

# SSC CHSL - Model Questions



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1. None of the following five are equal in one particular way and form a group. Which one is not related to that group?

F, H, C, J, L

A F

B C

C J

D I

### Solution

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional Value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional Value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabet	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

- The logic is:

$$F = 6$$

$$H = 8$$

$$C = 3$$

$$J = 10$$

$$L = 12$$

- All letter's place value except 'C' is an even number, while the place value of C is an odd number.
- Hence, 'C' is the odd one out.

2. In the following question, four groups of three numbers are given. In each group the second and third number are related to the first number by a Logic/Rule/Relation. Three are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives :

A (12, 59, 23)

B (17, 84, 35)

C (7, 34, 13)

D (11, 54, 21)

### Solution

- The logic followed here is :-

**(First number  $\times$  5) - 1  $\rightarrow$  Second number**

**(First number  $\times$  2) - 1  $\rightarrow$  Third number**

- A) In (12, 59, 23)

$[12, \{(12 \times 5) - 1\}, \{(12 \times 2) - 1\}]$

$[12, \{60 - 1\}, \{24 - 1\}] \rightarrow (12, 59, 23).$

- B) In (17, 84, 35)

$$[17, \{(17 \times 5) - 1\}, \{(17 \times 2) - 1\}]$$

$$[17, \{85 - 1\}, \{34 - 1\}] \rightarrow (17, 84, 33) \text{ not } (17, 84, 35).$$

- C) In (7, 34, 13)

$$[7, \{(7 \times 5) - 1\}, \{(7 \times 2) - 1\}]$$

$$[7, \{35 - 1\}, \{14 - 1\}] \rightarrow (7, 34, 13).$$

- D) In (11, 54, 21)

$$[11, \{(11 \times 5) - 1\}, \{(11 \times 2) - 1\}]$$

$$[11, \{55 - 1\}, \{22 - 1\}] \rightarrow (11, 54, 21).$$

- Hence, the correct answer is "(17, 84, 35)".

**Directions:** In the question below are given three statements followed by three conclusions numbered I, II, and III. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

3. • **Statements:**

**No rat is black.**

**Some grass is black.**

**No black is pot.**

• **Conclusions:**

**I. Some rat being grass is a possibility.**

**II. Some pot being grass is a possibility.**

**III. All grass is pot.**

**A** Only I and III follow

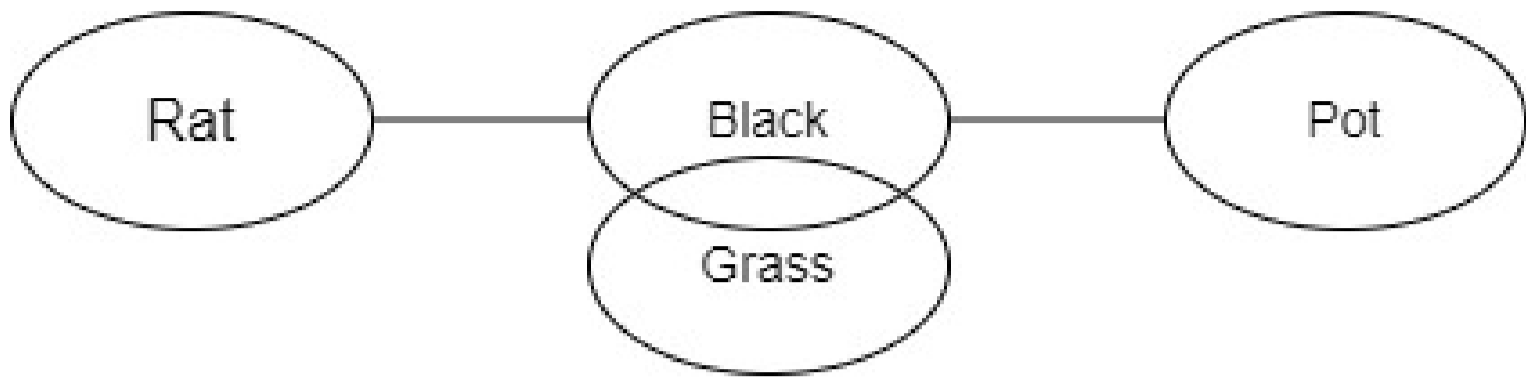
**B** Only I and II follow

**C** Only I follow

**D** All follow

## Solution

- The possible diagram for the given statements is as follows,



- Conclusions:

