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SSC CGL Pre

Solution

SCP-9I36046I5-E



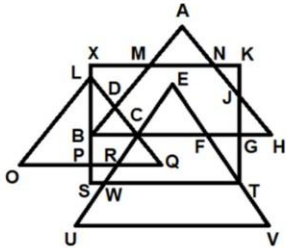
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General Intelligence and Reasoning

1. Solution: C



Triangles in the figure: UEV, CEF, WET, RCQ, LPQ, BCD, LOP, LOQ, LBD, XBM, ABH, AMN, JGH, NJK and FGT.

So, there are 15 triangles in the given figure.

2. Solution: C

Clues:

- 1) At least two persons sit to the left of F.
- 2) I sits third to the right of F.
- 3) G sits second to the right of D. D sits adjacent to I.
- 4) H sits second to the left of J.
- 5) E sits to the right of K.
- 6) K sits neither adjacent to E nor J.

Inferences:

From Clue 1, we get at least two persons sit to the left of F.

From Clue 2, we get I sits 3rd to the right of F.

From Clue 3, we get D sits immediate left of I. G sits 2nd to the right of D.

From Clue 4, we get J sits either immediate right of F or immediate left of F. H sits 2nd to the left of J.

From Clue 5 and 6, we get J sits immediate right of F. H sits immediate left of F. K sits at the extreme left end and E sits at the extreme right end.

Therefore, the final arrangement is:

K	H	F	J	D	I	G	E
---	---	---	---	---	---	---	---

If all the persons sit in alphabetical order of their names from left to right end, then we get:

K	H	F	J	D	I	G	E
D	E	F	G	H	I	J	K

Therefore, position of only two persons (F and I) remains unchanged after the re-arrangement.

3. Solution: D

After decoding the code, we get:

H % L (15m) means H is 15m south of L

L # V (23m) means L is 23m east of V

E @ V (11m) means E is 11m west of V

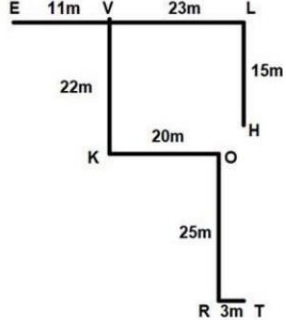
K % V (22m) means K is 22m south of V

O # K (20m) means O is 20m east of K

O & R (25m) means O is 25m north of R

R @ T (3m) means R is 3m west of T

The final figure is given below:



4.

Therefore, H is 32m north of T.

Solution: C

The logic followed here is as follows:

Number of letters in each word is added to the place value of each letter of that word as per English alphabetical order.

For CREATE,

There are 6 letters in the word CREATE.

C	R	E	A	T	E
3	18	5	1	20	5
+6	+6	+6	+6	+6	+6
9	24	11	7	26	11

So, the code for 'CREATE' is '9 24 11 7 26 11'

For SMILE,

S	M	I	L	E
19	13	9	12	5
+5	+5	+5	+5	+5
24	18	14	17	10

So, the code for 'SMILE' is '24 18 14 17 10'

For DONKEY,

D	O	N	K	E	Y
4	15	14	11	5	25
+6	+6	+6	+6	+6	+6
10	21	20	17	11	31

So, the code for 'DONKEY' is '10 21 20 17 11 31'.

5.

Solution: C

Given: 13 \$ 91 \$ 7 \$ 98 \$ 69 \$ 2

On substituting the mathematical operators:

In option a:

13 ÷ 91 + 7 - 98 × 69 = 2

0.143 + 7 - 6762

-6754.8 ≠ 2

In option b:

13 × 91 ÷ 7 + 98 = 69 - 2

169 + 98

267 ≠ 67

In option c:

13 × 91 ÷ 7 - 98 = 69 + 2

13 × 13 - 98 = 71

169 - 98 = 71

71 = 71

In option d:

13 ÷ 91 × 7 = 98 - 69 + 2

1 ≠ 31

6.

Solution: C

After replacing the numbers given in option 'A' with the letters given in the table, we get:

6	3	5	4	2	1	7
N	I	T	E	D	S	Y

'NITEDSY' is not a meaningful word.

After replacing the numbers given in option 'B' with the letters given in the table, we get:

1	4	6	2	3	5	7
S	E	N	D	I	T	Y

'SENDITY' is not a meaningful word.
After replacing the numbers given in option 'C' with the letters given in the table, we get:

2	4	6	1	3	5	7
D	E	N	S	I	T	Y

'DENSITY' is a meaningful word.
After replacing the numbers given in option 'D' with the letters given in the table, we get:

5	3	2	4	6	1	7
T	I	D	E	N	S	Y

'TIDENSITY' is not a meaningful word.

7. **Solution: B**

The logic followed here is:
If the positional value of the letter is odd, then replace the letter by 2nd preceding letter and if the positional value of the letter is even, then replace the letter by 2nd succeeding letter as per the English alphabetical order.

For DEFINE, we get:

D[4]	E[5]	F[6]	I[9]	N[14]	E[5]
+2	-2	+2	-2	+2	-2
F	C	H	G	P	C

For MINUTE, we get:

M[13]	I[9]	N[14]	U[21]	T[20]	E[5]
-2	-2	+2	-2	+2	-2
K	G	P	S	V	C

Similarly,

For DESOLVE, we get:

D[4]	E[5]	S[19]	O[15]	L[12]	V[22]	E[5]
+2	-2	-2	-2	+2	+2	-2
F	C	Q	M	N	X	C

'DESOLVE' will be coded as 'FCQMNXC'.

8. **Solution: D**

The logic followed here is given below:

$$28 \times 1.5 = 42$$
$$42 \times 2.5 = 105$$
$$105 \times 3.5 = 367.5$$
$$367.5 \times 4.5 = 1653.75$$

9. **Solution: C**

The logic followed here is as follows,

(First number +3) + 3² = Second number

For 102:43,

$$(102+3) + 3^2 = 34 + 9 = 43$$

For 612: 213,

$$(612+3) + 3^2 = 204 + 9 = 213$$

For 255:?

$$(255+3) + 3^2 = 85 + 9 = 94$$

Thus, '94' will replace the question mark.

