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Rajnish Bhatnagar

SSC CGL Pre

Solution

SCP-9I36046I3-E



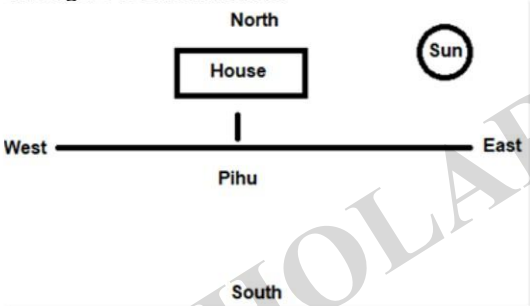
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General Intelligence and Reasoning

1. **Solution: B**
Given expression:
 $\{[(144+6) \times 30] + 3\} \div [(184 \times 23) - 54]$
Replacing letters with the signs in the expression:
 $\{[(144 \times 6) \div 30] \times 3\} - [(184 \div 23) + 54]$
Using rule of BODMAS, we get:
 $\{[864 \div 30] \times 3\} - [8 + 54]$
 $= [28.8 \times 3] - 62$
 $= 86.4 - 62$
 $= 24.4$
2. **Solution: B**
Clues:
1) Ron is lighter than only one person.
2) Sam is heavier than Tina.
3) Piu is heavier than Sam but lighter than Tanu.
4) Eva is shorter than Sam but he is not the shortest.
Inference:
From Clue 1, we get Ron is the 2nd heaviest person.
From Clue 2, 3 and 4, we get Tanu is the heaviest person and Tina is the lightest person. Piu, Sam and Eva are 3rd, 4th and 5th heaviest persons respectively.
Therefore, the final arrangement is:
Tanu (heaviest) > Ron > Piu > Sam > Eva > Tina (lightest)
Therefore, Piu is the 4th lightest person.
3. **Solution: B**
In morning sun is in east direction. So, the shadow of any object falls on west side.
The figure is shown below:



- So, Pihu is facing in north direction.
4. **Solution: B**
The logic followed here is:
The 1st, 3rd and 5th letters from the left end are the immediate succeeding, 2nd preceding and 3rd succeeding letter as per the English alphabetical series and the remaining letters remain as it is.
For 'RIGHTS':

R	I	G	H	T	S
+1	--	-2	--	+3	--
S	I	E	H	W	S

So, 'RIGHTS' is coded as 'SIEHWS'.
For 'ATTEND':

A	T	T	E	N	D
+1	--	-2	--	+3	--
B	T	R	E	Q	D

So, 'ATTEND' is coded as 'BTREQD'.
Similarly, for 'GRAPES':

G	R	A	P	E	S
+1	--	-2	--	+3	--
H	R	Y	P	H	S

So, 'GRAPES' is coded as 'HRYPHS'.
5. **Solution: A**
Given: $13 \div 53 + 672 \times 24 - 7$

Expression after interchanges,
 $13 \times 7 + 672 \div 24 - 53$
 $= 91 + 28 - 53$
 $= 119 - 53$
 $= 66$
So, the value of the given expression after interchanges is 66.

6. **Solution: C**
The logic followed here is as follows:
Add all the digits of the place value of each letter to get the required code.
For RATE,

R	A	T	E
18	1	20	5

Code = $1+8+1+2+0+5 = 17$

For MARKS,

M	A	R	K	S
13	1	18	11	19

Code = $1+3+1+1+8+1+1+1+9 = 26$

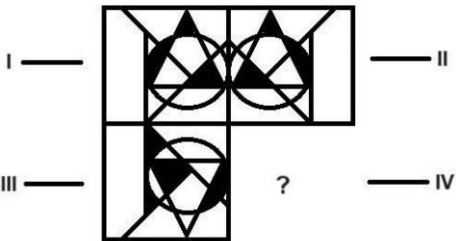
For NECTAR,

N	E	C	T	A	R
14	5	3	20	1	18

Code = $1+4+5+3+2+0+1+1+8 = 25$

So, the code for 'NECTAR' is '25'.

7. **Solution: B**
 $11 \times 1 + 1 = 11 + 1 = 12$
 $12 \times 2 - 2 = 24 - 2 = 22$
 $22 \times 3 + 3 = 66 + 3 = 69$
 $69 \times 4 - 4 = 276 - 4 = 272$
 $272 \times 5 + 5 = 1360 + 5 = 1365$
 $1365 \times 6 - 6 = 8190 - 6 = 8184$
 $8184 \times 7 + 7 = 57288 + 7 = 57295$
So, the complete series is:
11, 12, 22, 69, 272, 1365, 8184, 57295
'1365' will complete the series.
8. **Solution: C**
The logic followed here is as follows,
(First number+1) $\times$ (Second number +1) = Third number
For 17:13:252,
 $(17+1) \times (13+1) = 18 \times 14 = 252$
For 23:37:912,
 $(23+1) \times (37+1) = 24 \times 38 = 912$
For 27:19:?
 $(27+1) \times (19+1) = 28 \times 20 = 560$
Thus, 560 will replace the question mark.
9. **Solution: B**
Given:

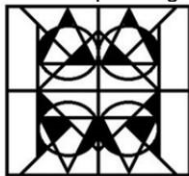


The logic followed here is as follows:
Figure II is the mirror image of figure I. Similarly, figure IV will be the mirror image of figure III.

Thus, the figure that will replace the question mark is as follows:

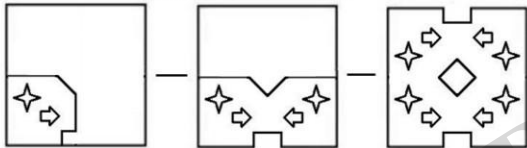


The complete figure is as follows-



10. **Solution: A**
The logic followed here is:
Taking in clock-wise direction from the sector containing 'A'.
1st sector = A
2nd sector = BA
3rd sector = DBA
4th sector = GDBA
5th sector = KGDBA
6th sector = **PKGDBA**
Therefore, 'PKGDBA' will come in place of question mark.