I. Some rat being grass is a possibility  $\rightarrow$  It is possible, hence True.

II. Some pot being grass is a possibility  $\rightarrow$  It is possible, hence True.

III. All grass is pot  $\rightarrow$  Not possible, hence False.

- Hence only I and II follow.

4. Arrange the given words in the reverse order i.e., from last to first, as they appear in the dictionary:

1. TOTAL

2. TODDLER

3. TOUGH

4. TOPPER

5. TOW

A 35142

B 34512

C 53142

D 53412

### Solution

- The reverse dictionary sequence followed here is:

5) TOW

3) TOUGH

1) TOTAL



4) TOPPER

2) TODDLER

- Hence, 53142 is the correct order.
- Option C is the correct answer.

**Direction:** In the question below are given two statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

5. • **Statements:**

**All alps are boys.**

**No alps is a car.**

• **Conclusions:**

**I. Some boys are cars.**

**II. Some boys being cars is a possibility.**

**A** Either I or II follows

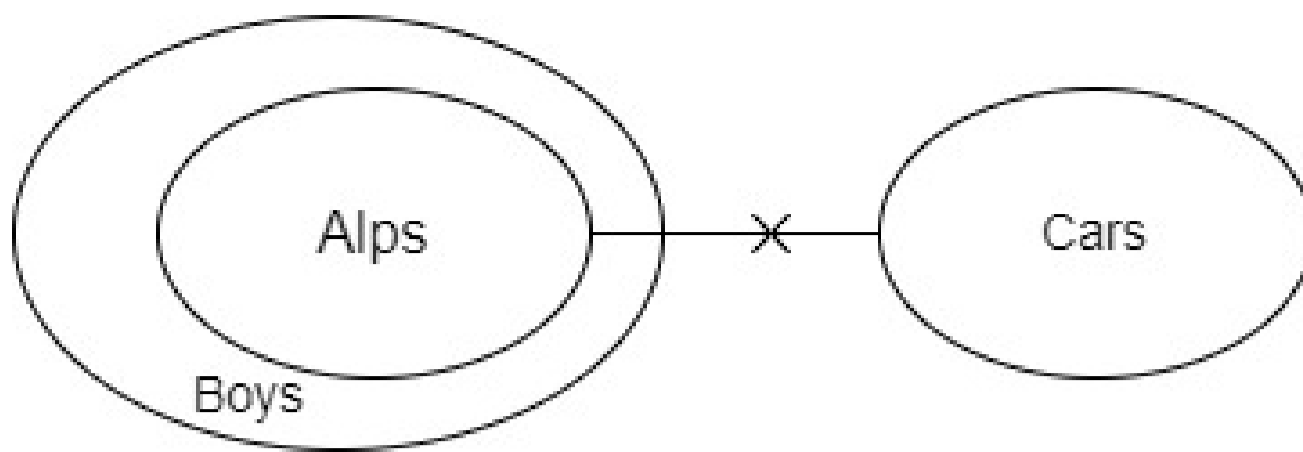
**B** Only I follows

**C** Only II follows

**D** Both I & II follow

**Solution**

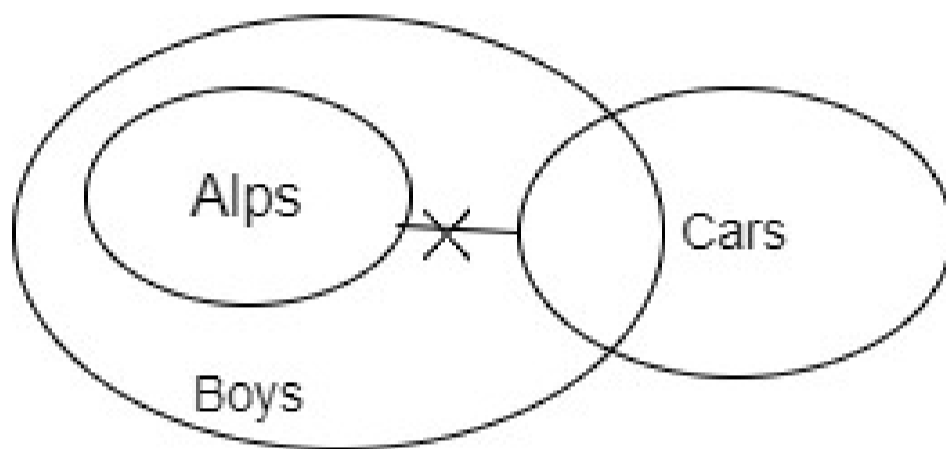
• The possible diagram for the given statements is as follows,



- Conclusions:

I. Some boys are cars  $\rightarrow$  False (It is possible but not definite).

II. Some boys being cars is a possibility  $\rightarrow$  True (It is possible as shown below).



- Thus, only conclusion II follows.

6. If  $\sec^2\Theta + \tan^2\Theta = \frac{4}{5}$ ;  $\sec^4\Theta - \tan^4\Theta$  is:

A  $\frac{8}{7}$

B  $\frac{4}{5}$

C  $\frac{5}{4}$

D  $\frac{11}{4}$

### Solution

- Given that,

$$\sec^2\Theta + \tan^2\Theta = \frac{4}{5}.$$