10. **Solution: C**

The logic followed here is:

In each of the given figure, the total number of shapes inside the figure is equal to the number of sides in the shape i.e., if there is a triangle inside the figure, so, there are three triangles inside the figure as triangle has three sides.

All of the given figures, expect the figure in option 'C', follow the above pattern.

11.

Solution: B

$$1^{\text{st}} \text{ number} = 52$$

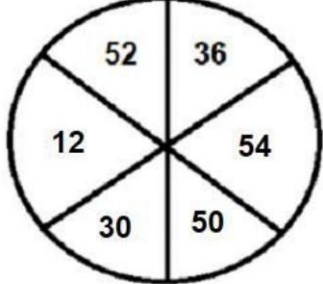
$$2^{\text{nd}} \text{ number} = (5^2 + 2) + (5 + 2^2) = 27 + 9 = 36$$

$$3^{\text{rd}} \text{ number} = (3^2 + 6) + (3 + 6^2) = 15 + 39 = 54$$

$$4^{\text{th}} \text{ number} = (5^2 + 4) + (5 + 4^2) = 29 + 21 = 50$$

$$5^{\text{th}} \text{ number} = (5^2 + 0) + (5 + 0^2) = 25 + 5 = 30$$

$$6^{\text{th}} \text{ number} = (3^2 + 0) + (3 + 0^2) = 9 + 3 = 12$$



12.

Solution: C

The piece of paper when unfolded will appear will as follows,



13.

Solution: D

The logic followed here is as follows,
Each cluster, except 'FHJmOQS', there is a difference of two between the place value of two consecutive letters in the letter cluster.

So, 'FHJmOQS' is the odd letter cluster.

14.

Solution: B

The relationship between the numbers in the given sets is:

$$38 + 134 = 172 \text{ \& } 172 + 142 = 314$$

$$42 + 134 = 176 \text{ \& } 176 + 142 = 318$$

And, similarly:

$$18 + 134 = 152 \text{ \& } 152 + 142 = 294$$

15.

Solution: A

The logic followed here is as follows,
Between two successive letters in each letter cluster, there is a difference of two in the place value. Also, the first letter of the second cluster is immediate succeeding letter of the last letter of the first cluster.

For IKM: NPR: SUW

$$I+2=K, K+2=M, M+1=N, N+2=P, P+2=R, R+1=S,$$

$$S+2=U, U+2=W$$

For TVX: ? : DFH,

$$T+2=V, V+2=X, X+1=Y, Y+2=A, A+2=C, C+1=D,$$

$$D+2=F, F+2=H$$

So, 'YAC' will be the fifth term.

16.

Solution: B

(17, 12, 10)

$$\Rightarrow (17 - 12) \times 2 = 10$$

(25, 23, 4)

$$\Rightarrow (25 - 23) \times 2 = 4$$

So, (31, 27, 8)

$$\Rightarrow (31 - 27) \times 2 = 8$$

17.

Solution: D

From 'F, R, Y':

'F' is on the opposite face of 'Y'.

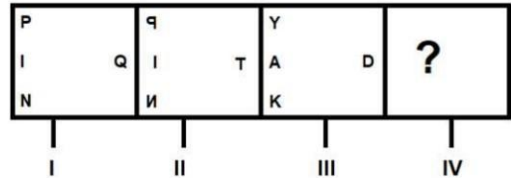
From 'A, T, E':

'A' is on the opposite face of 'E'.

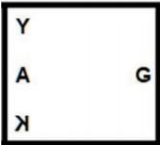
'R' is on the opposite face of 'T'.

In option 'A':
'R' and 'T' cannot be on adjacent faces.
In option 'B':
'F' and 'Y' cannot be on adjacent faces.
In option 'C':
'A' and 'E' cannot be on adjacent faces.
In option 'D':
This can be made by folding the given unfolded figure.

18. **Solution: C**
Given:

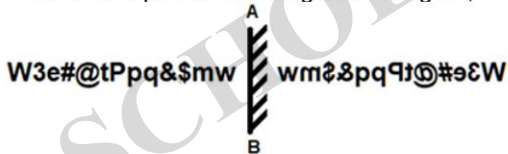


The logic followed here is as follows,
For figure I and II, the three letters at the left extreme end, from top to bottom, are replaced with their mirror image. The letter, which is second from the right extreme top, is replaced with third succeeding letter as per English alphabetical order.
Similar logic is followed for the figure III and IV.
So, the figure that will replace the question mark is as follows:



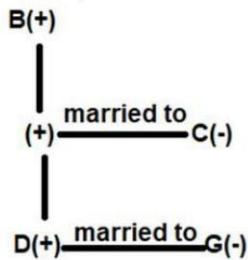
19. **Solution: C**
Difference between all pairs is 2481 except option D.
a. $4826 - 2345 = 2481$
b. $4835 - 2354 = 2481$
c. $5732 - 3241 = 2491 \neq 2481$
d. $3807 - 1326 = 2481$

20. **Solution: B**
If mirror AB is placed to the right of the figure,



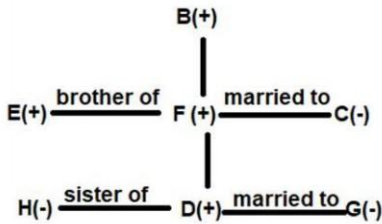
21. **Solution: A**
Clues:
1) B is the grandfather of D.
2) D is married to G. C is not the child of B.
3) G is daughter in law of C. C is a female.

Inferences:
From clue 1, clue 2 and clue 3, C is married to son of B. Also, D is the son of C.



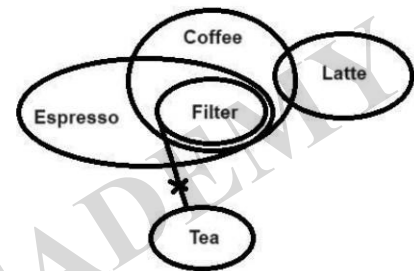
Clues:
1) E is the brother in law of C.
2) H is the niece of E.