11. **Solution: A**
After unfolding the paper, we get:



12. **Solution: A**
The first letter and the second letter in each letter cluster are replaced by their fourth succeeding letters, as per English alphabetical order.
The third letter in each letter cluster is replaced by immediate preceding letter, as per English alphabetical order.
 $G + 4 = K$, $K + 4 = O$, $O + 4 = S$, $S + 4 = W$, $W + 4 = A$
 $X + 4 = B$, $B + 4 = F$, $F + 4 = J$, $J + 4 = N$, $N + 4 = R$
 $Q - 1 = P$, $P - 1 = O$, $O - 1 = N$, $N - 1 = M$, $M - 1 = L$
So, 'ARL' will replace the question mark in the given series.

13. **Solution: A**
Pattern is; $(\text{first number} - \text{second number})^2 = \text{Middle number}$
 $(6 - 17)^2 = 121$
 $(38 - 14)^2 = 576$
Similarly
 $(9 - 18)^2 = 81$

14. **Solution: B**
The logic followed here is
First, all the letters are changed to the reverse letter as per English alphabetical series. And then they are written in reverse alphabetical order.

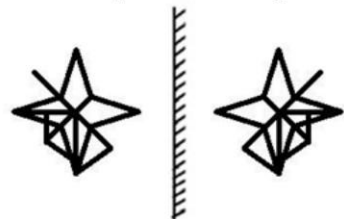
O	C	T	A	N	E
L	X	G	Z	M	V
Z	X	V	M	L	G

Similarly, in FASTER

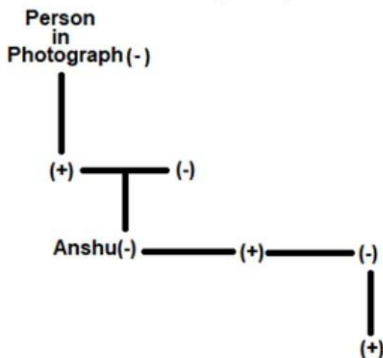
F	A	S	T	E	R
U	Z	H	G	V	I
Z	V	U	I	H	G

So, FASTER is coded as ZVUIHG.

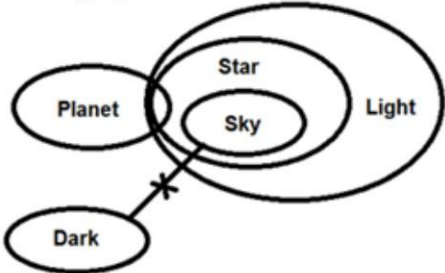
15. **Solution: C**
(32, 39, 46)
 $\Rightarrow 32 + 7 = 39$, $39 + 7 = 46$
(54, 51, 48)
 $\Rightarrow 54 - 3 = 51$, $51 - 3 = 48$
Similarly, in (48, 30, 12)
 $\Rightarrow 48 - 18 = 30$, $30 - 18 = 12$
16. **Solution: B**
When we write down the numbers in clockwise direction starting from S, we get,
For position 1: S R Q
For position 2: S P T
'P' is opposite to 'R'.
17. **Solution: D**
Here, first figure is related to second figure, third figure is related to fourth figure and fifth figure is related to sixth figure.
In the above figure series, the figures in the 1st row of the 1st figure is in the 3rd row of the 2nd figure and the figures in the 3rd row of the 1st figure is in the 1st row of the 2nd figure. Similarly, the figures in the 1st row of the 3rd figure is in the 3rd row of the 4th figure and the figures in the 3rd row of the 3rd figure is in the 1st row of the 4th figure. Similarly, the figures in the 1st row of the 5th figure will be in the 3rd row of the 6th figure and the figures in the 3rd row of the 5th figure is in the 1st row of the 6th figure.
Following figure is the complete figure.
18. **Solution: A**
The logic followed here is:
2nd number = $3 \times 1^{\text{st}} \text{ number} - 2$
In option 'A',
1st number = 27, 2nd number = $3 \times 27 - 2 = 79 \neq 83$
In option 'B',
1st number = 33, 2nd number = $3 \times 33 - 2 = 97$
In option 'C',
1st number = 21, 2nd number = $3 \times 21 - 2 = 61$
In option 'D',
1st number = 15, 2nd number = $3 \times 15 - 2 = 43$
So, the pair given in option 'A' is the odd number pair.
19. **Solution: B**
The series is:
 $u v v w x x y / u v v w x x y / u v v w x x y / u v v w x x y$
20. **Solution: C**
If mirror is placed to the right of the figure,



21. **Solution: A**
We draw the following family tree:



22. **Solution: C**
In this question, the word on the left side is a tool that the person on the right side uses for their profession. An author uses a pen to write. Similarly, a woodcutter uses an axe to cut wood. So, the correct answer is **woodcutter**.
23. **Solution: C**
Following figure can be formed:



- From the above figure, only conclusions II, III and IV follow.
24. **Solution: C**
The correct dictionary order will be:
2) Sanatorium, 5) Sanidine, 3) Sanitarian, 1) Sanitation, 4) Sanitizes
25. **Solution: C**
The embedded figure is shown below:

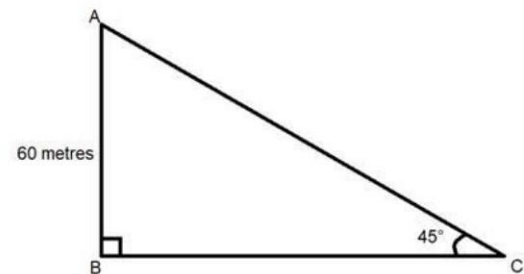


Quantitative Aptitude

26. **Solution: D**
ATQ:
 $[(3 \times 40) + (2 \times y)] \div (3 + 2) = 52$
Or, $120 + 2y = 260$
Or, $2y = 140$
Or, $y = 70$
Therefore, required quantity = $450 \times 0.8 = 360$ litres
27. **Solution: C**
Sum of present ages of Ram and his father = $44 \times 2 = 88$ years
Let the present age of Ram = 'x' years
Then, present age of his father = $(88 - x)$ years

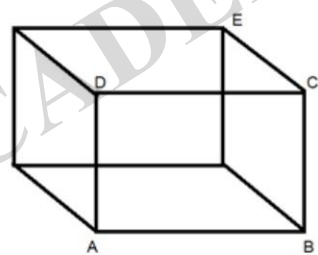
According to the question,
 $(x + 6) = (88 - x - 4) \div 2$
Or, $(x + 6) \times 2 = (84 - x)$
So, $2x + 12 = 84 - x$
So, $x = (84 - 12) \div 3 = 24$
So, present age of Ram's father = $88 - 24 = 64$ years
Therefore, difference between their ages = $64 - 24 = 40$ years

28. **Solution: A**



Let AB be the height of the kite i.e. 60 metres
In right $\triangle ABC$
 $\sin 45^\circ = (AB/AC)$
Or, $(1/\sqrt{2}) = (60/AC)$
Or, $AC = 60\sqrt{2}$
So, the length of the string = $60\sqrt{2}$ metres.

29. **Solution: B**



Let the initial position of the ant be point 'A'. So, destination of the ant is point 'E'.
Shortest distance between 'A' and 'E' is from point 'A' to point 'B' and then point 'B' to point 'E'.
Distance between point 'A' and 'B' = 4 cm
We know that $\angle ECB$ is 90° .
So, in right triangle ECB, $EB^2 = EC^2 + BC^2$ {Using Pythagoras theorem}
So, $EB^2 = 16 + 16 = 32$
So, $EB = \sqrt{32} = 4\sqrt{2}$ cm
So, required distance = $(4 + 4\sqrt{2})$ cm

30. **Solution: B**
 $3,600 = 2^4 \times 3^2 \times 5^2$
Total number of factors = $(4 + 1) \times (2 + 1) \times (2 + 1) = 5 \times 3 \times 3 = 45$
Therefore, required number of factors, excluding 1 and 3,600 = $45 - 2 = 43$
31. **Solution: C**
Curved surface area of the cone = $\pi \times r \times l$ {Where 'l' is slant height of the cone}
Volume of cone = $(1/3) \times \text{Height} \times \text{area of base}$
ATQ;
 $768\pi = (1/3) \times 144\pi \times \text{height}$
Or, height = 16 cm
Also, base of cone = $\pi \times r^2$ {Where 'r' is radius}
ATQ;
 $144\pi = \pi \times r^2$
Or, $r = 12$ cm
So, slant height of the cone = $\sqrt{(12^2 + 16^2)} = 20$ cm
So, required area = $\pi \times 12 \times 20 = 240\pi$ cm²
32. **Solution: B**

The maximum possible sum = 12
 Perfect squares less than 12 = 4 and 9
 Number of ways of getting 4 as sum = (2,2), (3,1), (1,3)
 Number of ways of getting 9 as sum = (5,4), (4,5), (3,6), (6,3)
 Total possible cases = 7
 Required probability = (7/36)

33. **Solution: B**

$a^3 + b^3 + c^3 - 3abc = (a + b + c) \times (a^2 + b^2 + c^2 - ab - bc - ca)$
 Since, $a^3 + b^3 + c^3 - 3abc = 0$ and $(a + b + c) \neq 0$
 So, $(a^2 + b^2 + c^2 - ab - bc - ca) = 0$
 So, $a^2 + b^2 + c^2 = ab + bc + ca$
 This is possible only for $a = b = c$
 So, $2(a + b + c) = 2 \times (3a) = 6a$
 Since a is a natural number, so $2(a + b + c)$ must be a multiple of 6
 In the given options, only 36 is a multiple of 6

34. **Solution: A**

$$\frac{3k}{\cos 60^\circ} - 7 = \frac{9 \tan 30^\circ \times \sin 60^\circ + \sec 60^\circ \times 4 \sin 30^\circ}{\cos 30^\circ \times \cos 45^\circ \times \cot 60^\circ \times \csc 45^\circ}$$

$$\frac{3k}{(\frac{1}{2})} - 7 = \frac{9 \times (\frac{1}{\sqrt{3}}) \times (\frac{\sqrt{3}}{2}) + 2 \times 4 \times (\frac{1}{2})}{(\frac{\sqrt{3}}{2}) \times (\frac{1}{\sqrt{2}}) \times (\frac{1}{\sqrt{3}}) \times \sqrt{2}}$$

$$6k - 7 = \frac{9 + 4}{(\frac{1}{2})}$$

$$6k - 7 = \frac{9 + 4}{\frac{1}{2}}$$

$$6k - 7 = 17$$

$$6k = 17 + 7 = 24$$

$$k = \frac{24}{6} = 4$$

35. **Solution: D**

ATQ;
 $44800 = \{(40000 \times x \times 56)/(12 \times 100)\}$
 Or, ' x ' = $\{(44800 \times 12)/(400 \times 56)\}$
 Or, $x = 24$
 So, required value = $24^2 - 5 \times 24 = 576 - 120 = 456$