- According to question,

$$\sec^4\Theta - \tan^4\Theta.$$

$$\Rightarrow (\sec^2\Theta - \tan^2\Theta)(\sec^2\Theta + \tan^2\Theta).$$

$$\Rightarrow 1 \times \frac{4}{5} = \frac{4}{5}. \text{ Ans.}$$

7.  $(x+3)$  is a factor of  $3x^2 + ax + b$ , then find the value of  $3a - b$ ?

**A** 27

**B** 7

**C** 3

**D** 9

### Solution

- Given:

If  $(x+3)$  is a factor of  $3x^2 + ax + b$ ,

- Concept used:

1. If  $p(x)$  be a function and  $(x - a)$  is a factor of  $p(x)$ , then  $p(a) = 0$ .

- Calculation:

According to the question,

$$(x+3) = 0.$$

$$x = -3.$$

- Now, substitute the value of  $x = -3$  in the function and then equate to 0.

$$3(-3)^2 - 3a + b = 0.$$

$$27 - 3a + b = 0.$$

$$3a - b = 27.$$

- Therefore, "27" is the required answer.

8. 15 years ago the ratio of ages of A and B was 4: 5 years. 5 years hence the ratio of their ages will be 13: 15. Find the ratio between sum and difference of their present ages?

**A** 51: 4

**B** 47: 55

**C** 55: 47

**D** 4: 51

### Solution

- Given:

Ratio of ages of A and B, 15 years ago = 4: 5.

Ratio of ages of A and B, 5 years hence = 13: 15.

- Concept:

Difference between ages of two people remains same.

- Calculation:

15 years ago difference between age =  $5 - 4 = 1$  year.

5 years hence difference between age =  $15 - 13 = 2$  year.

∴ Difference between ages of two people remains same.

- New ratio of ages of A and B, 15 years ago =  $(4: 5) \times 2 = 8: 10$ .

And, ratio of ages of A and B, 5 years hence =  $13: 15$ .

- 15 years ago and 5 years hence, total age gap =  $15 + 5 = 20$ .
- Similarly, age gap between ratio =  $13 - 8 = 5$  years or  $15 - 10 = 5$  years.