Inferences:
From clue 1 and clue 2, H is the daughter of F, who is the husband of C.
The following family tree can be drawn from the given arrangement:



So, F is the son of B.
Solution: D
All of the above states are in eastern part of India except for 'Gujarat'.

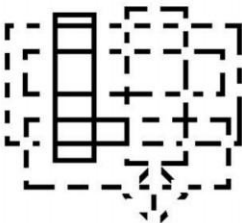
23. **Solution: C**
Following figure can be formed:



Conclusions:
I. Some Espresso is not Tea: This definitely follows as all Filter is Espresso and no Tea is Filter, so, some Espresso that are Filter is not Tea.
II. Some Coffee is Espresso: This definitely follows as all Filter is Coffee and all Filter is Espresso, so, some Coffee is Espresso.
III. No Tea is Coffee: This definitely doesn't follow as there is no direct relation between Tea and Coffee, so, it could or couldn't be a possibility.
From the above figure, only conclusions I and II follow.

24. **Solution: D**
The given words appear as follows in an English dictionary,
5- Celluloid, 3- Cellulose, 2- Cement, 1- Cemetery, 4- Censure, 6- Census
So, '5 3 2 1 4 6' is the correct arrangement in which the given words appear in an English dictionary.

25. **Solution: C**
The embedded figure is as follows,



Quantitative Aptitude

26. **Solution: A**
Initial quantity of oil in the mixture = 0.4×240
= 96 litres

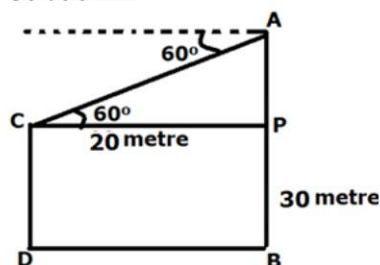
Since, only water is added, quantity of oil will remain same in the mixture.

So, new quantity of mixture = $96 \div 0.24 = 400$ litres

So, 'k' = $400 - 240 = 160$

Therefore, required value = $0.375 \times 160 = 60$

27. **Solution: A**



Let AB and CD be the heights of tower and building, respectively.

In triangle ACP, $\tan 60^\circ = (AP/CP)$

Or, $(AP/20) = \sqrt{3}$

Or, $AP = 20\sqrt{3} = 20 \times 1.7 = 34$ metres

So, $AB = AP + BP$

Or, $AB = 34 + 30 = 64$ metres

28. **Solution: C**

For $5x + 3y = 15$

When $x = 0$, $5x + 3y = 3y = 15$

So, $y = (15/3) = 5$

When $y = 0$, $5x + 3y = 5x = 15$

So, $x = (15/5) = 3$

Let 'A' (0, 0), 'B' (3, 0) and 'C' (0, 5) represent the three vertices of the triangle.

Then, area of the triangle = $(1/2) \times [0 \times (0 - 5) + 3 \times (5 - 0) + 0 \times (0 - 0)]$

= $(1/2) \times 15 = 7.5$ square units

29. **Solution: D**

$7 \times \left[1 \frac{41}{56} + \frac{9}{4} \text{ of } 3 \frac{1}{3} \div 5 \frac{1}{4} \text{ of } \frac{16}{3} \right] \div \frac{1}{5} - 7^2$

= $7 \times \left[\frac{97}{56} + \frac{9}{4} \text{ of } \frac{10}{3} \div \frac{21}{4} \text{ of } \frac{16}{3} \right] \div \frac{1}{5} - 49$

= $7 \times \left[\frac{97}{56} + \frac{15}{2} \div 28 \right] \div \frac{1}{5} - 49$

= $7 \times \left[\frac{97}{56} + \frac{15}{56} \right] \div \frac{1}{5} - 49$

= $7 \times \left(\frac{112}{56} \right) \div \frac{1}{5} - 49$

= $7 \times 2 \times 5 - 49$

= $70 - 49 = 21$

30. **Solution: A**

Let the height of the cone be '10x' cm

So, the height of the cylinder = '10x' $\times 1.5$ = '15x' cm

Let the radius of the cylinder be 'R' cm

ATQ:

$(\pi \times R^2 \times 15x) \times 0.8 = \{(1/3) \times \pi \times 36^2 \times 10x\}$

Or, $R^2 \times 12 = 36^2 \times (10/3) \times (1/12)$

Or, $R^2 = 360$

Or, $R = 6\sqrt{10}$ (Since, radius cannot be negative therefore, we will take the positive root only)

Therefore, the radius of the cylinder = $6\sqrt{10}$ cm

31. **Solution: C**

Probability of picking 2 green balls = ${}^5C_2 \div {}^8C_2$

= $(10/28)$

Probability of picking 2 red balls = ${}^3C_2 \div {}^8C_2 = (3/28)$

So, probability of picking 2 balls of the same colour

= $(10/28) + (3/28) = (13/28)$

32. **Solution: B**

$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$

So, $9^2 = 18 + 2(xy + yz + zx)$

Or, $81 = 18 + 2(xy + yz + zx)$

So, $2(xy + yz + zx) = 81 - 18 = 63$

33.