36. **Solution: A**

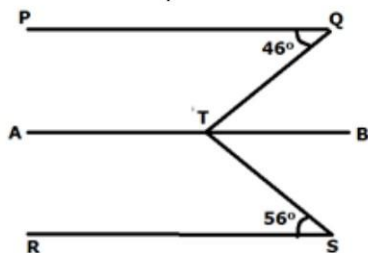
Average number of balloons sold by 'A' and 'B' together, on Monday = $(32 + 24) \div 2 = 28$
 Average number of balloons sold by 'C' on Tuesday and Wednesday together = $(30 + 42) \div 2 = 36$
 So, required ratio = $28:36 = 7:9$

37. **Solution: C**

Let the cost price of the article = ₹100x
 Then, according to the question,
 $(100x \times 1.2) - (100x \times 0.85) = 168$
 Or, $120x - 85x = 168$
 Or, $35x = 168$
 So, $x = (168/35) = 4.8$
 So, cost price of the article = $4.8 \times 100 = ₹480$
 So, desired selling price = $(480 \times 1.25) - 60 = ₹540$

38. **Solution: B**

Draw a line AB parallel to both PQ and RS.



If two lines are parallel to each other, then their alternate interior angles are equal.

So, $\angle BTQ = \angle PQT = 46^\circ$
 And, $\angle BTS = \angle RST = 56^\circ$
 Now, $\angle QTS = \angle BTQ + \angle BTS = 46^\circ + 56^\circ = 102^\circ$

39.

Solution: C

Ratio of AB, BC and AC = 59.5:204:212.5 = 7:24:25
 As we know, 7, 24, and 25 are Pythagorean triplets
 So, the triangle is a right-angle triangle
 As 'D' is midpoint of the AC
 So, $AD = DC = BD = (212.5/2) = 106.25$ cm

40.

Solution: B

Given, $x^4 - 14x^2 + 1 = 0$
 On dividing both sides by x^2 , we have;
 $x^2 - 14 + (1/x^2) = 0$
 Or, $x^2 + (1/x^2) = 14$
 Now, by adding 2 on both sides, we get;
 $\{x^2 + (1/x^2) + 2\} = 14 + 2$
 Or, $\{x + (1/x)\}^2 = 16$
 Or, $(x + x^{-1})^2 = 16$

41.

Solution: B

Let the length of train be ' x ' metres.
 Let the speed of the train be ' y ' m/s.
 ATQ,
 $\{(x + 900)/y\} - \{(x + 400)/y\} = 20$
 Or, $(500/y) = 20$
 So, ' y ' = $(500/20) = 25$
 Therefore, speed of the train = 25 m/s

42.

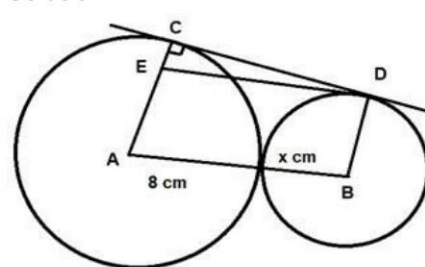
Solution: B

Given that,
 $4\cot\theta + 5\sin 30^\circ = (17/2)$
 $4\cot\theta + 5 \times (1/2) = (17/2)$
 Or, $4\cot\theta = (17/2) - (5/2) = (12/2) = 6$
 So, $\cot\theta = 6/4 = (3/2)$
 $1 + \cot^2\theta = \operatorname{cosec}^2\theta$
 Or, $1 + (3/2)^2 = 1 + (9/4) = 13/4 = \operatorname{cosec}^2\theta$
 So, $\operatorname{cosec}\theta = \sqrt{(13/4)} = \sqrt{13}/2$
 So, $\sin\theta = (1/\operatorname{cosec}\theta) = (2/\sqrt{13})$
 $\cos^2\theta = 1 - \sin^2\theta = 1 - (4/13) = (9/13)$
 so, $\cos\theta = \sqrt{9/13} = (3/\sqrt{13})$
 Therefore,

$$\frac{2\cos\theta - \sin\theta}{2\cos\theta + \sin\theta} = \frac{2 \times (\frac{3}{\sqrt{13}}) - (\frac{2}{\sqrt{13}})}{2 \times (\frac{3}{\sqrt{13}}) + (\frac{2}{\sqrt{13}})} = \frac{\frac{4}{\sqrt{13}}}{\frac{8}{\sqrt{13}}} = \frac{1}{2}$$

43.

Solution: C



In the figure, let the centre of the larger and smaller circle be 'A' and 'B', respectively and let 'C' and 'D', respectively be the point of contact of the common tangent with the two circles.

Radius of circle with centre 'A' = 8 cm
 Let the radius of circle with centre 'B' = ' x ' cm
 Draw DE parallel to AB,
 We have $AB = ED = (8 + x)$ cm
 In right $\triangle DCE$, $\angle ECD = 90^\circ$
 So, $ED^2 = CD^2 + CE^2$
 We have, $CD = 8$ cm
 And $CE = CA - EA = (8 - x)$ cm (since $EA = DB$)
 So, $ED^2 = CD^2 + CE^2 = (8 + x)^2 = 8^2 + (8 - x)^2$
 Or, $8^2 + x^2 + 16x = 8^2 + 8^2 + x^2 - 16x$
 Or, $32x = 64$

So, $x = (64/32) = 2$

Therefore, radius of the smaller circle = 2 cm

Required ratio = $8:2 = 4:1$

Alternate solution

Length of the direct common tangent for two circles

touching externally = $2 \times \sqrt{(\text{product of radii})}$

Or, $8 = 2 \times \sqrt{(8 \times \text{radius of smaller circle})}$

Or, $\sqrt{(8 \times \text{radius of smaller circle})} = 4$

Squaring both sides, we get

$8 \times \text{radius of smaller circle} = 16$

Or, radius of smaller circle = $(16/8) = 2$ cm

Required ratio = $8:2 = 4:1$

44. **Solution: C**

In forest 'B':

Let the sum of number of lions and tigers be 100x

So, number of lions in the forest = $100x \times 0.4 = 40x$

So, number of tigers in the forest = $100x - 40x = 60x$

ATQ;

$60x - 40x = 112$

Or, $20x = 112$

So, $x = (112/20) = 5.6$

Therefore, number of tigers in the forest = 60×5.6

= 336

Similarly, number of tigers in forest 'D' = 112

So, required average = $(336 + 112) \div 2 = 224$

45. **Solution: D**

A number is exactly divisible by 72 when it is divisible by both 8 and 9.