5 years = 20.

1 years = 4.

- Ratio of ages of A and B, 15 years ago =  $(8: 10) \times 4 = 32 : 40$ .
- Present ages will be =  $(32 + 15) : (40 + 15) = 47 : 55$ .
- Ratio between sum and difference of their present ages =  $102 : 8 = 51 : 4$ .

∴ the correct answer is  $51 : 4$ .



9. 3 bells rings at an regular interval of 45 min, 1 hour 30 min and 2 hour respectively. If all three bells first rings at 12:00 A.M, when they will ring together again?

**A** 06:00 A.M

**B** 06:30 A.M

**C** 06:00 P.M

**D** 09:00 A.M

### Solution

- Given that,

3 bells rings at an regular interval of 45 min, 1 hour 30 min and 2 hour respectively,

All three bells together rings at 12:00 A.M.

- Calculation:

According to the question,

First bell rings at an interval of = 45 min.

Second bell rings at an interval of = 1 hour 30 min = 90 min.

Third bell rings at an interval of = 2 hours = 120 min.

- All three bells ring together after,

L.C.M of (45, 90, 120) = 360 min.

All three bells ring together after =  $\frac{360}{60} = 6$  hours.

Since all three bells together rings at 12:00 AM.

- Therefore, next they all three bells ring together at = 06:00 A.M.

10. If 75% of the books is sold at 8% profit and remaining at 4% profit, If the cost price of all books is Rs. 10000, then find the profit earned?

**A** Rs. 700

**B** Rs. 800

**C** Rs. 900

**D** Rs. 1000

### Solution

- Given that,

1. If 75% of the books is sold at 8% profit and remaining at 4% profit,

2. Cost price of all books = Rs. 10000.

- Formula used:

$$\text{Selling price} = \text{Cost price} \times (100\% + \text{Profit}\%).$$

- Calculation:

Let the number of books = 100.

$$\text{Therefore, price of one book} = \frac{10000}{100} = \text{Rs. } 100.$$

The number of books sold at 8% profit = 75% of 100 = 75.

The number of books sold at 4% profit = 25% of 100 = 25.

- Now,

Profit earned on 75 books =  $75 \times 100 \times 8\% = \text{Rs. } 600.$

Profit earned on 25 books =  $25 \times 100 \times 4\% = \text{Rs. } 100.$

Total profit earned =  $\text{Rs. } 600 + \text{Rs. } 100 = \text{Rs. } 700.$

Therefore, 'Rs. 700' is the required answer.

11. In the following question, four groups of three numbers are given. In each group the second and third number are related to the first number by a Logic/Rule/Relation. Three are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.

**A** (18, 21, 25)

**B** (16, 19, 22)

**C** (17, 20, 23)

**D** (21, 24, 27)

### Solution

- The logic followed here is:-

$$\text{Second number} = \text{First number} + 3$$

$$\text{Third number} = \text{First number} + 6.$$

- **Option A)** In (18, 21, 25)

$$(18, 18 + 3, 18 + 6) = (18, 21, 24).$$

- **Option B)** In (16, 19, 22)

$$(16, 16 + 3, 16 + 6) = (16, 19, 22).$$

- Option C) In (17, 20, 23)

$$(17, 17 + 3, 17 + 6) = (17, 20, 23).$$

- Option D) In (21, 24, 27)

$$(21, 21 + 3, 21 + 6) = (21, 24, 27).$$

- Hence, the correct answer is "(18, 21, 25)".

12. A clock is set to the right time at 4:00 AM on Thursday. If it gains 20 seconds in every 3 hours, then what is the time shown on the clock at 8:30 PM on Friday night?