So, $(xy + yz + zx) = (63/2) = 31.5$

Solution: C

We know that, $\tan (90 - a)^\circ = \cot a^\circ$

So, $\tan (88 - 3a)^\circ = \tan (90^\circ - (3a + 2)^\circ)$

= $\cot (2a + 18)^\circ$

Or, $3a + 2 = 2a + 18$

Or, $a = 18 - 2 = 16$

So, $\frac{\sin^2 (3a - 3)^\circ + \cos^2 (a + 14)^\circ}{\sqrt{\{\cos^2 (4a - 19)^\circ \operatorname{cosec}^2 (a + 29)^\circ\}}} = k \tan^2 (4a - 4)^\circ - 5$

Or, $\frac{\sin^2 45^\circ + \cos^2 30^\circ}{\sqrt{\{\cos^2 (64 - 19)^\circ \operatorname{cosec}^2 (16 + 29)^\circ\}}} = k \tan^2 (64 - 4)^\circ - 5$

Or, $\frac{\sin^2 45^\circ + \cos^2 30^\circ - \sqrt{\cos^2 45^\circ \operatorname{cosec}^2 45^\circ}}{k \tan^2 60^\circ - 5}$

or, $\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 - \sqrt{\cot^2 45^\circ} = k \tan^2 60^\circ - 5$

Or, $\left(\frac{1}{2}\right) + \left(\frac{3}{4}\right) - 1 = k \times 3 - 5$

Or, $\left(\frac{1}{4}\right) = 3k - 5$

Or, $3k = \frac{1}{4} + 5 = \frac{21}{4}$

So, $k = (21/4) \div 3 = (7/4)$

34.

Solution: D

In compound interest, the difference between interests earned in two consecutive years is the interest earned on the interest of previous year.

So, difference between interest earned in second and third year:

= $8,160 - 6,800 = ₹1,360$

So, rate of interest = $(1,360/6,800) \times 100 = 20\%$

Therefore, interest earned in fourth year = $8,160 \times 1.2 = ₹9,792$

35.

Solution: C

Number of casual shirts in showroom 'A' = $128 - 60 = 68$

Number of causal shirts in showroom 'C' = $182 - 80 = 102$

So, sum of number of casual shirts in showrooms 'A' and 'C' together = $68 + 102 = 170$

Number of formal shirts in showrooms 'B' and 'E' together = $65 + 75 = 140$

So, required ratio = $170:140 = 17:14$

36.

Solution: D

Let the cost price of the article be ₹'10x'

So, marked price of the article = $(4/1) \times 10x = ₹'40x'$

Selling price when article is sold at 32% discount

= $40x \times 0.68 = ₹'27.2x'$

Selling price when article is sold after two successive discounts of 16%, each = $40x \times 0.84 \times 0.84 = ₹'28.224x'$

ATQ;

$28.224x - 27.2x = 20.48$

Or, $1.024x = 20.48$

Or, $x = 20$

So, cost price of the article = $20 \times 10 = ₹200$

37.

Solution: D

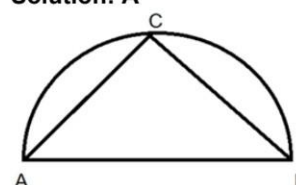
Area of triangle = Semi perimeter $\times$ Inradius

So, $150 = (80/2) \times \text{Inradius}$

Or, inradius = $(150/40) = 3.75$ cm

38.

Solution: A



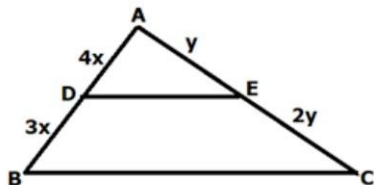
Area of triangle = $(1/2) \times \text{base} \times \text{height}$
Since, the base of the given triangle is the diameter, it is fixed.

So, area of the triangle will depend on height of the triangle.

Maximum height of the triangle = radius of the triangle = 24 cm

So, required area = $24 \times (1/2) \times 24 \times 2 = 576 \text{ cm}^2$

39. **Solution: D**



Let AB, DB, AC and EC be '7x', '3x', '3y' and '2y' cm respectively.

AD = AB - DB = $7x - 3x = 4x$ cm

AE = AC - EC = $3y - 2y = y$ cm

Area of triangle whose two sides are 'b' and 'c' and angle between these sides is 'A':

= $(1/2) \times \sin A \times bc$

So, Area of $\triangle ADE = (1/2) \times \sin A \times (4x) \times y = (2xy \sin A) \text{ cm}^2$

And, area of $\triangle ABC = (1/2) \times \sin A \times (7x) \times 3y$

= $(10.5xy \sin A) \text{ cm}^2$

Ratio of area of $\triangle ADE$ to that of $\triangle ABC = (2xy \sin A) : (10.5xy \sin A) = 4:21$

So, area of $\triangle ABC = (21/4) \times 16 = 84 \text{ cm}^2$

Now, area of quadrilateral BDEC = area of $\triangle ABC$ - area of $\triangle ADE$
= $84 - 16 = 68 \text{ cm}^2$

40. **Solution: D**

Given, $(x + 12)^2 + (y - 10)^2 + (z - 6)^2 = 0$

This can be possible only when, all three terms are zero.

So, $x + 12 = 0$, $y - 10 = 0$ and $z - 6 = 0$

Or, 'x' = -12, 'y' = 10, 'z' = 6

Therefore, required value = $[3 \times (-12) + 5 \times 6] \times [2 \times (-12) + 3 \times 10]$

= $(-36 + 30) \times (-24 + 30)$

= $-6 \times 6 = -36$

41. **Solution: D**

Let the length of the train be 'x' metres.

And, speed of the train = 'y' m/s

ATQ;

$\{(250 + x)/y\} = 17.5$

Or, $y = (250 + x) \div 17.5$

$\{(350 + x)/y\} = 22.5$

Or, $y = (350 + x) \div 22.5$

Or, $\{(350 + x)/22.5\} = \{(250 + x)/17.5\}$

Or, $(350 + x) \times 7 = (250 + x) \times 9$

Or, $2450 + 7x = 2250 + 9x$

Or, $200 = 2x$

So, $x = 100$

So, length of the train = 100 metres

42. **Solution: C**

$\sin(3x - 2^\circ) = \cos(2x + 22^\circ)$,

Or, $\sin(3x - 2^\circ) = \sin(90^\circ - 2x - 22^\circ)$

So, $3x - 2^\circ = 68^\circ - 2x$

So, $5x = 70^\circ$

So, $x = (70/5) = 14^\circ$

So, $\{3 \tan(4x - 11^\circ) + \operatorname{cosec}(5x - 10^\circ)\} \times \cot(2x + 2^\circ)$