A number is divisible by 8 when last three digits of the number is divisible by 8.

A number is divisible by 9 when sum of its digits is divisible by 9.

53640:

Last three digits '640' is divisible by 8. So, the number is divisible by 8.

Sum of digits ($5 + 3 + 6 + 4 + 0 = 18$) is divisible by 9.

So, the given number is divisible by 9.

Therefore, the given number is divisible by 72.

59328:

Last three digits '328' is divisible by 8. So, the given number is divisible by 8.

Sum of digits ($5 + 9 + 3 + 2 + 8 = 27$) is divisible by 9.

So, the given number is divisible by 9.

Therefore, the given number is divisible by 72.

47656:

Last three digits '656' is divisible by 8. So, the given number is divisible by 8.

Sum of digits ($4 + 7 + 6 + 5 + 6 = 28$) is not divisible by 9. So, the given number is not divisible by 9.

Therefore, the given number is not divisible by 72.

39288:

Last three digits '288' is divisible by 8. So, the given number is divisible by 8.

Sum of digits ($3 + 9 + 2 + 8 + 8 = 30$) is not divisible by 9. So, the given number is not divisible by 9.

Therefore, the given number is not divisible by 72.

Therefore, two numbers (47656 and 39288) are not divisible by 72.

46. **Solution: A**

Let the efficiency of 'B' be 'x' units/day

So, efficiency of 'A' = $x \times 1.5 = '1.5x'$ units/day

So, total work = $(x + 1.5x) \times 18 = '45x'$ units

And work done by 'B' in last 5 days = $5 \times x = '5x'$ units

So, work done by 'A' and 'B' together = $45x - 5x = 40x$ units

So, 'A' and 'B' worked together for $40x \div (x + 1.5x)$

= $40x \div 2.5x = 16$ days

So, total time taken = $16 + 5 = 21$ days

47. **Solution: B**

25% of the distance = $672 \times 0.25 = 168$ km

So, time taken to cover the 168 km = $168 \div 40 = 4.2$ hours

50% of the remaining distance = $(672 - 168) \times 0.5 = 252$ km

Time taken to cover the 252 km = $252 \div 48 = 5.25$ hours

Remaining distance = 252 km

Remaining time = $13.95 - (5.25 + 4.2) = 4.5$ hours

So, speed at which the last 252 km was travelled

= $252 \div 4.5 = 56$ km/h

48. **Solution: B**

Let the total work = $75 \times 44 = 3300$ units

Work completed in 40 days = $3300 \times 0.8 = 2640$ units

So, efficiency of 1 worker per day = $2640 \div (40 \times 75) = 0.88$ units

Remaining work = $3300 - 2640 = 660$ units

Remaining time = $44 - 40 + 1 = 5$ days

So, number of workers needed to complete the work on time = $(660/5) \div 0.88 = 132 \div 0.88 = 150$

So, additional workers to be hired = $150 - 75 = 75$

49. **Solution: C**

Let the cost price of the article = ₹'100x'

According to the question,

$100x \times 1.22 - 210 = 100x \times 1.08$

Or, $122x - 210 = 108x$

So, $x = 210 \div 14 = 15$

Cost price of the article = $15 \times 100 = ₹1,500$

Desired selling price = $1500 \times 1.33 = ₹1,995$

50. **Solution: B**

Income of Arjun = $(7,500/0.25) = ₹30,000$

Income of Karan = $(7,500/0.2) = ₹37,500$

Income of Sanjay = $(1/3) \times (30,000 + 37,500) = ₹22,500$

Therefore, savings of Sanjay = $(2/9) \times 22,500 = ₹5,000$

General Awareness

51. **Solution: B**

AstroSat is India's first dedicated astronomy satellite, and it was built by the Indian Space Research Organisation (ISRO). It was launched in 2015. The AstroSat satellite is designed to study celestial sources in the following spectral bands:

· **Ultraviolet:** The satellite's payloads cover both near and far ultraviolet bands.

· **Optical:** The satellite's payloads cover a limited optical range.

· **X-ray:** The satellite's payloads cover a limited X-ray range from 0.3 keV to 100 keV.

Hence, Option B is the correct answer.

52. **Solution: B**

The Rajasthan government has renamed Foy Sagar Lake in Ajmer as "Varun Sagar". The lake, originally named after British engineer Foy, was built in 1892. The decision is part of efforts to remove colonial symbols and promote national pride.

53. **Solution: C**

The 10th International Women's Conference, hosted by The Art of Living International Center, was recently inaugurated in Bengaluru. The event brought together global leaders and changemakers to discuss women's empowerment and social progress.

54. **Solution: A**

EEPROM stands for Electrically Erasable Programmable Read-Only Memory and is a type of non-volatile memory used in computers, integrated in microcontrollers for smart cards and remote keyless systems, and other electronic devices to store relatively small amounts of data.

55. **Solution: C**

AIX (Advanced Interactive eXecutive) is "an open operating system from IBM that is based on a version of UNIX. AIX/ESA was designed for IBM's System/390 or large server hardware platform.

56. **Solution: C**

Google was founded in September 1998 by Larry Page and Sergey Brin while they were Ph.D. students at Stanford University in California.

