income before taxes and charges higher than the average from 1998 to 1999?**

A 0

B 1

C 2

D None of these

 Answer: B

Explanation:
Percentage increase in net income before tax and

charges for total world (1998-99)

$= \frac{1375-248}{248} * 100$ = 454.4%

Spain is making loss.

Percentage increase for North Africa and Middle-East = $\frac{341-111}{111} * 100$ = 207.2%

Percentage increase for Argentina = $\frac{838-94}{94} * 100$ =791.5%

From the table one can directly say that there is no operation other than Argentina, whose percentage increase in net income before taxes and charges is higher than the average (world).

72. **If profitability is defined as the ratio of net income after taxes and charges to expense, which of the following statements is true?**

A The Far East operations witnessed its highest profitability in 1998

B The North Sea operations increased its profitability from 1998 to 1999

C The operations in Argentina witnessed a decrease in profitability from 1998 to 1999

D Both 2 and 3 are true

 Answer: B

Explanation:
Profitability for the North Sea operations in 1998 was 20/52 and in the year 1999 was 54/65 . Hence we can clearly see that the profitibility increased. hence option B.

73. **In 2000, which among the following countries had the best profitability?**

A North Africa and Middle East

B Spain

C Rest of Latin America

D Far East

 Answer: B

Explanation:

Profitability = $\frac{Net Income_{After Taxes}}{Expenses}$

In 2000, Spain had the best profitability of 225/43.

Hence option B.

74. **If efficiency is defined as the ratio of revenue to expenses, which operation was the least efficient in 2000?**

A Spain

B Argentina

C Far East

D None of these

Answer: D

Explanation:

Efficiency = $\frac{revenue}{expenses}$

In 2000, except Rest of the world, all the other operation have an efficiency of greater than 1.

Efficiency of Rest of the Worls = $\frac{20}{33}$, which is the least.

75. **Of the following statements, which one is not true?**

A The operations in Spain had the best efficiency in 2000

B The Far East operations witnessed an efficiency improvement from 1999 to 2000

C The North Sea operations witnessed an efficiency improvement from 1998 to 1999

D In 1998, the operations in Rest of Latin America were the least efficient

Answer: D

Explanation:

In 1998, the efficiency in Rest of Latin America was $\frac{34}{57}$.

In 1998, the efficiency in Rest of the world was $\frac{5}{15}$, which is less than $\frac{34}{57}$.
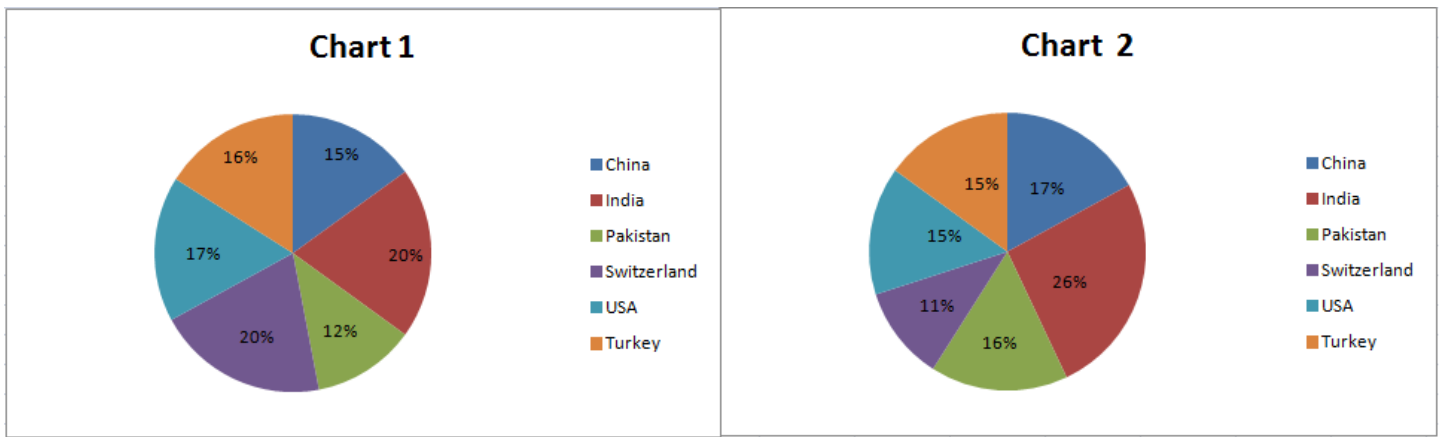
Hence, the efficiency of rest of latin america was not the least.

Instructions [76 - 77]

Chart 1 shows the distribution by value of top 6 suppliers of MFA Textiles in 1995.

Chart 2 shows the distribution by quantity of top 6 suppliers of MFA Textiles in 1995.

The total value is 5760 million Euro (European currency). The total quantity is 1.055 million tonnes.

Chart 1

China 15%, India 20%, Pakistan 12%, Switzerland 20%, USA 17%, Turkey 16%

Chart 2

China 17%, India 26%, Pakistan 16%, Switzerland 11%, USA 15%, Turkey 15%

76. **The country which has the highest average price is**

A   USA

B   Switzerland

C   Turkey

D   India

   Answer: B

Explanation:

The country which has the highest average price would have low quality and high value when compared to other countries..

Switzerland fits the above description.

Hence, option B is the answer.

77. **The average price in Euro per kilogram for Turkey is roughly**

A   6.20

B   5.60

C   4.20

D   4.80

   Answer: B

Explanation:

Turkey has a value of 16% and a quantity of 15%.

The average price in Euro per kilogram for Turkey is (16*5.760)/(15*1.055) which is nearly equal to 5.6.

Hence option B.

Instructions [78 - 83]

There are 6 refineries, 7 depots and 9 districts. The refineries are BB, BC, BD, BE, BF and BG. The depots are AA, AB, AC, AD, AE, AF and AG. The districts are AAA, AAB, AAC, AAD, AAE, AAF, AAG, AAH, and AAI. Table A gives the cost of transporting one unit from refinery to depot. Table B gives the cost of transporting one unit from depot to a district.

Table A

	BB	BC	BD	BE	BF	BG
AA	928.2	537.2	567.8	589.9	800.1	323.4
AB	311.8	595.7	885.7	759.9	793.1	420.1
AC	451.1	0	320.1	720.1	1000.1	404.5
AD	371.1	50.1	350.1	650.4	980.1	525.3
AE	1137.3	314.5	0	1157.7	406.3	617.5
AF	617.1	516.8	756.5	1065.9	623.9	509.4
AG	644.3	299.2	537.2	1093.1	725.8	827.4

Table B

	AA	AB	AC	AD	AE	AF	AG
AAA	571.1	205	352	159	434.5	178	337
AAB	200	337.5	291	201	0	980.7	434
AAC	100	0	275	277	850	770.5	835
AAD	0	415.7	350	760	300	560	444.7
AAE	223.5	300	440	1033	880	325	526.5
AAF	577.5	725	443.5	560	1035.3	570	530
AAG	340	410.6	886.7	0	800.7	680.5	800
AAH	627	556.5	1023	1024	759	1025.7	300
AAI	439	738	980	1031.7	1024	900	757

78. **What is the least cost of sending one unit from any refinery to any district?**

A   95.2

B   0

C   205.7

D   284.5

Answer: B

Explanation:
The least cost of sending one unit is from BC to AC and Then to AAC which is 0 . Hence option B.

79. **What is the least cost of sending one unit from any refinery to the district AAB?**

A   0

B   284.5

C   95.2

D   None of these

Answer: A

Explanation:
The least cost of sending one unit from any refinery to the district AAB is from BD to AE and then from AE to AAB. The whole cost is 0.

Hence option A.

80. **What is the least cost of sending one unit from refinery BB to any district?**

A 284.5

B 311.8

C 451.1

D None of these

  Answer: B

Explanation:
Route for least cost of sending one unit from refinery BB to any district, would be first from BB to AB and then from AB to AAC.

Hence total cost 311.8 + 0 = 311.8

81. **What is the least cost of sending petrol from refinery BB to district AAA?**

A 765.6

B 1137.3

C 1154.3

D None of these

  Answer: D

Explanation:
From the table, we can observe that the minimum cost of sending oil fro BB to AAA is via AB. Hence the total cost is 311.8+205 = 516.8

82. **How many possible ways are there for sending petrol from any refinery to any district?**

A 63

B 42

C 54

D 378

  Answer: D

Explanation:
1 refinery can be selected among 7 in 7 ways, depots can be further selected in 6 ways and any district ca be selected in 9 different ways.