A 9 hours 34 minutes PM

B 8 hours 30 minutes 30 seconds PM

C 8 hours 34 minutes PM

D 8 hours 34 minutes 30 seconds PM

### Solution

- No. of hours between 4. 00 AM on Thursday and 8. 30 PM on Friday = 40 hours and 30 minutes.
- Gain in 3 hours = 20 seconds.
- Therefore, gain in 1 hour =  $\frac{20}{3}$  seconds.  
 $\Rightarrow$  Gain in 40.5 hours = 270 seconds = 4 minutes 30 seconds.
- Therefore, the time shown = 8.30 + 4 minutes 30 seconds.
- Hence, '8 hours 34 minutes 30 seconds PM' is the correct answer.

13. What is the angle between the minute hand and hour hand at time 45 minutes past 7'O clock?

A  $37\frac{2}{3}$  Degree

B  $37\frac{1}{2}$  Degree

C  $38\frac{1}{2}$  Degree

D  $36\frac{1}{2}$  Degree

### Solution

- To find the angle between hour hand and minute hand, when minute hand is ahead of the hour hand.
- The formula is,

$$= 30 \times \left( \frac{M}{5} - H \right) - \frac{M}{2}$$

$$= 30 \times \left( \frac{45}{5} - 7 \right) - \frac{45}{2}$$

$$= 30 \times (9 - 7) - \frac{45}{2}$$

$$= 60 - \frac{45}{2}$$

$$= \frac{120 - 45}{2}$$

$$= \frac{75}{2}$$



$$=37\frac{1}{2}.$$

- Hence, the angle between the minute hand and hour hand at time 45 minutes past 7'O clock is  $37\frac{1}{2}$  Degree.
- Note:

You may use the following formula:  $\text{angle} = 30H - (11/2)M$  where H = hours and M = minutes.

14. Select the correct passive form of the given sentence. The people were helping the wounded woman.

A The people helped the wounded woman

B The wounded woman is being helped by the people

C The wounded woman was helped by the people

**D The wounded woman was being helped by the people**

### Solution

- Find the subject(The people ) and object(the wounded woman) of the sentence and exchange their places.
- Use preposition by before agent/new object (the wounded woman).
- The given sentence is in the past continuous tense.
- The passive form for past continuous tense is: was/were + being + past participle form of the verb.
- Since the new subject 'the wounded woman' is singular, the auxiliary verb will also be singular.
- So, 'were helping' changes to 'was being helped'.

15. Select the most appropriate meaning of the given idiom.

**A cold day in July.**

**A** The coldest day of the year

**B** Something that will never happen

**C** A dark secret

**D** The best day in life

### **Solution**

- A cold day in July is an idiomatic and colloquial expression which means the time of occurrence of an event that will never happen.
- Ex: It'll be a cold day in July before they get that new interstate built.
- It will be a cold day in July when I let you borrow my car!

16. In the following passage some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

According to a report in yesterday's newspaper 1 \_\_\_ police dog was taken to Raj Bhavan 2 \_\_\_ Monday. This was to trace the 3. \_\_\_ of the "very important horse" which 4 \_\_\_ reported missing on Sunday. The dog picked up the scent on some traces of blood and ran a few yards before losing the 5 \_\_\_ .

Choose the correct answer for option 3.

**A** Killers

**B** Dogs

**C** Police

**D** Men

### Solution

- According to a report in yesterday's newspaper a police dog was taken to Raj Bhavan on Monday.
- This was to trace the Killers of the very important horse.
- Here, from the passage it is understood that the horse is missing and it mentions about the blood stains. So Killers is the right option.

17. In the following passage some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

According to a report in yesterday's newspaper 1. \_\_\_ police dog was taken to Raj Bhavan 2. \_\_\_ Monday. This was to trace the 3 \_\_\_ of the "very important horse" which 4. \_\_\_ reported missing on Sunday. The dog picked up the scent on some traces of blood and ran a few yards before losing the 5 \_\_\_ .

Choose the correct answer for option 5.

A Bet

B Game

C Track

D Control

### Solution

- According to a report in yesterday's newspaper a police dog was taken to Raj Bhavan on Monday.
- This was to trace the killers of the very important horse which was reported missing on Sunday.
- The dog picked up the scent on some traces of blood and ran a few yards before losing the track.