57. **Solution: B**

Poush Mela is an annual fair and festival that takes place in Santiniketan, in Birbhum District of West Bengal, marking the harvest season. The key characteristics of this fair include live performances of Bengali folk music, such as baul, kirtan and Kobigan.

58. **Solution: A**

Henry's law is one of the gas laws that states that the amount of dissolved gas in a liquid is proportional to its partial pressure above the liquid. The proportionality factor is called Henry's law.

59. **Solution: D**

Godavari River (Dakshin Ganga) :

- It is the largest river of peninsular India.
- Origin:** Trimbakeshwar in Nashik district, Maharashtra.

- It falls into the Bay of Bengal forming a delta.
- It is known as Akhanda Godavari at Rajahmundry (Andhra Pradesh) before splitting into distributaries.

- Basin states:** Maharashtra, Andhra Pradesh, Chhattisgarh, Odisha, Madhya Pradesh, Karnataka and Puducherry.

- Major Tributaries:** Pravara, Dharna, Indravati, Pranahita, Dudhna, Manjira, Sabari.

- The river is bounded by Satmala Hills (North) , Ajanta Range and Mahadeo Hills (South) , Eastern Ghats (East) and Western Ghats (West) .

Hence, Option D is the correct answer.

60. **Solution: B**

National Florence Nightingale Award:

This award is given as a mark of recognition for the meritorious services rendered by the nurses and nursing professionals to society. It was instituted by the Ministry of Health and Family Welfare in 1973. Each award consists of a Certificate of Merit, Cash Award of ₹1,00,000/- and a medal.

Hence, Option B is the correct answer.

61. **Solution: C**

Pupile controls the amount of light entering into the eye. Iris controls the diameter and size of the pupil. Cornea is the front part of the eye. It allows light to enter the eye. Retina is like a screen of the eye. It forms an image of the object. It also converts light energy into neural signals and sends it to the brain.

62. **Solution: A**

Quantity which has both magnitude and direction is vector quantity. In the given option except work all quantities have magnitude and direction.

63. **Solution: A**

Iron is a chemical element with symbol Fe and atomic number 26. It is a metal that belongs to the first transition series and group 8 of the periodic table. It is

the fourth most common element and by mass the most common element in the Earth's crust, forming much of Earth's outer and inner core.

64.

Solution: B

Nilgiri Mountain Railway:

- It was first proposed in 1854 and completed in 1908.
- It is a 46-km long metre-gauge single-track railway in Tamil Nadu.

- It showcases late 19th-century technology with unique rack and pinion traction for steep gradients.

- In 2005, UNESCO declared it as a World Heritage Site as an extension to the Darjeeling Himalayan Railway. It has since then been a part of the greater heritage site of the Mountain Railways in India.

- The train starts from **Mettupalayam and ends in Ooty**.

Hence, Option B is the correct answer.

65.

Solution: D

Sakthan Thampuran:

Raja Rama Varma Kunjipillai (or Rama Varma IX) is popularly known as Sakthan Thampuran. He ruled the **Cochin kingdom** from 1790 to 1805.

He transferred the seat of the Cochin kingdom from Thrippunithura to modern-day Thrissur.

He started the **Thrissur Pooram** (tribute to Lord Shiva) , one of Kerala's largest temple festivals.

He put an end to the institution of the Yogiattirippads and entrusted temple management to the government.

Hence, Option D is the correct answer.

66.

Solution: B

All butterflies have "complete metamorphosis." To grow into an adult they go through 4 stages: egg, larva, pupa and adult. Each stage has a different goal - for instance, caterpillars need to eat a lot, and adults need to reproduce.

67.

Solution: D

Goitre is swelling in the neck due to enlarged thyroid gland. The main reason behind this is the iodine deficiency.

68.

Solution: A

Nirbhaya Fund:

- It was created for the implementation of initiatives aimed at enhancing the safety and security of women in the country.

- It is a **non-lapsable corpus fund** administered by the Ministry of Finance.

- The Ministry of Women and Child Development (MWCD) is the nodal Ministry to appraise/recommend proposals and schemes to be funded under the Nirbhaya Fund.

- Funding pattern: 60:40 for all States; 90:10 for States with difficult terrains; 100% for UTs.

- The fund covers the **One Stop Centres** scheme, a component under Mission Shakti.

Hence, Option A is the correct answer.

69.

Solution: A

Kandla is a town in the Kutch district of Gujarat state in Western India, near the city of Gandhidham. It is located on the **Gulf of Kutch**. It is one of the major ports on the western coast.

The Gulf of Khambhat is a south-to-north penetration of the Arabian Sea on the western shelf of India between the Saurashtra peninsula and mainland Gujarat.

Hence, Option A is the correct answer.

70. **Solution: B**
Periyar E V Ramasamy is known as the '**Father of the Dravidian movement**'. He rebelled against Brahminical dominance and gender and caste inequality in Tamil Nadu.
 · He participated in Vaikom Satyagraha (1924) which demanded the right of lower castes to use a public path in front of Vaikom temple.
 · He opposed the conservatism of the Indian National Congress and resigned from it in 1925.
 · He was associated with the Justice party (formed in 1916 to oppose the political and economic power of Brahmins).
 · He founded the Self-Respect Movement in 1925 to free people from slavery and irrationality.
 Hence, Option B is the correct answer.

71. **Solution: A**
FASTag:
 It is a device that employs **Radio Frequency Identification (RFID)** technology to make toll payments directly while the vehicle is in motion. The technology uses radio waves to identify objects by reading information contained in wireless tags from a distance.
 It is a flagship program of the Ministry of Road Transport and Highways & NHAI (National Highway Authority of India).
 Hence, Option A is the correct answer.