So, answer is 7*6*9 = 378

83. **The largest cost of sending petrol from any refinery to any district is**

A 2172.6

B 2193.0

C 2091.0

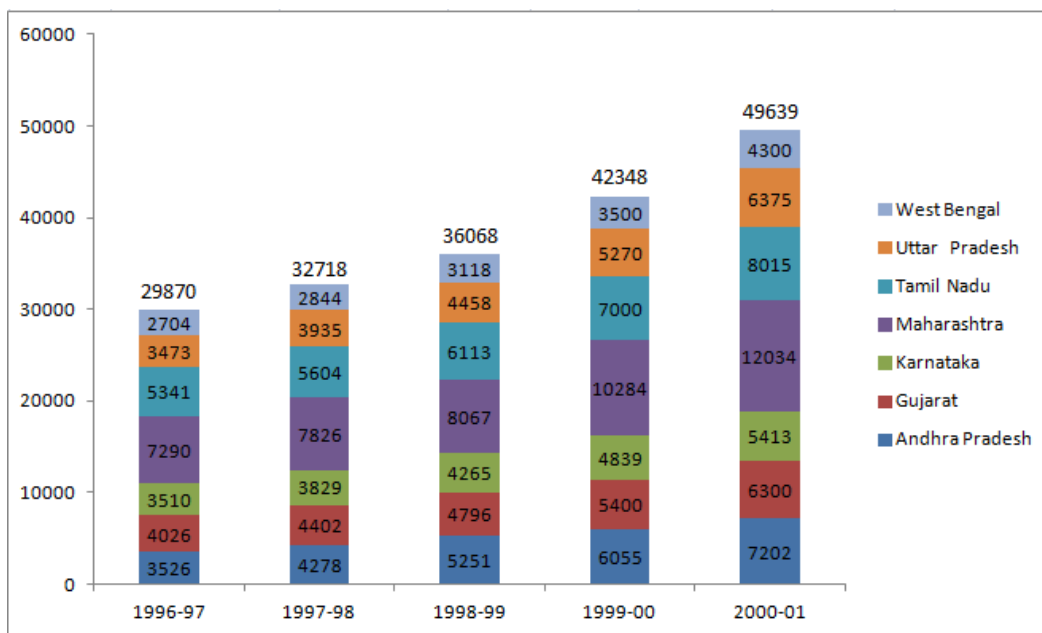**D** None of these

  Answer: B

Explanation:
The costliest route would be from BE to AE then AE to AAH i.e 1157.7+1035.3 = 2193

Instructions [84 - 89]

The chart given below indicates the annual sales tax revenue collections (in rupees in crores) of seven states from 1997 to 2001.

The values given at the top of each bar represents the total collections in that year

84. **If for each year, the states are ranked in terms of the descending order of sales tax collections, how many states do not change the ranking more than once over the five years?**

A 1

B 5

C 3

D 4

  Answer: B

Explanation:
We have to consider the ranking of that state that doesn't change throughout or changes only once.

The rankings of the states are as follows:

	1996 – 97	1997 – 98	1998 – 99	1999 – 00	2000 – 01
West Bengal	7	7	7	7	7
Uttar Pradesh	6	5	5	5	4
Tamil Nadu	2	2	2	2	2
Maharashtra	1	1	1	1	1
Karnataka	5	6	6	6	6
Gujarat	3	3	4	4	5
Andhra Pradesh	4	4	3	3	3

So, the states West Bengal, Tamil Nau, Maharashtra, Karnataka and Andhra Pradesh do not change their rankings more than once. There are 5 states in total under the criteria.

85. **Which of the following states has changed its relative ranking most number of times when you rank the states in terms of the descending volume of sales tax collections each year?**

A Andhra Pradesh

B Uttar Pradesh

C Karnataka

D Tamil Nadu

Answer: B

Explanation:
Ranking of UP changed 2 times which is highest among other states.

86. **The percentage share of sales tax revenue of which state has increased from 1997 to 2001?**

A Tamil Nadu

B Karnataka

C Gujarat

D Andhra Pradesh

Answer: D

Explanation:
The overall revenue has increased by a ratio of $\frac{49639}{29870}$ = 1.67.

So, the state whose revenue ratio increases by more than 1.67 is the answer.

Among the given options, only AP's sales tax revenue ratio has increased.

87. **Which pair of successive years shows the maximum growth rate of tax revenue in Maharashtra?**

A 1997 to 1998

B 1998 to 1999

C 1999 to 2000

D 2000 to 2001

Answer: C

Explanation:

Max growth rate can be calculated by finding percentage growth over previous year.

We can see a significant increase in the year 1999-2000.

On calculating the ratio, we get $\frac{10284}{8067}$ = 1.275, which is more than any other year.

Hence, 1999-2000 is the answer.

88. **Identify the state whose tax revenue increased exactly by the same amount in two successive pair of years?**

A Karnataka

B West Bengal

C Uttar Pradesh

D Tamil Nadu

Answer: A

Explanation:

Simple calculations show difference in values of sales for karnataka over 2 successive pair of years - 1999-2000 and 2000-2001 - same.

The increase in 1999-2000 = 4839 - 4265 = 574

The increase in 2000-2001 = 5413 - 4839 = 574

89. **Which state below has been maintaining a constant rank over the years in terms of its contribution to total tax collections?**

A Andhra Pradesh

B Karnataka

C Tamil Nadu

D Uttar Pradesh

Answer: C

Explanation:

Tamilnadu has maintaines the ranking of second highest tax revenue throughout the five years.

Hence, option C is the answer.

Instructions [90 - 92]

The table below gives information about four different crops, their different quality, categories and the regions where they are cultivated. Based on the information given in the table answer the questions below.

Type of Crop	Quality	Region
Crop - 1	High	R1, R2, R3, R4, R5
	Medium	R6, R7, R8
	Low	R9, R10, R11
Crop - 2	High	R5, R8, R12
	Medium	R9, R13
	Low	R6, R7, R8
Crop - 3	High	R2, R6, R7. R13
	Medium	R3, R9, R11
	Low	R1, R4
Crop - 4	High	R3, R10, R11
	Medium	R1, R2, R4
	Low	R5, R9

90. **How many regions produce medium qualities of Crop-1 or Crop-2 and also produce low quality of Crop-3 or Crop-4?**

A Zero

B One

C Two

D Three

   Answer: B

Explanation:
It can be seen that region 9 produce medium qualities of Crop-1 or Crop-2 and also produce low quality of Crop-3 or Crop-4.

91. **Which of the following statements is true?**

A All medium quality Crop-2 producing regions are also high quality Crop-3 producing regions.

B All high quality Crop-1 producing regions are also medium and low Crop-4 producing regions.

C There are exactly four Crop-3 producing regions, which also produce Crop-4 but not Crop-2.

D Some Crop-3 producing regions produce Crop-1, but not high quality Crop-2.

   Answer: D

Explanation:
High quality crop 2 is produced by R5, R8 and R12.

None of these regions produce crop 3.

Hence, option D is true.

None of the other options are true.

92. **How many low quality Crop-1 producing regions are either high quality Crop-4 producing regions or medium quality Crop-3 producing regions?**

A One

B Two

C Three

D Zero

   Answer: C

Explanation:

Take a look at the table,

The low producing areas corresponding to Crop 1 is R9, R10, R11

Now medium yield area corresponding to Crop 3 is R9 and high yield are corresponding to crop 4 is R10 and R11.

Hence all three area are mentioned in the above two categories.

93. **In a hockey match, the Indian team was behind by 2 goals with 5 min remaining. Did they win the match?**

   A. Deepak Thakur, the Indian striker, scored 3 goals in the last 5 min of the match.

   B. Korea scored a total of 3 goals in the match.

A The question can be answered by one of the statement alone but not by the other.

B The question can be answered by using either statement alone.

C The question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D The question cannot be answered by either of the statements.

   Answer: D

Explanation:

Considering statement B there are 2 possible score values before last 5 mins possible. Korea 3:1 India or Korea 2:0 India. Now considering statement A , in one case India wins (as the score becomes India 4:3 Korea) and in other there is a draw(as the score becomes India 3:3 Korea). Hence, The question cannot be answered by either of the statements.

94. **Four students were added to a dance class. Would the teacher be able to divide her students evenly into a dance team (or teams) of 8?**

   A. If 12 students were added, the teacher could put everyone in teams of 8 without any leftovers.

   B. The number of students in the class earlier was not divisible by 8.

A The question can be answered by one of the statement alone but not by the other.

B The question can be answered by using either statement alone.

C The question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D The question cannot be answered by either of the statements.

   Answer: A

Explanation:

Considering statement A 12 students can be written as 4 students + 8 students. Hence Even if only 4 students are added the teacher can divide students in teams of 8. Now considering statement B , we cant perfectly tell if after adding teacher can divide in teams of 8 . Hence only A is enough to answer the question. Hence , The question can be answered by one of the statement alone but not by the other.

95. **Is $x = y$?**

    A. $(x + y)(1/x + 1/y) = 4$

    B. $(x - 50)^2 = (y - 50)^2$

A   The question can be answered by one of the statement alone but not by the other.

B   The question can be answered by using either statement alone.

C   The question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D   The question cannot be answered by either of the statements.

   Answer: A

Explanation:
Consider statement 1:$(x + y)(1/x + 1/y) = 4$

$(x + y)^2/xy = 4$

$x^2 + y^2 + 2xy = 4xy$

$x^2 + y^2 + 2xy - 4xy = 0$

$(x - y)^2 = 0$

x = y.

Consider statement 2:$(x - 50)^2 = (y - 50)^2$

(x-y)(x+y-100) = 0

Either x = y or x+y = 100.

Statement 1 is sufficient whereas statement 2 is not sufficient to answer the question.

96. **A dress was initially listed at a price that would have given the store a profit of 20% of the wholesale cost. What was the wholesale cost of the dress?**

    A. After reducing the listed price by 10%, the dress sold for a net profit of $10.

    B. The dress is sold for $50.

A   The question can be answered by one of the statement alone but not by the other.

B   The question can be answered by using either statement alone.

C   The question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D   The question cannot be answered by either of the statements.

   Answer: A

Explanation:
Let the initial selling price be s1 and changed value be s2, also wholesale cost price be c. According to the given condition we have s1=1.28*c. By statement A we have s2=0.9*s1 and s2-c = 10 . Hence, wholesale cost price can be found out.

Considering statement B we have just s2=50. Using this we can't find c. Hence, the question can be answered by one of the statements alone but not by the other.

97. **Is 500 the average (arithmetic mean) score in the GMAT?**

   A. Half of the people who take the GMAT score above 500 and half of the people score below 500.

   B. The highest GMAT score is 800 and the lowest score is 200.

A   The question can be answered by one of the statement alone but not by the other.

B   The question can be answered by using either statement alone.

C   The question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D   The question cannot be answered by either of the statements.

   Answer: D

Explanation:

Consider statement A alone and assume that half of the people scored 600 and half of the people scored 499, so average is not 500

Also there is a possibility that average can be 500 when half of the people score about 500 and the other half score below 500.

Hence we won't get unique answer using A.