Consider the given statement as true and decide which of the given conclusions can definitely be drawn from the given statements.

18. • **Statements:**

**Dhoni is a good batsman.**

**Batsman are smart.**

• **Conclusions:**

**1. All smart people are batsman**

**2. Dhoni is smart.**

**A** Only conclusion 1 follows

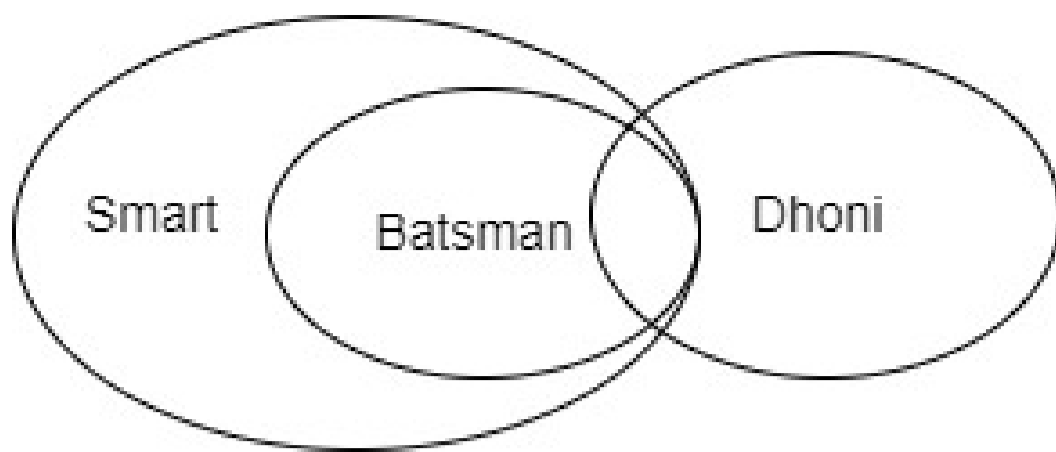
**B** Only conclusion 2 follows

**C** Both 1 and 2 follow

**D** Neither 1 nor 2 follows

**Solution**

• The possible diagram for the given statements is as follows,



- Conclusions:

1. All smart people are batsman  $\rightarrow$  it's possible but not definite, thus false.

2. Dhoni is smart  $\rightarrow$  true.

- Thus, only conclusion 2 follows.

- Note: There is "a" in the statement that means "some".



19. In the following question, select the related letters from the given alternatives.

**PT : SX :: ON : ?**

**A RR**

**B QR**

**C QQ**

**D RQ**

### Solution

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional Value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional Value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabet	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

- According to the alphabetical positions of the letters,

$$P + 3 = S;$$

$$T + 4 = X;$$

- Similarly,

$$O + 3 = \mathbf{R};$$

$$N + 4 = \mathbf{R}$$

- Hence, 'RR' is the correct answer.

20. Select the most appropriate synonym of the given word. **Decimation**

**A** War

**B** Ruling

**C** Establish

**D** Devastate

### **Solution**

- It means the killing or destruction of a large proportion of a group or species.
- Ex: Our growing hunger for fish has resulted in the decimation of fish stocks"
- In historical context it means the killing of one in every ten of a group of people as a punishment for the whole group (originally with reference to a mutinous Roman legion).

21. Select the missing term based on the given related pair of terms.

**COULD: BNTKC :: MOULD : \_**

**A** LNTKC

**B** NITKH

**C** LNKTC

**D** CHMFI

### Solution

- According to the alphabetical positions of the letters,

<b>Alphabet</b>	A	B	C	D	E	F	G	H	I	J	K	L	M
<b>Positional Value</b>	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Positional Value</b>	26	25	24	23	22	21	20	19	18	17	16	15	14
<b>Alphabet</b>	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

- $C - 1 = B$

$$O - 1 = N$$

$$U - 1 = T$$

$$L - 1 = K$$

$$D - 1 = C$$

- Similarly,

$$M - 1 = L$$

$$O - 1 = N$$

$$U - 1 = T$$

$$L - 1 = K$$

$$D - 1 = C$$

- Hence, the correct answer is 'LNTKC'.