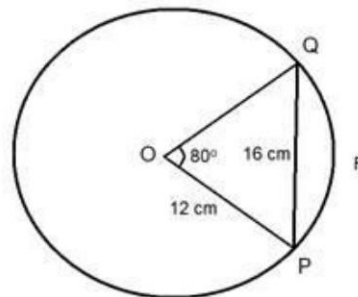
= $\{3 \times \tan 45^\circ + \operatorname{cosec} 60^\circ\} \times \cot 30^\circ$

= $(3 \times 1 + \frac{2}{\sqrt{3}}) \times \sqrt{3}$

$$= \left(\frac{3\sqrt{3}+2}{\sqrt{3}} \right) \times \sqrt{3}$$

$$= 3\sqrt{3} + 2$$

43. **Solution: B**



Area of minor segment PRQ = Area of sector OQRP - area of triangle OPQ

Area of sector OQRP = $\pi \times \text{radius}^2 \times (80/360) = 3.14 \times 12^2 \times (80/360) = 100.8 \text{ cm}^2$

In triangle OMQ,

OP = OQ = 12 cm and QP = 16 cm

Heron's formula = Area

= $\sqrt{s \times (s - a) \times (s - b) \times (s - c)}$ {Where 's' is semi-perimeter of the triangle and 'a', 'b' and 'c' are the three sides of the triangle}

So, 's' = $(12 + 12 + 16) \div 2 = 20 \text{ cm}$

So, area of the triangle

= $\sqrt{20 \times (20 - 12) \times (20 - 12) \times (20 - 16)}$

= $\sqrt{20 \times 8 \times 8 \times 4} = 32\sqrt{5}$

Or, area of triangle = $32 \times 2.2 = 70.4 \text{ cm}^2$

So, required area = $100.8 - 70.4 = 30.4 \text{ cm}^2$

44. **Solution: D**

Average number of Samosas sold per day on Tuesday, Wednesday and Thursday = $(115 + 83 + 90) \div 3 = 96$

Average number of Momos sold per day on Wednesday, Thursday and Friday = $(110 + 84 + 142) \div 3 = 112$

So, required ratio = $96:112 = 6:7$

45. **Solution: D**

LCM of 6, 9, 12, 15 is 180

Smallest 4-digit number which is divisible by all of the numbers = $180 \times 6 = 1080$

Since, remainder to be obtained is equal to '5'

Therefore, the required number = $1080 + 5 = 1085$

46. **Solution: A**

Let the time taken by Mohan to do the work be 'x' days

So, time taken by Raj to do the work = $(x - 25)$ days

ATQ;

$$\frac{1}{30} = \frac{1}{x} + \frac{1}{x-25}$$

$$x \times (x - 25) = (2x - 25) \times 30$$

$$x^2 - 25x = 60x - 750$$

$$x^2 - 85x + 750 = 0$$

$$x^2 - 75x - 10x + 750 = 0$$

$$x(x - 75) - 10(x - 75) = 0$$

$$(x - 10)(x - 75) = 0$$

$$x = 10 \text{ or } x = 75$$

When 'x' = 10, time taken by Raj to do the work becomes (-15). So, $x = 75$

So, time taken by Mohan to do the work = $75 - 25$

= 50 days

So, required time = $50 \times 0.7 = 35 \text{ days}$

47. **Solution: A**

Speed of the car = $(120/3) = 40 \text{ km/h}$

Speed of the train = $(360/4.5) = 80 \text{ km/h}$

We know that,
If two objects are running in the same direction, then
their relative speed = Difference between their
individual speeds
Required distance between the car and the train
= $2 \times (80 - 40) = 80 \text{ km}$

48. **Solution: B**

Let the efficiency of a man be '4a' units/day
So, efficiency of a woman = $0.75 \times 4 = '3a'$ units/day
Total work = $12 \times 3a \times 9 \times 42 = '13608a'$ units
So, time taken by 24 men working 6 hours a day to
complete the work
= $13608a \div (24 \times 4a \times 6)$
= 23.625 days

49. **Solution: C**

Sum of cost price of the T.V. and the wall clock =
 $4825 \times 2 = ₹9,650$
Let the cost price of the T.V. = ₹'100x'
Then, cost price of the wall clock = ₹(9650 - 100x)
Selling price of the T.V. = $100x \times 1.35 - 180$
= ₹(135x - 180)
Selling price of the wall clock = $(9650 - 100x) \times 0.74$
= ₹(7141 - 74x)
According to the question,
 $7141 - 74x + (135x - 180) = 9650 + 2435$
Or, $61x + 6961 = 12085$
So, $x = 5124 \div 61 = 84$
So, cost price of the T.V. = $84 \times 100 = ₹8,400$

50. **Solution: C**

Let the salary of Prema be ₹'100b'.
Salary of Prem = $1.4 \times 100b = ₹'140b'$
Therefore, required percentage = $[(140b - 100b) \div 100] \times 100$
= $(40/100) \times 100 \sim 28.57\%$

General Awareness

51. **Solution: A**

On February 12, 2025, Prime Minister Narendra Modi
and French President Emmanuel Macron inaugurated
India's new consulate in Marseille, France. This
marks a key step in strengthening India-France
relations, facilitating economic, cultural, and
diplomatic ties.

52. **Solution: C**

The Rajasthan government renamed Foy Sagar Lake
in Ajmer to Varun Sagar as part of its effort to remove
colonial-era names. A ghat and a statue of Lord
Varun are also planned near the lake to honor its new
identity.

53. **Solution: B**

The Union Cabinet approved the continuation of two
umbrella schemes of the Department of
Biotechnology, merging them into one unified scheme
called '**Biotechnology Research Innovation and
Entrepreneurship Development (Bio-RIDE)**', which
includes a new component for Biomanufacturing and
Biofoundry.
The **Bio-RIDE** scheme encompasses three broad
components:
· **Biotechnology Research and Development (R&D)**
· **Industrial & Entrepreneurship Development (I&ED)**
· **Biomanufacturing and Biofoundry**
With a proposed outlay of **₹9197 crore** during the
15th Finance Commission period (2021-22 to 2025-

26) , the Bio-RIDE scheme aims to foster innovation
and promote bio-entrepreneurship, reinforcing India's
position as a global leader in biomanufacturing and
biotechnology.