Consider statement B alone: We can't find average just by knowing the highest and the lowest score.

Even by using both the statements, we cannot find the answer to the question. Option d) is the correct answer.

98. **Is |x - 2| < 1?**

   A. |x| < 1

   B. |x - 1| < 2

A   if the question can be answered by using either statement alone.

B   if the question can be answered by one of the statement alone but not by the other.

C   if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D   if the question cannot be answered by either of the statements.

   Answer: B

Explanation:
Statement A: -1<x<1
-3<x-2<-1
So 1<mod(x-2)<3
It is definitely greater than 1

Statement B: -2<x-1<2
-3<x-2<1
which implies mod(x-2) might be greater than or less than 1

So only one statement is sufficient.

99. **People in a club either speak French or Russian or both. Find the number of people in a club who speak only French.**

    A. There are 300 people in the club and the number of people who speak both French and Russian is 196.

    B. The number of people who speak only Russian is 58.

A   if the question can be answered by one of the statement alone but not by the other.

B   if the question can be answered by using either statement alone.

C   if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D   if the question cannot be answered by either of the statements.

  Answer: C

Explanation:
Let x,y,z be the no. of people speaking only French, only Russian and both respectively. By statement A we have x+y+z = 300 and z = 196. Using this we can't find number of people in a club who speak only French.
Now considering statement B we have x = 58. So using both the statements together we can find number of people in a club who speak only French. Hence, option C is the correct answer.

100. **A sum of Rs. 38,500 was divided among Jagdish, Punit and Girish. Who received the minimum amount?**

    A. Jadgish received 2/9 of what Punit and Girish received together.

    B. Punit received 3/11 of what Jadgish and Girish received together.

A   if the question can be answered by one of the statement alone but not by the other.

B   if the question can be answered by using either statement alone.

C   if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D   if the question cannot be answered by either of the statements.

  Answer: C

Explanation:
Let amount received by Jagdish, Punit and Girish be j,p,g rs. such that j+p+g = 38500. According to statement A , j= 2*(p+g)/9 . Using this alone we can't answer the question.
Now consider statement B , we have p = 3*(j+g)/11. Using this alone we can't answer the question. But considering both statements together we can answer the question. Hence, option C is the correct answer.

Verbal

Instructions [101 - 103]

Directions for the next 3 questions: Fill the gaps in the passages below with the most appropriate word from the options given for each gap. The right words are the ones used by the author. Be guided by the author's overall style and meaning when you choose the answers.

Von Nuemann and Morgenstern assume a decision framework in which all options are thoroughly considered, each option being independent of the others, with a numerical value derived for the utility of each possible outcome (these outcomes reflecting, in turn, all possible combinations of choices). The decision is then made to maximize the expected utility. ... 1 ... such a model reflects major simplifications of the way divisions are made in the real world. Humans are not able to process information as quickly and effectively as the model assumes; they tend not to think ... 2 ... as easily as the model calls for; they often deal with a particular option without really assessing its ... 3 ... and when they do assess alternatives, they may be extremely nebulous about their criteria of evaluation.

101. **1**

A   Regrettably

B   Firstly

C   Obviously

D   Apparently

   Answer: A

Explanation:
The first two sentences of the paragraph start of with the description of the Von Nuemann framework on a positive note. The third sentence, however, points out the flaw in such a framework. The correct word that goes into the blank 1 is, therefore, 'Regrettably'.

102. **2**

A   quantitatively

B   systematically

C   scientifically

D   analytically

   Answer: A

Explanation:
The first part of the sentence, 'Humans are not able to process information as quickly and effectively as the model assumes;' hints that that the word in the blank should be 'quantitatively'.

103. **3**

A   implications

B   disadvantages

C   utility

D   alternatives

   Answer: D

Explanation:
The usage of the phrase "particular option" complements the word "alternatives".

Hence, option D is the answer.

Instructions [104 - 106]

Directions for the next 3 questions: Fill the gaps in the passages below with the most appropriate word from the options given for each gap. The right words are the ones used by the author. Be guided by the author's overall style and meaning when you choose the answers.

In a large company, ... 1 ... people is about as common as using a gun or a switch-blade to ... 2 ... an argument. As a result, most managers have little or no experience of firing people, and they find it emotionally traumatic; as result, they often delay the act interminably, much as an unhappy spouse will prolong a bad marriage. And when the firing is done, it's often done clumsily, with far worse side effects than are necessary. Do the world-class software organizations have a different way of firing people? No, but they do the deed swiftly, humanely, and professionally. The key point here is to view the fired employee as a 'failed product' and to ask how the process ... 3 ... such a phenomenon in the first place.

104. **Fill in the blank at 1.**

A dismissing

B punishing

C firing

D admonishing

Answer: C

Explanation:
The second sentence 'As a result, most managers have little or no experience of firing people,...' gives us the hint that the word in the first blank should be firing.

105. **Fill in the blank at 2.**

A resolve

B thwart

C defeat

D close

Answer: A

Explanation:
An argument is resolved and not thwarted or defeated or closed. So, the word in the second blank is 'resolve'.

106. **Fill in the blank at 3.**

A derived

B engineered

C produced

D allowed

Answer: D

Explanation:

According to the statement, a fired employee is a 'failed product' by itself and is not something that has been produced or trained by the organization. Therefore, a failure of the process is not likely to derive or engineer or produce such a product but it is likely to allow such a product. Therefore, the correct answer is 'allowed'.

Instructions [107 - 111]

Choose the best answer for each question.

The production of histories of India has become very frequent in recent years and may well call for some explanation. Why so many and why this one in particular? The reason is a two-fold one: changes in the Indian scene requiring a re-interpretation of the facts and changes in attitudes of historians about the essential elements of Indian history. These two considerations are in addition to the normal fact of fresh information, whether in the form of archaeological discoveries throwing fresh light on an obscure period or culture, or the revelations caused by the opening of archives or the release of private papers. The changes in the Indian scene are too obvious to need emphasis. Only two generations ago British rule seemed to most Indian as well as British observers likely to extend into an indefinite future; now there is a teenage generation which knows nothing of it. Changes in the attitudes of historians have occurred everywhere, changes in attitudes to the content of the subject as well as to particular countries, but in India, there have been some special features. Prior to the British, Indian historiographers were mostly Muslims, who relied, as in the case of Sayyid Ghulam Hussain, on their own recollection of events and on information from friends and men of affairs. Only a few like Abu'l Fazl had access to official papers. These were personal narratives of events, varying in value with the nature of the writer. The early British writers were officials. In the 18th century they were concerned with some aspect of Company policy, or like Robert Orme in his Military Transactions gave a straight narrative in what was essentially a continuation of the Muslim tradition. In the early 19th century the writers were still, with two notable exceptions, officials, but they were now engaged in chronicling, in varying moods of zest, pride, and awe, the rise of the British power in India to supremacy. The two exceptions were James Mill, with his critical attitude to the Company and John Marchman, the Baptist missionary. But they, like the officials, were anglo-centric in their attitude, so that the history of modern India in their hands came to be the history of the rise of the British in India.

The official school dominated the writing of Indian history until we get the first professional historian's approach. Ramsay Muir and P. E. Roberts in England and H. H. Dodwell in India. Then Indian historians trained in the English school joined in, of whom the most distinguished was Sir Jadunath Sarkar and the other notable writers: Surendranath Sen, Dr Radhakumud Mukherji, and Professor Nilakanta Sastri. They, it may be said, restored India to Indian history, but their bias was mainly political. Finally have come the nationalists who range from those who can find nothing good or true in the British to sophisticated historical philosophers like K. M. Panikker.

Along the types of historians with their varying bias have gone changes in the attitude to the content of Indian history. Here Indian historians have been influenced both by their local situation and by changes of thought elsewhere. It is this field that this work can claim some attention since it seeks to break new ground, or perhaps to deepen a freshly turned furrow in the field of Indian history. The early official historians were content with the glamour and drama of political history from Plassey to the Mutiny, from Dupleix to the Sikhs. But when the raj was settled down, glamour departed from politics, and they turned to the less glorious but more solid ground of administration. Not how India was conquered but how it was governed was the theme of this school of historians. It found its archpriest in H. H. Dodwell, its priestess in Dame Lilian Penson, and its chief shrine in the Volume VI of the Cambridge History of India. Meanwhile, in Britain other currents were moving, which led historical study into the economic and social fields. R. C. Dutt entered the first of these currents with his Economic History of India to be followed more recently by the whole group of Indian economic historians. W. E. Moreland extended these studies to the Mughal Period. Social history is now being increasingly studied and there is also of course a school of nationalist historians who see modern Indian history in terms of the rise and the fulfilment of the national movement.

All these approaches have value, but all share in the quality of being compartmental. It is not enough to remove political history from its pedestal of being the only kind of history worth having if it is merely to put other types of history in its place. Too exclusive an attention to economic, social, or administrative history can be as sterile and misleading as too much concentration on politics. A whole subject needs a whole treatment for understanding. A historian must dissect his subject into its elements and then fuse them together again into an integrated whole. The true history of a country must contain all the features just cited but must present them as parts of a single consistent theme.

107. **Which of the following may be the closest in meaning to the statement 'restored India to Indian history'?**

A   Indian historians began writing Indian history.

B   Trained historians began writing Indian history.

C   Writing India-centric Indian history began.

D   Indian history began to be written in India

Answer: C

Explanation:
Refer to the lines where it is written that "Then Indian Historians trained in the English school joined in, of whom the most distinguished was Sir Jadunath Sarkar and the other notable writers: Surendranath Sen, Dr. Radhakumud Mukerji, and Professor Nilakanta Shastri. They, it may be said, restored India to Indian history, but their bias was mainly political."
Also refer the last lines of the 1st para"But they, like the officials, were anglo-centric in their attitude, so that the history of modern India in their hands came to be the history of the rise of the British in India."
This clearly indicates option C.