72. **Solution: C**
Zero Hour:
 Zero Hour is an Indian parliamentary innovation. It starts immediately after the question hour. Under this, Member of Parliaments can raise matters without any prior notice. It is **not mentioned** in the Rules of Procedure of the House.
 Hence, Option C is the correct answer.

73. **Solution: D**
Article 163 of the Indian Constitution refers to **discretionary powers of Governor**. The Governor shall exercise his functions with the aid and advice of the Council of Ministers except for functions which require his discretion.
 Governor can reserve certain bills passed by the State legislature for the consideration of the President. In one case such reservation is obligatory, that is, where the bill passed by the State legislature endangers the position of the State High Court. In addition, the Governor can also reserve the bill if it is against the provisions of the Constitution, opposed to the Directive Principles of State Policy, against the larger interest of the country, of grave national importance, etc. **Hence, I statement is correct.**
 The appointment of ministers in State cabinet is not at the discretion of Governor. He only formally approves the appointment. The discretion comes under Chief Minister. **Hence, II statement is not correct.**
 He makes rules for the more convenient transaction of the business of a state government and for the allocation among the ministers of the said business. But this power is not under Governor's discretion. He acts on the advice of Council of Ministers. **Hence, III statement is not correct.**
 Hence, Option D is the correct answer.

74. **Solution: A**
Lothal is situated beside a tributary of the Sabarmati River in Gujarat, close to the Gulf of Khambat. It was a prominent city during the Harappan civilization.

Notable features:

- World's oldest known artificial dock.
 - Fire altars in houses and public places.
 - Advanced drainage system made of burnt bricks.
 - Storehouse containing many seals and sealings.
- Hence, Option A is the correct answer.

75. **Solution: A**
Govind Ballabh Pant emerged as a social reformer in 1914, worked for land reforms, free compulsory education, and establishment of a Hindu High School. He started Kumaon Parishad in 1916 and was soon elected to the All-India Congress Committee. He also led movements against 'Lagaan Bandi.'
 He was the First Chief Minister of the United Provinces in 1937 and the First Chief Minister of Uttar Pradesh from 1946 to 1954.
 In 1909, he was awarded the Lumsden Gold Medal for standing first in the law examination.
 He received the Bharat Ratna in 1957.
 Hence, Option A is the correct answer.

English Language

76. **Solution: C**
 In C, replace the base form verb ACCESS with the past participle verb ACCESSED to fit in the passive voice structure for modal verbs (MODAL VERB + BE + VERB 3). Thus, C is the right answer.

77. **Solution: D**
 The correct order of sequence is S1-CBDA-S6. S1 begins the sentence by establishing the subject of discussion: knowledge about bird nests. C follows by explaining the source of this knowledge: studying the role of nests. B describes that their role is seen in the context of reproductive success. DA follows as a mandatory pair describing the aspect which is focused on while analysing their role in reproductive success: their usefulness in protecting birds and eggs. S2 concludes by telling us that this protection is needed against cold, wind and predators. Thus, D is the right answer.

78. **Solution: A**
 The sentence seeks to convey that Mr. Pierce wanted to flaunt a beachside resort that he had recently purchased for a cost of more than \$ 15 million. The phrase OBTAINED FOR MORE THAN will fit here. Thus, A is the right answer.
 The highlighted phrase is incorrect as THEN is used instead of THAN to indicate that the amount is greater than \$ 15 million.
 C is incorrect as the plural noun COSTS is used instead of the singular noun COST to be modified by the indefinite article A.
 D is incorrect as the base form verb ACQUIRE is used instead of the past participle form verb ACQUIRED to fit in the past perfect tense structure (HAD + VERB 3).

79. **Solution: D**
 The sentence is in the simple past tense and active voice. To change the sentence to the passive voice, follow the rules below:
 I. The object clause will become the subject clause. The object "THE PACKAGE" will become the subject of the sentence and start the sentence.
 II. The verb DID NOT DELIVER will change to WAS NOT DELIVERED, as the passive construction for

simple past tense is WAS/WERE + PAST PARTICIPLE.

III. The preposition BY will be added to the sentence, and THE POSTMAN will become its object. Thus, D is the right answer.

80. **Solution: D**

We need a noun to be modified by the possessive adjective HIS. The sentence seeks to convey that Lambton had to cross many Indian princely states in his path during the survey. The word ROUTE (way or path) will fit here. Thus, D is the right answer.

The remaining options are contextually incorrect.

Root - source or origin of something. Rout - a situation in which somebody is defeated easily and completely in a battle or competition. Ruth - a feeling of sympathy for others.

81. **Solution: D**

The sentence is grammatically correct and free of error. Thus, D is the right answer.

82. **Solution: B**

The sentence tells us how among the top memorable sites in China, Pearl Shanghai is included. ONE OF THE MOST MEMORABLE SITES can replace the highlighted phrase to convey the intended meaning. Thus, B is the right answer.

The highlighted phrase is incorrect as the definite article THE should be used before MOST and form the superlative degree adjective THE MOST MEMORABLE. Also, the singular noun SITE should be replaced with the plural noun SITES as the structure ONE OF THE is followed by a plural noun. Similarly, plural noun SITES should also be used in both A and D.

A is incorrect as the word MORE (used to indicate comparative degree) is incorrect here as no comparison between sites is mentioned. Moreover, ONE OF is usually followed by superlative degree adjectives.

83. **Solution: D**

POMPOUS means showing oneself to be more important than other people. MODEST (not talking too much about one's own abilities, good qualities, etc.) is its antonym. Thus, D is the right answer.

Unimportant - lacking in importance. Affordable - not expensive. Sustainable - able to continue over a period of time.

84. **Solution: D**

The sentence is in the indicative mood, simple present tense, and passive voice. To change the sentence to the active voice, follow the rules below:

I. The subject clause will become the object clause. The subject in the sentence, THE WINDOWS, will change to the object of the verb, the preposition BY will be omitted, and its object THE JANITOR will become the subject and begin the sentence.