Key objectives of the scheme include:

- **Promoting Bio-Entrepreneurship:** Supporting startups through seed funding and mentorship.
 - **Advancing Innovation:** Offering grants for research in areas such as synthetic biology and biopharmaceuticals.
 - **Facilitating Industry-Academia Collaboration:** Creating synergies to accelerate commercialization of bio-based products.
 - **Encouraging Sustainable Biomanufacturing:** Aligning with India's Green Goals.
 - **Supporting Researchers:** Providing extramural funding for diverse biotechnology fields.
 - **Nurturing Human Resources:** Developing skills and capacity in the biotechnology sector.
- The component on **Biomanufacturing and Biofoundry** aims to support a Circular Bioeconomy in alignment with the **Lifestyle for the Environment (LiFE)** initiative, addressing climate change through innovative solutions.
- The Bio-RIDE scheme is integral to achieving the vision of **Viksit Bharat 2047** and aims to make India a **US\$300 billion economy by 2030**.
Hence, option B is the correct answer.

54. **Solution: B**

Bit is the smallest unit of data in a computer.
8 bit = 1 byte
1024 byte = 1 Kilobyte
1024 Kilobyte = 1 Megabyte
1024 Megabyte = 1 Gigabyte
1024 Gigabytes = 1 Terabyte

55. **Solution: D**

Google is incorporated, September 4, 1998. Google
was incorporated as a privately-held company on
September 4, 1998, by founders Larry Page and
Sergey Brin.

56. **Solution: C**

The term Cherry picking is used in basketball. Cherry
picking in basketball refers to play where one player
does not play defense with the rest of the team but
remains near the opponents' goal.

57. **Solution: B**

"History of the Sikhs" book written by Khushwant
Singh.

58. **Solution: A**

Ohm's law states that the electrical Current (I) flowing
in a circuit is proportional to the voltage (V) and
inversely proportional to the resistance (R).

59. **Solution: A**

National Highway	Cities connected
(I) NH 129	Dimapur and Numaligarh
(II) NH 16	Chennai to Kolkata
(III) NH 21	Jaipur in Rajasthan to Agra and Bareilly in Uttar Pradesh

Hence, Option A is the correct answer.

60. **Solution: A**

Devabhuti was the last ruler of the Shunga dynasty.
Therefore, statement II is correct.
As for statement I, the Shunga dynasty did indeed
rule Magadha, but it was established after the
Mauryan empire. Therefore, statement I is incorrect.

- Nanda dynasty** was ruling Magadha just before the establishment of the Mauryan empire.
Hence, Option A is the correct answer.
61. **Solution: B**
The sun heats the earth through radiation. Since there is no medium (like the gas in our atmosphere) in space, radiation is the primary way that heat travels in space. When the heat reaches the earth it warms the molecules of the atmosphere, and they warm other molecules and so on.
62. **Solution: C**
Sonority is the property of a metal in producing a ringing sound when struck. All metals are highly sonorous. Due to very low electronegativity, electron bonding in metals is highly delocalized. When hit, the electron cloud moves easily and the dissipation of energy is less.
63. **Solution: D**
Au is the chemical symbol for Gold.
Mg - Magnesium.
Hg - Mercury.
Ag - Silver.
64. **Solution: C**
Lakshadweep:
- Lakshadweep, India's smallest Union Territory, is an archipelago of 36 coral islands.
 - It consists of 12 atolls, 3 reefs and 5 submerged banks.
 - It is a uni-district Union Territory with an area of 32 Sq.Kms and is comprised of **10 inhabited islands, 17 uninhabited islands** attached islets, four newly formed islets and 5 submerged reefs.
 - The 10 inhabited islands are **Kavaratti, Agatti, Amini, Kadmat, Kiltan, Chetlat, Bitra, Andrott, Kalpeni and Minicoy.**
 - Its capital is Kavaratti.
 - According to the 2011 Census, Lakshadweep has a population of **64429 persons**. More than 93% of the population who are indigenous, are Muslims and majority of them belong to the Shafi School of the Sunni Sect.
 - **Malayalam** is spoken in all the islands except Minicoy where people speak **Mahl** which is written in Divehi script and is spoken in Maldives also.
Hence, Option C is the correct answer.
65. **Solution: C**
The formal inauguration ceremony was performed on **16th April 1853**, when 14 railway carriages carrying about 400 guests left Bori Bunder at 3.30 pm "amidst the loud applause of a vast multitude and to the salute of 21 guns."
The first passenger train steamed out of Howrah station destined for **Hooghly**, a distance of 24 miles, on 15th August 1854.
66. **Solution: B**
Stamen is the male part of the flower. The pistil is a plant's female part. It generally is shaped like a bowling pin and is located in the flower's center. It consists of a stigma, style and ovary.
67. **Solution: C**
The naturally occurring vitamin is cholecalciferol, which is formed from 7 -dehydrocholesterol in the human skin by exposure to sunlight. Sunlight is a natural source of Vitamin D. The provitamin 7-dehydrocholesterol is activated to D3 by the ultraviolet rays of sunlight.