108. **Which of the following is the closest implication of the statement 'to break new ground, or perhaps to deepen a freshly turned furrow'?**

A   Dig afresh or dig deeper.

B   Start a new stream of thought or help establish a recently emerged perspective.

C   Begin or conduct further work on existing archeological sites to unearth new evidence.

D   Begin writing a history free of any biases.

Answer: B

Explanation:
The second paragraph is about changes in historians throughout British era. Then author mentioned historians and their work post British era.

In the third paragraph author mentioned

"Along the types of historians with their varying bias have gone changes in the attitude to the content of Indian history. Here Indian historians have been influenced both by their local situation and by changes of thought elsewhere. It is this field that this work can claim some attention since it seeks to break new ground, or perhaps to deepen a freshly turned furrow in the field of Indian history." Here author mentioned that modern historians come with varying bias, change in their attitude. This can also result in new or in depth discoveries, perspectives.

Hence, option B is correct.

Option A is not a complete representation of what author said, or what he intended to. Option B is a closer implication than option A.

By the line "to break new ground, or perhaps to deepen a freshly turned furrow' author do not imply to begin writing a history free of any biases. It is because of historians free of bias we can find new perspective or start a new stream of thought. Hence, option D is incorrect.

Between B and C, B is more appropriate as compared to C because option C only talks about further work rather than starting from new.

109. **Historians moved from writing political history to writing administrative history because**

A   attitudes of the historians changed.

B   the raj was settled down.

C   politics did not retain its past glamour.

D   administrative history was based on solid ground.

Answer: C

Explanation:

Refer to the 2nd last para where it is written "The early official historians were content with the glamour and drama of political history: Plassey to the Mutiny, from Dupleix to the Sikhs. But when the raj was settled down, glamour departed from politics, and they turned to the less glorious but more solid ground of administration."

Using this line, we can say that option C is the answer.

110. **According to the author, which of the following is not among the attitudes of historians mapping Indian history?**

A Writing history as personal narratives.

B Writing history with political bias.

C Writing non-political history due to lack of glamour.

D Writing history by dissecting elements and integrating them again.

Answer: D

Explanation:

Refer to the following lines

"Only a few like Abul Fazl had access to official papers. These were personal narrative of events varying in value with the nature of the writer."-1st para - This line eliminates Option A.

"Then Indian Historians trained in the English school joined in, of whom the most distinguished was Sir Jadunath Sarkar and the other notable writers: Surendranath Sen, Dr. Radhakumud Mukerji, and Professor Nilakanta Shastri. They, it may be said, restored India to Indian history, but their bias was mainly political."-2nd para - This line eliminates option B.

"The early official historians were content with the glamour and drama of political history: Plassey to the Mutiny, from Dupleix to the Sikhs. But when the raj was settled down, glamour departed from politics, and they turned to the less glorious but more solid ground of administration."-3rd para - This line eliminates option C.

Option D is not mentioned in the passage. Hence, option D is the answer.

111. **In the list given below, match the historians to the approaches taken by them.**

   A - Administrative

   B -Political

   C - Narrative

   D - Economic

   E - Robert Orme

   F - H.H. Dodwell

   G - Radha Kumud Mukherji

   H - R.C. Dutt

A A - F, B - G, C - E, D - H

B A - G, B - F, C - E, D - H

C A - E, B - F, C - G, D - H

D A - F, B - H, C - E, D - G

Answer: A

Explanation:
"Robert Orme in his Military Transactions gave a straight narrative" => C - E

"Then Indian historians trained in the English school joined in, of whom the most distinguished was Sir Jadunath Sarkar and the other notable writers: Surendranath Sen, Dr Radhakumud Mukherji, and Professor Nilakanta Sastri. They, it may be said, restored India to Indian history, but their bias was mainly political" => B - G

"R. C. Dutt entered the first of these currents with his Economic History" => D - H

=> Option A is the answer.

Instructions [112 - 117]

There are a seemingly endless variety of laws, restrictions, customs and traditions that affect the practice of abortion around the world. Globally, abortion is probably the single most controversial issue in the whole area of women's rights and family matters. It is an issue that inflames women's right groups, religious institutions, and the self-proclaimed 'guardians' of public morality. The growing worldwide belief is that the right to control one's fertility is a basic human right. This has resulted in a worldwide trend towards liberalization of abortion laws. Forty per cent of the world's population live in countries where induced abortion is permitted on request. An additional 25 per cent live in countries where it is allowed if the women's life would be endangered if she went to full term with her pregancy. The estimate is that between 26 and 31 million legal abortions were performed in that year. However, there were also between 10 and 22 million illegal abortions performed in that year.

Feminists have viewed the patriarchal control of women's bodies as one of the prime issues facing the contemporary women's movement. They abserve that the defintion and control of women's reproductive freedom have always been the province of men. Patriarchal religion, as manifest in Islamic fundamentalism,traditionalist Hindu practice, orthodox Judaism, and Roman Catholicism, has been an important historical contributory factor for this and continues to be an important presence in contemporary societies. In recent times, govenments, usually controlled by men, have 'given' women the right to contraceptive use and abortion access when their countries were perceived to have an overpopulation problem. When these countries are perceived to be underpopulated, that right had been absent. Until the 19th century, a woman's rights to an abortion followed English common law; it could only be legally challenged if there was a 'quickening', when the first movements of the fetus could be felt. In 1800, drugs to induce abrotions were widely advertised in local newpapers. By 1900, abortion was banned in every state except to save the life of the mother. The change was strongly influenced by medical profession, which focussed its campaign ostensibly on health and safety issues for pregnant women and the sancity of life. Its position was also a means of control of non-licensed medical practitioners such as midwives and women healers who practiced abortion.

The anti-abortion campaign was also influenced by political considerations. The large influx of eastern and southern European immigrants with their large families was seen as a threat to the population balance of the future United States. Middle and upper-classes Protestants were advocates of abortion as a form of birth control. By supporting abortion prohibitions the hope was that these Americans would have more children and thus prevent the tide of immigrant babies from overwhelming the demographic characteristics of Protestant America.

The anti-abortion legislative position remained in effect in the United States through the first 65 years of the 20th century. In the early 1960s, even when it was widely known that the drug thalidomide taken during pregnancy to alleviate anxiety was shown to contribute to the formation of deformed 'flipper-like' hands or legs of children, abortion was illegal in the United States. A second health tragedy was the severe outbreak of rubella during the same time period, which also resulted in major birth defects. These tragedies combined with a change of attitude towards a woman's right to privacy led a number of states to pass abortion permitting legislation.

On one side of the controversy are those who call themselves 'pro-life'. They view the foetus as a human life rather than as an unformed complex of cells; therefore, they hold to the belief that abortion is essentially murder of an unborn child. These groups cite both legal and religious reasons for their opposition to abortion. Pro lifers point to the rise in legalised abortion figures and see this as morally intolerable. On the other side of the issue are those who call themselves 'pro-choice'. They believe that women, not legislators or judges, should have the right to decide whether and under what circumstances they will bear children. Pro-choicers are of the opinion that laws will not prevent women from having abortions and cite the horror stories of the past when many women died at the hands of 'backroom' abortionists and in desperate attempts to self-abort. They also observe that legalized abortion is especially important for rape victims and incest victims who became pregnant. They stress physical and mental health reasons why women should not have unwanted children.

To get a better understanding of the current abortion controversy, let us examine a very important work by Kristin Luker titled Abortion and the Politics of Motherhood. Luker argues that female pro-choice and prolife activists hold different world views regarding gender, sex, and the meaning of parenthood. Moral positions on abortions are seen to be tied intimately to views on sexual bahaviour, the care of children, family life, technology, and the importance of the individual. Luker identified 'pro-choice' women as educated, affluent, and liberal. Their contrasting counterparts, 'pro-life' women, support traditional concepts of women as wives and mothers. It would be

instructive to sketch out the differences in the world views of these two sets of women. Luker examines California, with its liberalized abortion law, as a case history. Public documents and newspaper accounts over a 26-year period were analysed and over 200 interviews were held withheld with both pro-life and pro-choice activists.

Luker found that pro-life and pro-choice activists have intrinsically different views with respect to gender. Pro-life women have a notion of public and private life. The proper place for men is in the public sphere of work; for women, it is the private sphere of the home. Men benefit through the nurturance of women; women benefit through the protection of men. Children are seen to be the ultimate beneficiaries of this arrangement of having the mother as a full-time loving parent and by having clear role models. Pro-choice advocates reject the view of separate spheres. They object to the notion of the home being the 'women's sphere'. Women's reproductive and family roles are seen as potential barriers to full equality. Motherhood is seen as a voluntary, not a mandatory or 'natural' role. In summarizing her findings, Luker believes that women become activists in either of the two movements as the end result of lives that centre around different conceptualizations of motherhood. Their beliefs and values are rooted to the concrete circumstances of their lives, their educations, incomes, occupations, and the different marital and family choices that they have made. They represent two different world views of women's roles in contemporary society and as such the abortion issues represent the battleground for the justification of their respective views.

112. **According to your understanding of the author's arguments, which countries are more likely to allow abortion?**

A   Over populated countries like India and China

B   Underpopulated countries like Australia and Mongolia

C   Cannot be inferred from the passage

D   Both (1) and (2)

Answer: A

Explanation:
Refer to the lines of the 2nd para "In recent times, governments, usually controlled by men, have 'given' women the right to contraceptive use and abortion access when their countries were perceived to have an overpopulation problem, when these countries are perceived to be under-populated, that right has been absent."

According to this, we can say that option A is the answer.