II. The simple present passive voice verb ARE CLEANED will be replaced by the simple present active voice verb CLEANS. The singular verb CLEANS will agree with the singular subject THE JANITOR.

Thus, D is the right answer.

85. **Solution: B**

We need the present participle form verb MAINTAINING to maintain parallelism with DELIVERING. When we use NOT ONLY BUT ALSO in a sentence, the words that follow both parts of the

conjunction should be in the same form. Thus, B is the right answer.

86. **Solution: B**

EVANESCENT means lasting or staying only for a short time. Thus, B is the right answer.

Impertinent - not showing proper respect. Perseverance - continued effort to do or achieve something despite difficulties, failure, or opposition. Scurry - to move hurriedly with short steps.

87. **Solution: A**

The sentence talks about an agreement to end conflict. We need a word that provides this required meaning. The sentence seeks to convey that after many discussions, the two countries finally arrived at an agreement that ended years of conflict and brought peace. PEACE can join with the word AGREEMENT to give the required meaning. Thus, A is the right answer.

The other options have different meanings:

Piece - a portion of an object or of material.

Peas - an edible, round, green seed.

Pious - pretending to have sincere feelings.

88. **Solution: B**

The sentence seeks to show comparison between the qualities of two people. In such cases, comparative degrees of adjectives ATTRACTIVE and PRETTY which are MORE ATTRACTIVE and PRETTIER should be used. Thus, B is the right answer.

In the given sentence we are comparing the qualities of two people, thereby the comparative degree of both the adjectives should be used.

Option A is incorrect as it uses positive degree adjective PRETTY instead of the comparative degree.

Option C is incorrect as it uses the incorrect comparative degree of the adjective PRETTY, which should be PRETTIER and not MORE PRETTY.

Option D is incorrect as the positive degree adjectives ATTRACTIVE and PRETTY are used instead of the comparative degrees.

89. **Solution: D**

SLIPPERY means difficult to hold or to stand or move on, because it is smooth, wet, or polished. DRY (not wet) is its antonym. Thus, D is the right answer.

Ugly - not beautiful. Weak - lacking strength. Short - small in length, distance, or height.

90. **Solution: B**

The word BUSINESSES (commercial or industrial activities) is incorrectly spelled in the given sentence. Thus, B is the right answer.

Approaching - coming closer. Halted - stopped. Standstill - a situation when there is no movement, progress or activity.

91. **Solution: B**

The sentence talks about how when the Italian poet published his book, he included every information related to the devastating disease in the description. HE INCLUDED EVERY DETAIL will fit here, making B the right answer.

A is incorrect as the preposition IN should be used before DETAIL. C is incorrect as the past participle form verb LEFT should be used to fit in the past perfect tense structure (HAD + VERB 3). The highlighted phrase is incorrect as the past tense verb SPARED should be used to describe the action that happened before the book was published.

92. **Solution: C**

The idiom WENT DOWN IN FLAMES means failed spectacularly. The sentence tells us how, irrespective of initial positive hope, the startup failed because their product did not gain popularity. Thus, C is the right answer.

None of the other options convey the meaning of the given idiom.

93. **Solution: C**

The word RECENT means having happened or begun only a short time ago. ARCHAIC (from a much earlier or ancient period of history) will be the antonym of the given word. Thus, C is the right answer.

The other options have different meanings:

Improper - not in accordance with accepted standards.

Assisting - to give usually supplementary support or aid to something.

Decent - of an acceptable standard; satisfactory.

94. **Solution: D**

The word BELIGERENCE is incorrectly spelled. The correct spelling of the word is BELLIGERENCE (aggressive or warlike behaviour). Thus, D is the right answer.

The other options are correctly spelled:

Territorial - relating to the ownership of an area of land or sea.

Sovereignty - supreme power or authority.

Condemnation - the expression of very strong disapproval; censure.

95. **Solution: B**

CBDA is the correct sequence of sentences. C begins the paragraph by telling us that the Prime Minister will go for a one-day visit to Poland on his way to Ukraine as he wants to strengthen relations with Poland. B follows A to describe that this visit will be part of his two-day nation trip in which he will also go to Ukraine after this. D follows to describe that after Prime

Minister Morarji Desai's visit in 1979, this is the first visit by an Indian Prime Minister to Poland. At last, A tells us that before Morarji Desai both Jawaharlal Nehru and Indira Gandhi had visited the place. Thus, B is the right answer.

96. **Solution: B**

The passage discusses how many rich people suffer due to stress and never-ending desires. "Dissatisfaction" means a lack of contentment, which fits the context. "Satisfaction" and "fulfillment" imply being happy with what one has, which contradicts the sentence. "Gratitude" refers to thankfulness, which is unrelated to the idea of being stressed and unhappy.

97. **Solution: B**

"Creep in" means gradually appearing, which is how diseases typically develop. "Vanish" and "flee" mean disappearing, which is the opposite of what the sentence conveys. "Explode" suggests a sudden occurrence, which does not fit the idea of diseases developing over time.

98. **Solution: B**

The quote from Othello discusses the dangers of fearing poverty and being discontent, which is often linked to "jealousy." The other options—"kindness," "wisdom," and "contentment"—do not fit the context of feeling threatened or envious.

99. **Solution: A**

The passage questions why someone would feel "jealous" of a rich person who is not truly happy. "Proud" and "indifferent" do not make sense in the given context. "Generous" does not relate to the sentence at all.

100. **Solution: B**

"Beleaguered" means overwhelmed or troubled, which matches the idea of suffering from poor health. "Relieved" and "energized" suggest improvement, which contradicts the passage. "Strengthened" is the opposite of the intended meaning.

SCHOLARS ACADEMY