68. **Solution: B**
Article 22(3) of the Indian Constitution allows the authorities to detain individuals for preventive reasons, such as the maintenance of public order or national security. The constitution provides for certain safeguards:
• No preventive detention law should authorize detention beyond **three months** unless an Advisory Board approves it.
• Grounds for preventive detention shall be communicated earliest.
• Provide the earliest opportunity of making a representation.
Hence, Option B is the correct answer.
69. **Solution: D**
Dilwara Temples is located amidst the lush green Aravalli hills of Mount Abu in Rajasthan. The Dilwara Temple is the most beautiful pilgrimage site for the followers of **Jainism**.
The temple was built by Vimal Shah between the 11th and 13th centuries. This temple is renowned for its opulent use of marble and intricate carvings on every hook and corner.
These Jain temples were built by Vastapul Tejpal who was the minister of Bhima, Chalukyas of Gujarat ruler.
70. **Solution: D**
Kanchi (modern Kanchipuram) was a significant cultural and religious center under the **Pallava dynasty**. The Pallavas are known for their contributions to Hindu temple architecture and Vedic learning. They established numerous temples, including the famous Shore Temple and Kailasanatha Temple, which reflect their commitment to both religious and artistic advancements.
The King was the highest authority of the state and served as a judge, arbitrator, and military commander. Vishnugopa was a ruler of the Pallava dynasty who faced defeat at the hands of Samudragupta, the Gupta emperor. This event is recorded in the famous "Allahabad Pillar Inscription" of Samudragupta, which details his military conquests and victories over various regional powers, including the Pallavas.
Hence, Option D is the correct answer.
71. **Solution: A**
Government Securities (G-sec) are a tradeable instrument issued by central or state governments. It acknowledges the government's debt obligation. G-Secs carry practically no risk of default and, hence, are called **risk-free gilt-edged instruments**.
Types of G-secs:
• Short-term (Treasury bills) : Original maturities of less than one year.
• Long-term (Government bonds or dated securities) : Original maturity of one year or more.
Derivatives are not a type of Government Security.
Hence, Option A is the correct answer.
72. **Solution: A**
Pradhan Mantri Jan-Dhan Yojana (PMJDY) is the National Mission for Financial Inclusion to ensure access to financial services, namely, basic savings & deposit accounts, remittance, credit, insurance, and pension in an affordable manner.
Under the scheme, a basic savings bank deposit (BSBD) account can be opened in any bank branch or Business Correspondent (Bank Mitra) outlet, by persons not having any other account.

Benefits under PMJDY:

- One basic savings bank account is opened for unbanked persons.
 - There is no requirement to maintain any minimum balance in PMJDY accounts.
 - Interest is earned on the deposit in PMJDY accounts.
 - **Rupay Debit card** is provided to PMJDY account holders.
 - Accident Insurance Cover of ₹1 lakh (enhanced to ₹2 lakh to new PMJDY accounts opened after 28.8.2018) is available with a RuPay card issued to the PMJDY account holders.
 - An overdraft (OD) facility up to ₹10,000 to eligible account holders is available.
 - PMJDY accounts are eligible for Direct Benefit Transfer (DBT), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY), Micro Units Development & Refinance Agency Bank (MUDRA) scheme.
- Hence, option A is the correct answer.

73. **Solution: C**

MIBOR (Mumbai Interbank Outright Rate) is an interest rate benchmark at which banks borrow unsecured funds from one another in the Indian interbank market. It was first introduced by the National Stock Exchange (NSE) in 1998. It is computed and published by **Financial Benchmarks India Pvt. Ltd. (FBIL)** on a daily basis.

Hence, Option C is the correct answer.

74. **Solution: C**

The Western Ghats of India are a geomorphic feature of immense global importance. It spread across **6 states** namely **Gujarat, Maharashtra, Goa, Karnataka, Kerala & Tamil Nadu**. These mountains cover an area of around 140,000 km² in a 1,600 km long stretch that is interrupted only by the 30 km Palghat Gap at around 11°N.

Hence, Option C is the correct answer.

75. **Solution: B**

Ala-ud-Din Hasan Bahman Shah, the founder of the Bahmani dynasty, established an administrative system in his kingdom by dividing it into four major provinces or administrative divisions known as "tarafs". These were:

- **Daultabad**
- **Gulbarga**
- **Bidar**
- **Berar**

Each province was placed in charge of a governor, who maintained an army and made appointments in all civil and military posts under him.

Hence, Option B is the correct answer.

English Language

76. **Solution: B**

In B, replace the present participle verb **DOUBLING** with the base form verb **DOUBLE** to fit in the infinitive structure (TO + VERB 1). Thus, B is the right answer.

77. **Solution: D**

The correct sequence is **BADC**. B begins the paragraph by introducing us to a plastic products company named Tupperware that was introduced in the year 1946. A follows B to describe how the company flourished at that time. D follows A to

describe how the company, which has gained so much profit since its establishment, is now facing problems to continue its business. C follows A to describe an action that the company plans to take amidst these problems. It has planned to close its only US factory and lay off employees. Thus, D is the right answer.

78. **Solution: C**

The sentence seeks to convey that the American Optometric Association suggests that all adults should have a dilated eye exam every year, even if they face no vision related problems. **IRRESPECTIVE OF HAVING ANY** will fit here. Thus, C is the right answer.

The highlighted phrase is incorrect as the singular verb **HAS** is used instead of the plural verb **HAVE** to agree with the plural pronoun **THEY**.

A is incorrect as it uses the singular pronoun **IT** instead of the plural pronoun **THEY** to agree with the plural noun **ADULTS**.

B is incorrect as it uses the preposition **OF** after **DESPITE** which is grammatically incorrect.

79. **Solution: A**

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 subject **HE** will become the object **HIM**. The object **THE POLICY** will become the subject of the sentence.

II. The verb **IMPLEMENTED** will be replaced by **WAS IMPLEMENTED**, as the passive construction for the simple past tense is **WAS/ WERE + PAST PARTICIPLE**.

III. The preposition **BY** will be added to the sentence, and **HIM** will become its object.

Thus, A is the right answer.

80. **Solution: C**

We need a plural form verb to agree with the plural noun **STORIES**. The sentence seeks to convey that the stories have universal themes and unique cultural insights that are similar to what the audiences around the world think or believe. **RESONATE** (to be similar to what someone thinks or believes) will fit here. Thus, C is the right answer.

The remaining words are contextually incorrect.

Ordeal (noun) - a very unpleasant experience. **Augur** - to predict. **Frail** (adjective) - weak and delicate.

81. **Solution: C**

In C, omit the indefinite article **A** as **KNOWLEDGE** is an uncountable noun and cannot be modified by the article **A**. Thus, C is the right answer.