113. **Which amongst these was not a reason for banning of abortions by 1900?**

A   Medical professionals stressing the health and safety of women

B   Influx of eastern and sourthern European immigrants

C   Control of unlicensed medical practitioners

D   A tradition of matriarchal control

Answer: D

Explanation:
Refer to the 2nd para and the 3rd para "The change was strongly influenced by the medical profession, which focused its campaign ostensibly on health and safety issues for pregnant women and the sanctity of life. Its position was also means of control of non-licensed medical practitioners such as midwives and women healers who practiced abortion." "The large influx of eastern and southern European immigrants with their large families was seen as threat to the population balance of the future United States."
Options A, B and C are stated in these lines. Hence, option D is the answer.

114. **A pro-life woman would advocate abortion if**

A the mother of an unborn child is suicidal.

B bearing a child conflicts with a woman's career prospects.

C the mother becomes pregnant accidentally.

D None of these

   Answer: D

Explanation:
In the paragraph, it is not mentioned when the pro-life would advocate abortion.

Hence, none of these is the answer.

115. **Pro-choice women object to the notion of the home being the 'women's sphere' because they believe**

A that home is a 'joint sphere' shared between men and women.

B that reproduction is a matter of choice for women

C that men and women are equal

D Both (2) and (3)

   Answer: D

Explanation:
Refer to the lines of the last para where it is written " Pro-choice advocates reject the view of separate spheres. They object to the notion of the home being the 'women's sphere'. Women's reproductive and family roles are seen as potential barriers to full equality. Motherhood is seen as a voluntary, not a mandatory or 'natural' role."
Both option B and option C are stated in these lines.

Hence, option D is the answer.

116. **Two health tragedies affecting the US society in the 1960s led to**

A a change in attitude to women's right to privacy.

B retaining the anti-abortion laws with some exceptions.

C scrapping of anti-abortion laws.

D strengthening of the pro-life lobby.

   Answer: C

Explanation:
Refer to the lines "In the early 1960s, even when it was widely known that the drug thalidomide taken during pregnancy to alleviate anxiety was shown to contribute to the formation of deformed 'flipper-like' hands or legs of children, abortion was illegal in the United States. A second health tragedy combined with a change of attitude towards a woman's right to privacy led a number of states to pass abortion-permitting legislation."
As some abortion permitting laws are passed, it can be inferred that some of the anti abortion laws must have been scrapped in those states. Hence, option C is the right answer.

117. **Historically, the pro-choice movements has got support from, among others,**

A   major patriarchal religions.

B   countries with low population density.

C   medical profession.

D   None of these

   Answer: D

Explanation:
It is nowhere mentioned in the paragraph about the support of pro-choice group. Likewise, it is mentioned that the banning of abortion was influenced by medical profession. Patriarchial religions always observed that the women reproductive freedom is always in the domain of men. Hence the correct answer is option D.

Instructions [118 - 121]

The conceptions of life and the world which we call 'philosophical' are a product of two factors: one, inherited religious and ethical conceptions; the other, the sort of investigation which may be called 'scientific', using this word in its broadest sense. Individual philosophers have differed widely in regard to the proportions in which these two factors entered into their systems, but it is the presence of both, in some degree, that characterizes philosophy.

'Philosophy' is a word which has been used in many ways, some wider, some narrower. I propose to use it in a very wide sense, which I will now try to explain.

Philosophy, as I shall understand the word, is something intermediate between theology and science. Like theology, it consists of speculations on matters as to which definite knowledge has, so far, been unascertainable; but like science, it appeals to human reason rather than to authority, whether that of tradition or that of revelation. All definite knowledge, so I should contend, belongs to science; all dogma as to what surpasses definite knowledge belongs to thelogy. But between theology and science there is a 'No man's Land', exposed to attack from both sides; this 'No Man's Land' is philosophy. Almost all the questions of most interest to speculative minds are such as science cannot answer, and the confident answers of theologians no longer seem so convincing as they did in former centuries. Is the world divided into mind and matter, and if so, what is mind and what is matter? Is mind subject to matter, or is it possessed of independent powers? Has the universe any unity or purpose? It is evolving towards some goal? Are there really laws of nature, or do we believe in them only because of our innate love of order? Is man what he seems to the astronomer, a tiny lump of carbon and water impotently crawling on a small and unimportant planet? Or is he what he appears to Hamlet? Is he perhaps both at once? Is there a way of living that is noble and another that is base, or are all ways of living merely futile? If there is a way of living that is noble, in what does it consist, and how shall we achieve it? Must the good be eternal in order to deserve to be valued, or is it worth seeking even if the universe is inexorably moving towards death? Is there such a thing as wisdom, or is what seems such merely the ultimate refinement of folly? To such questions no answer can be found in the laboratory. Theologies have professed to give answers, all too definite; but their definiteness causes modern minds to view them with suspicion. The studying of these questions, if not the answering of them, is the business of philosophy.

Why, then, you may ask, waste time on such insoluble problems? To this one may answer as a historian, or as an individual facing the terror of cosmic loneliness.

The answer of the historian, in so far as I am capable of giving it, will appear in the course of this work. Ever since men became capable of free speculation, their actions in innumerable important respects, have depended upon their theories as to the world and human life, as to what is good and what is evil. This is as true in the present day as at any former time. To understand an age or a nation, we must understand its philosophy, and to understand its philosophy we must ourselves be in some degree philosophers. There is here a reciprocal causation: the circumstances of men's lives do much to determine their philosophy, but, conversely, their philosophy does much to determine their circumstances.

There is also, however, a more personal answer. Science tells us what we can know, but what we can know is little, and if we forget how much we cannot know we may become insensitive to many things of very great importance. Theology, on the other hand, induces a dogmatic belief that we have knowledge, where in fact we have ignorance, and by doing so generates a kind of impertinent insolence towards the universe. Uncertainty, in the presence of vivid hopes and fears, is painful, but must be endured if we wish to live without the support of comforting fairy tales. It is good either to forget the questions that philosophy asks, or to persuade ourselves that we have found indubitable answers to them. To teach how to live without certainty, and yet without being paralyzed by hesitation, is perhaps the

chief thing that philosophy, in our age, can still do for those who study it.

118. **The purpose of philosophy is to**

A reduce uncertainty and choas.

B help us to cope with uncertainty and ambiguity.

C help us to find explanations for uncertainty.

D reduce the terror of cosmic loneliness.

Answer: B

Explanation:
Refer to the last lines of the last para "To teach how to live without certainly, and yet without being paralyzed by hesitation, is perhaps the chief things that philosophy, in our age, can still do for those who study it."

119. **Based on the passage, what can be concluded about the relation between philosophy and science?**

A The two are antagonistic.

B The two are complementary.

C There is no relation between the two.

D Philosophy derives from science.

Answer: B

Explanation:
A and C are incorrect as there are no references to these options.
Between B and D, B is more suitable if we rea the lines of 3rd para " All definite knowledge-so I should contend-belongs to science; all dogma as to what surpass definite knowledge to theology. But between theology and science there is a 'No man's Land' exposed to attack from both sides; this 'No Man's Land' is philosophy. Almost all the questions of most interest to speculative minds are such as science cannot answer, and the confident answers of theologians no longer seem so convincing as they did in former centuries. Is the world divided into mind and matter, and if so, what is mind and what is matter? "

120. **From reading the passage, what can be concluded about the profession of the author? He is most likely not to be a**

A historian.

B philosopher.

C scientist.

D theologian.

Answer: D

Explanation:
The correct answer is D as the author does not give the positive views about theologians throughout the passage. For eg. refer to the

given lines:"Almost all the questions of most interest to speculative minds are such as science cannot answer, and the confident answers of theologians no longer seem so convincing as they did in former centuries." There are many examples in the passage in which the author does not present the favourable views about theologians.

121. **According to the author, which of the following statements about the nature of universe must be definitely true?**

A The universe has unity.

B The universe has a purpose.

C The universe is evolving towards a goal.

D None of these

   Answer: D

Explanation:
Refer to the lines of the 3rd para " Is mind subject matter, or is it possessed of independent powers? Has the universe any unity or purpose? Is it evolving towards some goal? Are there really laws of nature, or do we believe in them only because of our innate love of order? "
All options are covered in these lines. According to the author, there are no definite answers to these questions. Hence, none of these statements is definitely true.

Instructions [122 - 126]

Cells are the ultimate multi-taskers: they can switch on genes and carry out their orders, talk to each other, divide in two, and much more, all at the same time. But they couldn't do any of these tricks without a power source to generate movement. The inside of a cell bustles with more traffic than Delhi roads, and, like all vehicles, the cell's moving parts need engines. Physicists and biologists have looked 'under the hood' of the cell and laid out the nuts and bolts of molecular engines.

The ability of such engines to convert chemical energy into motion is the envy of nanotechnology researchers looking for ways to power molecule-sized devices. Medical researchers also want to understand how these engines work. Because these molecules are essential for cell division, scientists hope to shut down the rampant growth of cancer cells by deactivating certain motors. Improving motor-driven transport in nerve cells may also be helpful for treating diseases such as Alzheimer's, Parkinson's or ALS, also known as Lou Gehrig's disease.

We wouldn't make it far in life without motor proteins. Our muscles wouldn't contract. We couldn't grow because the growth process requires cells to duplicate their machinery and pull the copies apart. And our genes would be silent without the services of messenger RNA, which carries genetic instructions over to the cell's protein-making factories. The movements that make these cellular activities possible occur along a complex network of threadlike fibres, or polymers, along which bundles of molecules travel like trams. The engines that power the cell's freight are three families of proteins called myosin, kinesin and dynein. For fuel, these proteins burn molecules of ATP, which cells make when they break down the carbohydrates and fats from the foods we eat. The energy from burning ATP causes changes in the proteins' shape that allow them to heave themselves along the polymer track. The results are impressive: In one second, these molecules can travel between 50 and 100 times their own diameter. If a car with a five-foot-wide engine were as efficient, it would travel 170 to 340 kilometres per hour.

Ronald Vale, a researcher at the Howard Hughes Medical Institute and the University of California at San Francisco, and Ronald Milligan of the Scripps Research Institute, have realized a long-awaited goal by reconstructing the process by which myosin and kinesin move, almost down to the atom. The dynein motor, on the other hand, is still poorly understood. Myosin molecules, best known for their role in muscle contraction, form chains that lie between filaments of another protein called actin. Each myosin molecule has a tiny head that pokes out from the chain like oars from a canoe. Just as rowers propel their boat by stroking their oars through the water, the myosin molecules stick their heads into the actin and hoist themselves forward along the filament. While myosin moves along in short strokes, its cousin kinesin walks steadily along a different type of filament called a microtubule. Instead of using a projecting head as a lever, kinesin walks on two 'legs'. Based on these differences, researchers used to think that myosin and kinesin were virtually unrelated. But newly discovered similarities in the motors' ATP-processing machinery now suggest that they share a common ancestor — molecule. At this point, scientists can only speculate as to what type of primitive cell-like structure this ancestor occupied as it learned to burn ATP and use the energy to change shape. "We'll never really know because we can't dig up the remains of ancient proteins, but that was probably a big evolutionary leap," says Vale.

On a slightly larger scale, loner cells like sperm or infectious bacteria are prime movers that resolutely push their way through to other cells. As L. Mahadevan and Paul Matsudaira of the Massachusetts Institute of Technology explain, the engines, in this case, are springs or ratchets that are clusters of molecules rather than single proteins like myosin and kinesin. Researchers don't yet fully understand these engines' fueling process or the details of how they move, but the result is a force to be reckoned with. For example, one such

engine is a spring-like stalk connecting a single-celled organism called a vorticellid to the leaf fragment it calls home. When exposed to calcium, the spring contracts, yanking the vorticellid down at speeds approaching three inches (eight centimetres) per second.

Springs like this are coiled bundles of filaments that expand or contract in response to chemical cues. A wave of positively charged calcium ions, for example, neutralizes the negative charges that keep the filaments extended. Some sperm use spring-like engines made of actin filaments to shoot out a barb that penetrates the layers that surround an egg. And certain viruses use a similar apparatus to shoot their DNA into the host's cell. Ratchets are also useful for moving whole cells, including some other sperm and pathogens. These engines are filaments that simply grow at one end, attracting chemical building blocks from nearby. Because the other end is anchored in place, the growing end pushes against any barrier that gets in its way.

Both springs and ratchets are made up of small units that each move just slightly, but collectively produce a powerful movement. Ultimately, Mahadevan and Matsudaira hope to better understand just how these particles create an effect that seems to be so much more than the sum of its parts. Might such an understanding provide inspiration for ways to power artificial nano-sized devices in the future? "The short answer is absolutely," says Mahadevan. "Biology has had a lot more time to evolve enormous richness in design for different organisms. Hopefully, studying these structures will not only improve our understanding of the biological world, it will also enable us to copy them, take apart their components and recreate them for other purpose."

122. **According to the author, one of the objectives of the research on the power source of movement in cells can is to**

A   control the movement of genes within human systems.

B   understand nano-sized devices better.

C   arrest the growth of cells in a human being.

D   develop potential cures for a variety of diseases.

Answer: D

Explanation:
Statements A and B are not given as aims of research on the power source of movement in cells. Hence, we can eliminate the options.

Refer to the lines:"Because these molecules are essential for cell division, scientists hope to shut down the rampant growth of cancer cells by deactivating certain motors. Improving motor-driven transport in nerve cells may also be helpful for treating diseases such as Alzheimer's, Parkinson's or ALS, also known as Lou Gehrig's disease."

Between C and D, D is directly inferable from the information given above. Option C is incorrect since arresting the 'growth of cells' is not the same as arresting the '**rampant** growth of **cancer** cells'.

123. **The author has used several analogies in the article. Which of the following pairs of words are examples of the analogies used?**

   A. Cell activity and vehicular traffic

   B. Polymers and tram tracks

   C. Genes and canoes

   D. Vorticellids and ratchets

A   A and B

B   B and C

C   A and D

D   A and C

Answer: A

Explanation:
Refer to the lines of the 1st para where it is written that "the inside of the cell bustles with more traffic than Delhi Road".
Also refer to the middle of 3rd para "The movements that make these cellular activities possible occur along a complex network of threadlike fibers, or polymers, along which bundles of molecules travel like tram"

124. **Read the five statements below: A, B, C, D, and E. From the options given, select the one which includes a statement that is not representative of an argument presented in the passage.**

　　A. Sperms use spring-like engines made of actin filament.

　　B. Myosin and kinesin are unrelated.

　　C. Nanotechnology researchers look for ways to power molecule-sized devices.

　　D. Motor proteins help muscle contraction.

　　E. The dynein motor is still poorly understood.

A　A, B and C

B　C, D and E

C　A, D and E

D　A, C and D

　　Answer: A

Explanation:
Refer to the 2nd last para " Some sperm use spring like engines made of actin filaments to shoot out a barb that penetrates the layers that surround an egg." This makes the argument A correct.

Refer to the 4th para "Each myosin molecule has a tiny head that pokes out from the chain like oars from a canoe. Just as rowers propel their boat by stroking their oars through the water, the myosin molecules stick their heads into the action and hoist themselves forward along the filament. While myosin moves along in short strokes, it cousin Kinesin walks steadily along a different type of filament called a microtubule. Instead of using a projecting head as lever, kinesin walks on two 'legs'. Based on these differences, researchers used to think that myosin and kinesin were virtually unrelated. But newly discovered similarities in the motors' ATP processing machinery now suggest that they share a common ancestor-molecule." Hence, we can infer that Myosin and Kinesin are in fact related. Therefore, statement B is False.

Refer to the 1st line of 2nd para "The ability of such engines to convert chemical energy into motion is the envy of the nanotechnology researchers looking for ways to power molecule-sized devices."This makes C correct.

The third para states that "We wouldn't make it far in life without motor proteins. Our muscles wouldn't contract." Hence, statement D is true.

Statement E is directly given in para 4, line 2.

Hence, only statement B is incorrect. Thus, the only option that includes a statement that is not representative of an argument presented in the passage is option A which includes statement B.

125. **Read the four statements below: A, B, C and D. From the options given, select the one which includes only statements that are representative of arguments presented in the passage.**

　　A. Protein motors help growth processes.

　　B. Improved transport in nerve cells will help arrest tuberculosis and cancer.

　　C. Though the smaller units that make up springs move only slightly, they collectively produce powerful movement.

　　D. Vorticellid and the leaf fragment are connected by a calcium engine.

A　A and B but not C

B   A and C but not D

C   A and D but not B

D   C and D but not B

   Answer: B

Explanation:
Refer 1st lines of 3rd para "We wouldn't make it far in life without motor proteins. Our muscles wouldn't contract. We couldn't grow because the growth process requires cells to duplicate their machinery and pull the copies apart "This makes A correct.

Refer to the last para"Both springs and ratchets are made up of small units that each move just slightly, but collectively produce a powerful movement. Ultimately, Mahadevan and Matsudaira hope to better understand just how these particles create an effect that seems to be so much more than the sum of its parts." This makes C correct.

126.   **Read the four statements below: A, B, C and D. From the options given, select the one which includes statements that are representative of arguments presented in the passage.**

   A. Myosin, kinesin and dynein are three types of protein.

   B. Growth processes involve a routine in a cell that duplicates their machinery and pulls the copies apart.

   C. Myosin molecules can generate vibrations in muscles.

   D. Ronald and Mahadevan are researchers at the Massachusetts Institute of Technology.

A   A and B but not C and D

B   B and C but not a

C   B and D but not A and C

D   A, B and C but not D
   Answer: A

Explanation:
Refer to the 3rd para"The engines that power the cell's freight are three families of proteins, called myosin, kinesin and dynein." It is given that Actin is a protein in the sentence, "Myosin molecules, best known for their role in muscle contraction, form chains that lie between filaments of another protein called actin". Hence, argument A is true.

Statement B is given in para 3 in the third line.

Statement C is not given - we know that Myosin causes contractions but not vibrations.

Statement D is not true according to the paragraph.

Instructions [127 - 131]

If translated into English, most of the ways economists talk among themselves would sound plausible enough to poets, journalists, businesspeople, and other thoughtful though non-economical folk. Like serious talk anywhere — among boat designers and baseball fans, say — the talk is hard to follow when one has not made a habit of listening to it for a while. The culture of the conversation makes the words arcane. But the people in the unfamiliar conversation are not Martians. Underneath it all (the economist's favourite phrase) conversational habits are similar. Economics uses mathematical models and statistical tests and market arguments, all of which look alien to the literary eye. But looked at closely they are not so alien. They may be seen as figures of speech - metaphors, analogies, and appeals to authority.

Figures of speech are not mere frills. They think for us. Someone who thinks of a market as an 'invisible hand' and the organization of work as a 'production function' and his coefficients as being 'significant', as an economist does, is giving the language a lot of

responsibility. It seems a good idea to look hard at his language.

If the economic conversation were found to depend a lot on its verbal forms, this would not mean that economics would be not a science, or just a matter of opinion, or some sort of confidence game. Good poets, though not scientists, are serious thinkers about symbols; good historians, though not scientists, are serious thinkers about data. Good scientists also use language. What is more (though it remains to be shown) they use the cunning of language, without particularly meaning to. The language used is a social object, and using language is a social act. It requires cunning (or, if you prefer, consideration), attention to the other minds present when one speaks.

The paying of attention to one's audience is called 'rhetoric', a word that I later exercise hard. One uses rhetoric, of course, to warn of a fire in a theatre or to arouse the xenophobia of the electorate. This sort of yelling is the vulgar meaning of the word, like the president's 'heated rhetoric' in a press conference or the 'mere rhetoric' to which our enemies stoop. Since the Greek flame was lit, though, the word has been used also in a broader and more amiable sense, to mean the study of all the ways of accomplishing things with language: inciting a mob to lynch the accused, to be sure, but also persuading readers of a novel that its characters breathe, or bringing scholars to accept the better argument and reject the worse.