82. **Solution: D**

HARD AND FAST (definite or that which cannot be changed under any circumstances) will fit here as the sentence tells us that there are no definite rules to decide the size of the higher management in the company. Thus, D is the right answer.

Hard luck - is an expression used to tell somebody that you feel sorry for them. **Under a cloud** - under suspicion. **All at sea** - very confused.

83. **Solution: D**

The word **EVICITION** means the action of expelling someone from a property. The sentence seeks to convey that the owner gave the tenant a notice to move out because they had not paid rent several times. **EXPULSION** (the action of forcing someone to

leave an organisation) will be the synonym of the given word. Thus, D is the right answer.

The other options have different meanings:

Rapport - an agreement or sympathy between people or groups.

Disintegration - the process of coming to pieces.

Realist - a person who accepts a situation as it is and is prepared to deal with it accordingly.

84. **Solution: B**

The sentence is in the indicative mood and 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 AN APP will become the subject of the sentence and start the sentence.

II. The verb CREATED will change to WAS CREATED, as the passive construction for the simple past tense in the indicative mood is WAS/ WERE + PAST PARTICIPLE.

III. The preposition BY will be added to the sentence, and the subject SHE will change to HER and become its object.

Thus, B is the right answer.

85. **Solution: C**

In option C, replace the past participle verb UNDERGONE with the simple past tense verb UNDERWENT to fit in the past tense structure of the sentence. Thus, C is the right answer.

86. **Solution: C**

A SCAPEGOAT refers to a person who is blamed for the mistakes of another person or other people. Thus, C is the right answer.

The meaning of other words:

Siesta - a period of rest or sleep after lunch. Usurper - a person who grabs another person's property or title.

Pilgrim - a person who travels to a sacred place.

87. **Solution: B**

We need the base form of a verb to fit in the infinitive construction TO + VERB. The sentence seeks to convey that the toll plaza's live monitoring system will help guarantee smooth traffic flow for National Highway users across the country. ENSURE (to guarantee or make something certain to happen) will fit here. Thus, B is the right answer.

The other options have different meanings:

Defer - to put off an action or event to a later time; postpone.

Interrupt - to stop the continuous progress of an activity or process.

Assert - to state a fact or belief confidently and forcefully.

88. **Solution: C**

COPE (to deal successfully with a difficult situation) will fit here as the sentence seeks to convey that as his family was transferred to some other place, Sumit faced problems in dealing with this change. Thus, C is the right answer.

Ramp (noun) - a sloping surface joining two different levels. Prone (adjective) - likely to suffer from something or to do something bad. Hinge (noun) - a piece of metal, plastic, etc. on which a door, lid or gate moves freely as it opens or closes.

89. **Solution: B**

RESILIENT means strong enough to deal with something negative like a problem or disease. VULNERABLE (unsafe or unprotected) is its antonym. Thus, B is the right answer.

Addicted - unable to stop using or doing something as a habit. Familiar - well-known or easily recognised. Restricted - controlled or limited.

90. **Solution: B**

The correct spelling of the word is DETERIORATION (the process or fact of becoming worse). Thus, B is the right answer.

Dexterity - skill at doing things, especially with hands. Oblique - having a sloping direction, angle, or position. Dwindle - to become smaller or weaker.

91. **Solution: A**

The sentence tells us how one of the best memories the speaker had as a child was when his father took him to see a concert. The phrase in A correctly captures the idea. Thus, A is the right answer.

The highlight phrase is incorrect. We need the plural noun MEMORIES instead of the singular noun MEMORY as the structure ONE OF THE is followed by a plural noun.

B is incorrect. We need the base form verb FORGET instead of the past participle verb FORGOTTEN to come after the modal verb WOULD.

D is incorrect. We need the possessive adjective MY instead of the possessive pronoun MINE to modify the noun CHILDHOOD.

92. **Solution: B**

The idiom TO STICK ONE'S NECK OUT means to take a risk. Thus, B is the right answer.

The other options do not convey the intended meaning.

93. **Solution: B**

PANDEMONIUM (a situation in which there is a lot of noise and confusion) will fit here as the sentence seeks to convey that when the judge gave his decision, a situation with a lot of noise and confusion emerged in the court. SILENCE (absence of noise) is opposite in meaning to the given word.

Thus, B is the right answer.

Deride - to laugh at something in a cruel way. Rancid - having an unpleasant smell or taste. Agreement - harmony of people's opinions, actions, or characters.

94. **Solution: B**

The correctly spelt word is STATISTICALLY (in a way that relates to statistics or data). Thus, B is the right answer.

95. **Solution: D**

BDCA is the correct sequence of the sentences. BD collectively begins the paragraph by telling us how the rotten vegetables (denoted by sad vegetables) would not just get wasted when thrown away, they could also lead to global warming. CA provides a reason for this: when food is thrown in trash, the bacteria does not get sufficient oxygen to convert it into nutrient-rich food, instead it consumes the food and releases methane, a greenhouse gas. Thus, D is the right answer.

96. **Solution: B**

The passage uses a satirical tone, suggesting that Trump has taken extreme measures, including "canceling" climate change. "Increased" and "reversed" do not make sense in this context, and "ignored" does not fit the exaggerated claim.

97. **Solution: A**

The phrase "made a dent" means to make a small impact, which fits the context. "Hole" and "scratch" are too literal, while "impact" is too strong compared to the phrase used in The Economist quote.

98. **Solution: B**
"Fiats" refers to authoritative decrees or orders, which matches Trump's tendency to make bold proclamations. "Laws" and "policies" imply structured governance, which contradicts the passage's tone. "Debates" does not fit the context.
99. **Solution: B**
"Foundation plaques" refer to plaques commemorating projects that never materialized. "Broken" and "crumbling" suggest physical decay

- rather than symbolic failure. "Historical" is unrelated to the idea of unfulfilled promises.
100. **Solution: C**
The passage critiques the difference between making announcements and actual governance. "Headline stage" refers to projects that exist only as grand declarations but never materialize. "Planning" and "execution" suggest some level of action, which contradicts the critique. "Governance" is too broad.

SCHOLARS ACADEMY