The question is whether the scholar- who usually fancies himself an announcer of 'results' or a stater of 'conclusions' free of rhetoric — speaks rhetorically. Does he try to persuade? It would seem so. Language, I just said, is not a solitary accomplishment. The scholar doesn't speak into the void, or to himself. He speaks to a community of voices. He desires to be heeded, praised, published, imitated, honoured, en-Nobeled. These are the desires. The devices of language are the means. Rhetoric is the proportioning of means to desires in speech.

Rhetoric is an economics of language, the study of how scarce means are allocated to the insatiable desires of people to be heard. It seems on the face of it a reasonable hypothesis that economists are like other people in being talkers, who desire listeners when they go to the library or the laboratory as much as when they go to the office or the polls. The purpose here is to see if this is true, and to see if it is useful: to study the rhetoric of economic scholarship.

The subject is scholarship. It is not the economy, or the adequacy of economic theory as a description of the economy, or even mainly the economist's role in the economy. The subject is the conversation economists have among themselves, for purposes of persuading each other that the interest elasticity of demand for investment is zero or that the money supply is controlled by the Federal Reserve.

Unfortunately, though, the conclusions are of more than academic interest. The conversations of classicists or of astronomers rarely affect the lives of other people. Those of economists do so on a large scale. A well-known joke describes a May Day parade through Red Square with the usual mass of soldiers, guided missiles, rocket launchers. At last, come rank upon rank of people in grey business suits. A bystander asks, "Who are those?" "Aha!" comes the reply, "those are economists: you have no idea what damage they can do!" Their conversations do it.

127. **According to the passage, which of the following is the best set of reasons for which one needs to 'look hard' at an economist's language?**

   A. Economists accomplish a great deal through their language.

   B. Economics is an opinion-based subject.

   C. Economics has a great impact on other's lives.

   D. Economics is damaging.

A   A and B

B   C and D

C   A and C

D   B and D

   Answer: C

Explanation:
Option A and C are correct.Refer to the words"they think for us" and "giving a language a lot of responsibility"

128. **In the light of the definition of rhetoric given in the passage, which of the following will have the least element of rhetoric?**

A   An election speech

B   An advertisement jingle

C   Dialogues in a play

D   Commands given by army officers

Answer: D

Explanation:
Option A,B and C clearly qualifies for the rhetoric as they persuade people to be heard.Option D does not fit the criteria. it is giving orders and not persuading people to be heard.

129. **As used in the passage, which of the following is the closest meaning to the statement 'The culture of the conversation makes the words arcane'?**

A   Economists belong to a different culture.

B   Only mathematicians can understand economicsts.

C   Economists tend to use terms unfamiliar to the lay person, but depend on familiar linguistic forms.

D   Economists use similes and adjectives in their analysis.

Answer: C

Explanation:
Only option C correctly depicts the meaning of the statement.Rest of the options are deviating."Arcane" means unfamiliar to the layman. Hence option c correctly depicts the meaning.

130. **As used in the passage, which of the following is the closest alternative to the word 'arcane'?**

A   Mysterious

B   Secret

C   Covert

D   Perfidious

Answer: A

Explanation:
The dictionary meaning of arcane is deceptive.

131. **Based on your understanding of the passage, which of the following conclusions would you agree with?**

A   The geocentric and the heliocentric views of the solar system are equally tenable.

B   The heliocentric view is superior because of better rhetoric.

C   Both views use rhetoric to persuade.

D Scientists should not use rhetoric.

Answer: C

Explanation:
If you refer these line:"Since the Greek flame was lit, though, the word has been used also in a broader and more amiable sense, to mean the study of all the ways of accomplishing things with language: inciting a mob to lynch the accused, to be sure, but also persuading readers of a novel that its characters breathe, or bringing scholars to accept the better argument and reject the worse.", it suggests that both views persuade people through rhetoric.

132. **Out of the four possibilities given, select the one that has all the definitions and their usages most closely matched.**

   "Measure"

   A. Size or quantity found by measuring

   B. Vessel of standard capacity

   C. Suitable action

   D. Ascertain extent or quantity

   E. A measure was instituted to prevent outsiders from entering the campus

   F. Sheila was asked to measure each item that was delivered.

   G. The measure of the cricket pitch was 22 yards.

   H. Ramesh used a measure to take out one litre of oil.

A A-H, B-F, C-E, D-G

B A-G, B-E, C-F, D-H

C A-G, B-H, C-E, D-F

D A-F, B-H, C-E, D-G

Answer: C

Explanation:
In point E, a certain action was taken in order to prevent outsiders from entering the campus. (C-E)
In point F, Sheila had to guage the capacity. "Ascertain extent or quantity" makes a good fit. (D-F)
In point G, the size of cricket pitch was guaged as 22 yards. (A-G)
In point H, Ramesh used a vessel marked with 1 litre capacity to take out the oil. (B-H)

133. **Out of the four possibilities given, select the one that has all the definitions and their usages most closely matched.**

   "Bound"

   A. Obliged, constrained

   B. Limiting value

   C. Move in a specified direction

   D. Destined or certain to be

   E. Dinesh felt bound to walk out when the discussion turned to kickbacks.

   F. Buffeted by contradictory forces he was bound to lose his mind.

   G. Vidya's story strains the bounds of credulity.

   H. Bound for a career in law, Jyoti was reluctant to study Milton.

A   A-F, B-H, C-G, D-E

B   A-E, B-G, C-H, D-F

C   A-E, B-H, C-F, D-G

D   A-F, B-G, C-E, D-H

   Answer: B

Explanation:

Point E says Dinesh had to leave walk out due to kickbacks. It was out of constrain by force of necessity. (A-E)

Point F says it was certain that the contradictory forces would mess up his mind. (D-F)
According to point G, Vidya's story was not readily believable. (B-G)

Point H stresses on Jyoti's affinity towards a career in law, hence she was moving in a specific direction towards her goal. (C-H)

134. **Out of the four possibilities given, select the one that has all the definitions and their usages most closely matched.**

   "Catch"

   A. Capture

   B. Grasp with senses of mind

   C. Deception

   D. Thing or person worth trapping

   E. All her friends agreed that Prasad was a good catch.

   F. The proposal sounds very good but where is the catch?

   G. Hussain tries to catch the spirit of India in this painting.

   H. Sorry, I couldn't catch you.

A   A-H, B-F, C-E, D-G

B   A-F, B-G, C-E, D-H

C   A-G, B-F, C-E, D-H

D   A-G, B-H, C-F, D-E

   Answer: D

Explanation:

Point E says, Prasad is a good catch, meaning a good person worth trapping. (D-E) is a clear match and hence option D is the answer as it is the only option with (D-E) pair. For reference sake, we'll look at the other points.

Point F senses a bit of deception as the proposal was too good to not be deceptive. (C-F)

In point G, Hussain tries to capture the spirit of India in his painting. (A-G)

In point H, one person was not able to make out what the other person was trying to say. The word "grasp" fits in well. (B-H)

135. **Out of the four possibilities given, select the one that has all the definitions and their usages most closely matched.**

    "Deal"

    A. Manage, attend to

    B. Stock, sell

    C. Give out to a number of people

    D. Be concerned with

    E. Dinesh insisted on dealing the cards.

    F. This contract deals with handmade cards.

    G. My brother deals in cards.

    H. I decided not to deal with handmade cards.

A   A-F, B-E, C-G, D-H

B   A-H, B-G, C-E, D-F

C   A-F, B-H, C-G, D-E

D   A-H, B-E, C-G, D-F

   Answer: B

Explanation:

Point E says Dinesh wanted to give out the cards. So (C-E) is a pair.

Point F implies that the contract is related to (concerned with) handmade cards. So, (D-F) is a pair.

From the options, we can see that only B has this combination.

136. **Out of the four possibilities given, select the one that has all the definitions and their usages most closely matched.**

    "Turn"

    A. Give new direction to

    B. Send

    C. Change in form

    D. Opportunity coming successively for each person

    E. It was now his turn to be angry.

    F. Leena never turned away a beggar.

    G. Ashish asked Laxman to turn his face to the left.

    H. The old school building has been turned into a museum.

A   A-H, B-E, C-F, D-G

B A-G, B-F, C-E, D-H

C A-G, B-E, C-F, D-H

D A-G, B-F, C-H, D-E

   Answer: D

Explanation:
In point E, it was his chance to be angry, so E-D is a pair.

Point F means that Leena never sent the beggar away, so F-B is a pair.
In point G, Ashish asked Lakshman to change the direction of his face, so G-A is a pair.
In point H, the school changed its form to a museum, so H-C is a pair.

Option d) is the correct answer.

137. **The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.**

   A. Branded disposable diapers are available at many supermarkets and drug stores.

   B. If one supermarket sets a higher price for a diaper, customers may buy that brand elsewhere.

   C. By contrast, the demand for private-label products may be less price sensitive since it is available only at a corresponding supermarket chain.

   D. So the demand for branded diapers at any particular store may be quite price sensitive.

   E. For instance, only SavOn Drugs stores sell SavOn Drugs diapers.

   F. Then stores should set a higher incremental margin percentage for private label diapers.

A ABCDEF

B ABCEDF

C ADBCEF

D AEDBCF

   Answer: C

Explanation:
Among the statements we can see that the AD is the pair as A starts the topic and D continues with saying that demand is price sensitive asbranded diapers are available at many stores. Also there is visible link between EF as E gives an example and F continues with saying what should be done if E happens. Hence correct sequence is ADBCEF.

138. **The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.**

   A. Having a strategy is a matter of discipline.

   B. It involves the configuration of a tailored value chain that enables a company to offer unique value.

   C. It requires a strong focus on profitability and a willingness to make tough tradeoffs in choosing what not to do.

   D. Strategy goes far beyond the pursuit of best practices.

   E. A company must stay the course even during times of upheaval, while constantly improving and extending its distinctive positioning.

   F. When a company's activities fit together as a self-reinforcing system, any competitor wishing to imitate a strategy must replicate the whole system.

A   ACEDBF

B   ACBDEF

C   DCBEFA

D   ABCEDF

   Answer: A

Explanation:

A introduces the main idea of the para - having a strategy.

C and E extend this idea in that order. So, ACE is a sequence.

DB is a mandatory pair. The 'it' in sentence B refers to 'the strategy' in sentence D.

F is the concluding sentence.

So, the correct order of sentences is ACEDBF.

139. **The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.**

   A. As officials, their vision of a country shouldn't run too far beyond that of the local people with whom they have to deal.

   B. Ambassadors have to choose their words.

   C. To say what they feel they have to say, they appear to be denying or ignoring part of what they know.

   D. So, with ambassadors as with other expatriates in black Africa, there appears at a first meeting a kind of ambivalence.

   E. They do a specialized job and it is necessary for them to live ceremonial lives.

A   BCEDA

B   BEDAC

C   BEADC

D   BCDEA

E   BCEAD

   Answer: C

Explanation:

Statement B introduces the subject of the paragraph - "Ambassadors". Hence, it should be the opening sentence of the paragraph.

The main point of the paragraph is that Ambassadors need to carefully weigh their words so that their vision is acceptable to the locals of the country.

Statement A says that the ambassador's vision of the country should not run beyond that of the local people and D adds to this thought by saving as a result of this necessity there is an ambivalence in their behaviour. C explains how this ambivalence is exhibited by them. Hence, A-D-C are logically connected.

Statement E which introduces the specialized nature of their job acts a connecting line between B and ADC. Hence, the order is BEADC.

140. **The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.**

A. "This face-off will continue for several months given the strong convictions on either side," says a senior functionary of the high-powered task force on drought.

B. During the past week-and-half, the Central Government has sought to deny some of the earlier apprehensions over the impact of drought.

C. The recent revival of the rains had led to the emergence of a line of divide between the two.

D. The state governments, on the other hand, allege that the Centre is downplaying the crisis only to evade its full responsibility of financial assistance that is required to alleviate the damage.

E. Shrill alarm about the economic impact of an inadequate monsoon had been sounded by the Centre as well as most of the states, in late July and early August.

A   EBCDA

B   DBACE

C   BDCAE

D   ECBDA

   Answer: D

Explanation:
E is the opening sentence since it introduces the topic. This is followed by sentence C. The 'two' in C refers to the 'Center and states' mentioned in E. B-D is a pair. B talks about the actions of Central Government whereas D contrasts it with the actions of the State Governments. A is the concluding sentence. The correct order of sentences is ECBDA.

141. **The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.**

A. This fact was established in the 1730s by French survey expeditions to Equador near the Equator and Lapland in the Arctic, which found that around the middle of the earth the arc was about a kilometer shorter.

B. One of the unsettled scientific questions in the late 18th century was that exact nature of the shape of the earth.

C. The length of one-degree arc would be less near the equatorial latitudes than at the poles.

D. One way of doing that is to determine the length of the arc along a chosen longitude or meridian at one degree latitude separation.

E. While it was generally known that the earth was not a sphere but an 'oblate spheroid', more curved at the equator and flatter at the poles, the question of 'how much more' was yet to be established.

A   BECAD

B   BEDCA

C   EDACB

D EBDCA

Answer: B

Explanation:
Statement B is the first sentence of the paragraph. It introduces the topic. This is followed by E, which dwells more on the 'unsettled scientific questions' talked about in B. Also there is link between statements E and D as D provides the solution to the question asked in E. This is followed by sentence C and A is the closing sentence of the paragraph.

Option b) is the correct answer.

142. **Choose the best way of writing the sentence.**

A. The main problem with the notion of price discrimination is that it is not always a bad thing, but that it is the monopolist who has the power to decide who is charged what price.

B. The main problem with the notion of price discrimination is not that it is always a bad thing, it is the monopolist who has the power to decide who is charged what price.

C. The main problem with the notion of price discrimination is not that it is always a bad thing, but that it is the monopolist who has the power to decide who is charged what price.

D. The main problem with the notion of price discrimination is not it is always a bad thing, but that it is the monopolist who has the power to decide who is charged what price.

A A

B B

C C

D D

Answer: C

Explanation:
The idiom used in these sentences is "not __, but __". So, the two phrases that follow 'not' and 'but' must be parallel.

In sentence A, the phrase after 'but' starts with the subject but the phrase after 'not' doesn't. Hence, sentence A has a parallelism error. There are no other errors in sentence A. Option A is wrong.

All the options that have the same error can be eliminated. In sentence B, "not that it is" and "but it is" are not parallel. Hence, option B is wrong.

Similarly, option D is also wrong because the phrases "not it is" and "but that it is" are not parallel.

This error is corrected in option C. "Not that it is" and "but that it is" are parallel and hence option C is the correct answer.

143. **Choose the best way of writing the sentence.**

A. A symbiotic relationship develops among the contractors, bureaucracy and the politicians, and by a large number of devices costs are artificially escalated and black money is generated by underhand deals.

B. A symbiotic relationship develops among contractors, bureaucracy and politicians, and costs are artificially escalated with a large number of devices and black money is generated through underhand deals.

C. A symbiotic relationship develops among contractors, bureaucracy and the politicians, and by a large number of devices costs are artificially escalated and black money is generated on underhand deals.

D. A symbiotic relationship develops among the contractors, bureaucracy and politicians, and by large number of devices costs are artificially escalated and black money is generated by underhand deals.

A A

B B

C C

D D

   Answer: B

Explanation:
Contractors, bureaucracy and politicians are being talked about for the first time in the sentence. So, the definite article 'the' should not be placed before any of them. Option b) is the grammatically correct sentence.

144. **Choose the best way of writing the sentence.**

    A. The distinctive feature of tariffs and export subsidies is that they create difference of prices at which goods are traded on the world market and their price within a local market.

    B. The distinctive feature of tarriffs and export subsidies is that they create a difference of prices at which goods are traded with the world market and their prices in the local market.

    C. The distinctive feature of tariffs and export subsidies is that they create a difference between prices at which goods are traded on the world market and their prices within a local market.

    D. The distinctive feature of tarriffs and export subsidies is that they create a difference across prices at which goods are traded with the world market and their prices within a local market.

A A

B B

C C

D D

   Answer: C

Explanation:
There are two prices that are being compared - prices at which goods are traded on the world market and prices at which goods are sold in the local market. So, the difference is created 'between' the two prices. Also, goods are traded 'on' the world market and not 'with' the world market. So, the grammatically correct sentence is option c).

145. **Choose the best way of writing the sentence.**

    A. Any action of government to reduce the systemic risk inherent in financial markets will also reduce the risks that private operators perceive and thereby encourage excessive hedging.

    B. Any action by government to reduce the systemic risk inherent in financial markets will also reduce the risks that private operators perceive and thereby encourage excessive gambling.

    C. Any action by government to reduce the systemic risk inherent in financial markets will also reduce the risks that private operators perceive and thereby encourages excessive gambling.

    D. Any action of government to reduce the systemic risk inherent in financial markets will also reduce the risks that private operators perceive and thereby encourages excessive gambling.

A A

B B

C C

D D

Answer: B

Explanation:

The correct preposition to be used before government is 'by' and not 'of'. So, options a) and d) are incorrect.

In the second part of the sentence, which is in simple future tense, the grammatically correct form is "thereby encourage" and not "thereby encourages". So, option b) is the correct answer.

146. **From the alternatives given pick the word or phrase that is closest in meaning in the given context.**

Opprobrium: The police officer appears oblivious to the opprobrium generated by his blatantly partisan conduct.

A Harsh criticism

B Acute distrust

C Bitter enmity

D Stark oppressiveness

Answer: A

Explanation:

The meaning of 'opprobrium' is 'criticize scornfully'.

Only option a) brings out this meaning. None of the other options are applicable.

147. **From the alternatives given pick the word or phrase that is closest in meaning in the given context.**

Portend: It appears to many that the US 'war on terrorism' portends trouble in the Gulf.

A Introduces

B Bodes

C Spells

D Evokes

Answer: C

Explanation:

In the given context, "to portend" is 'to mean' something. It doesn't mean 'to start' something, hence options A and D can be eliminated. Between "bodes" and "spells", "spells" fits better in this context. Option c) is the correct answer.

148. **From the alternatives given pick the word or phrase that is closest in meaning in the given context.**

Prevaricate: When a videotape of her meeting was played back to her and she was asked to explain her presence there, she started prevaricating.

A Speaking evasively

B Speaking violently

C Lying furiously

D Throwing a tatrum

Answer: A

Explanation:
Option A is correct.

'To prevaricate' is 'to mislead deliberately'. In other words, it is to speak evasively.

Other options talk about furiousness and violence, which are wrong in this context.

149. **From the alternatives given pick the word or phrase that is closest in meaning in the given context.**

Restive: The crowd became restive when the minister failed to appear even by 10 pm.

A Violent

B Angry

C Restless

D Distressed

Answer: C

Explanation:
The correct option is 'restless'.

'Restive' means impatient or restless and doesn't imply the presence of anger and violence.

So, option c) is the correct answer.

150. **From the alternatives given pick the word or phrase that is closest in meaning in the given context.**

Ostensible: Manohar's ostensible job was to guard the building at night.

A Apparent

B Blatant

C Ostentatious

D Insidious

Answer: A

Explanation:
The correct option is "apparent".