22. If the letters in the given options are rearranged, they will form meaningful words. Out of the options, select the one that will give the odd word after rearrangement.

A LUHL

B OUESM

C TRENS

D LEKE

### Solution

- On arranging the given alternatives, we get:

A) LUHL → HULL.

B) OUESM → **MOUSE**.

C) TRENS → STERN.

D) LEKE → KEEL.

- Hull, stern and keel are parts of a boat whereas mouse is a part of a computer.
- Hence, 'OUESM' is the odd one.

23. Arun was to find  $\frac{6}{7}$  of a fraction. Instead of multiplying, he divided the fraction by  $\frac{6}{7}$  and the result obtained was  $\frac{13}{70}$  greater than original value. Find the fraction?

A  $\frac{7}{8}$

B  $\frac{3}{5}$

C  $\frac{3}{7}$

D  $\frac{5}{7}$

### Solution

- Let the fraction be  $x$ ,
- Original value to find =  $\frac{6x}{7}$
- $\therefore$  According to the question,

$$\Rightarrow \left(\frac{6x}{7}\right) = \left(\frac{7x}{6}\right) - \left(\frac{13}{70}\right).$$

$$\Rightarrow \left(\frac{7x}{6}\right) - \left(\frac{6x}{7}\right) = \frac{13}{70}.$$

$$\Rightarrow \frac{(49x - 36x)}{42} = \frac{13}{70}.$$

$$\Rightarrow \frac{13x}{42} = \frac{13}{70}.$$

$$\Rightarrow x = \frac{42}{70}.$$

$$\Rightarrow x = \frac{3}{5}.$$

$\therefore$  The required fraction is  $\frac{3}{5}$ .



24. What is the ratio of the fourth proportional to 2, 5, 4 and the mean proportional between 2.5 and 0.016?

A 5 : 1

B 10 : 1

C 50 : 1

D 25 : 1

### Solution

- Concept used:

Fourth proportion,

$$a/b = c/d$$

- Mean proportion of a,b is  $\sqrt{ab}$

- Now,

$$2/5 = 4/d$$

$$\Rightarrow d = 20/2 = 10 \text{ i.e fourth proportion}$$

- Again,

$$\text{Mean proportional of 2.5 and 0.016} = \sqrt{2.5 \times 0.016}$$

$$\Rightarrow \sqrt{0.04}$$

$$\Rightarrow 0.2$$

- Ratio = 10 : 0.2

$$\Rightarrow 100 : 2 = 50 : 1$$

∴ Required ratio is 50 : 1.

25. 12 women and 16 men can do a piece of work in 5 days. 13 women and 24 men can do it in 4 days. How long will 25 women and 50 men take to do it?

A 1 day

B 5 days

C 2 days

D 3 days

### Solution

- Given that,

Time is taken by 12 women and 16 men to do the work = 5 days

Time is taken by 13 women and 24 men to do a work = 4 days

- Concept used:

Work and time

- Calculation:

Equating the total work

$$\Rightarrow (12w + 16m) \times 5 = (13w + 24m) \times 4$$

$$\Rightarrow 60w + 80m = 52w + 96m$$

$$\Rightarrow (60w - 52w) = (96m - 80m)$$

$$\Rightarrow 8w = 16m$$

$$\Rightarrow \frac{w}{m} = \frac{2}{1}$$

$$\Rightarrow w = 2 \text{ unit/day, } m = 1 \text{ unit/day}$$

$$\Rightarrow \text{Total work} = (12w + 16m) \times 5$$

$$\Rightarrow (12 \times 2 + 16 \times 1) \times 5$$

$$\Rightarrow \text{Total work} = 200 \text{ unit}$$

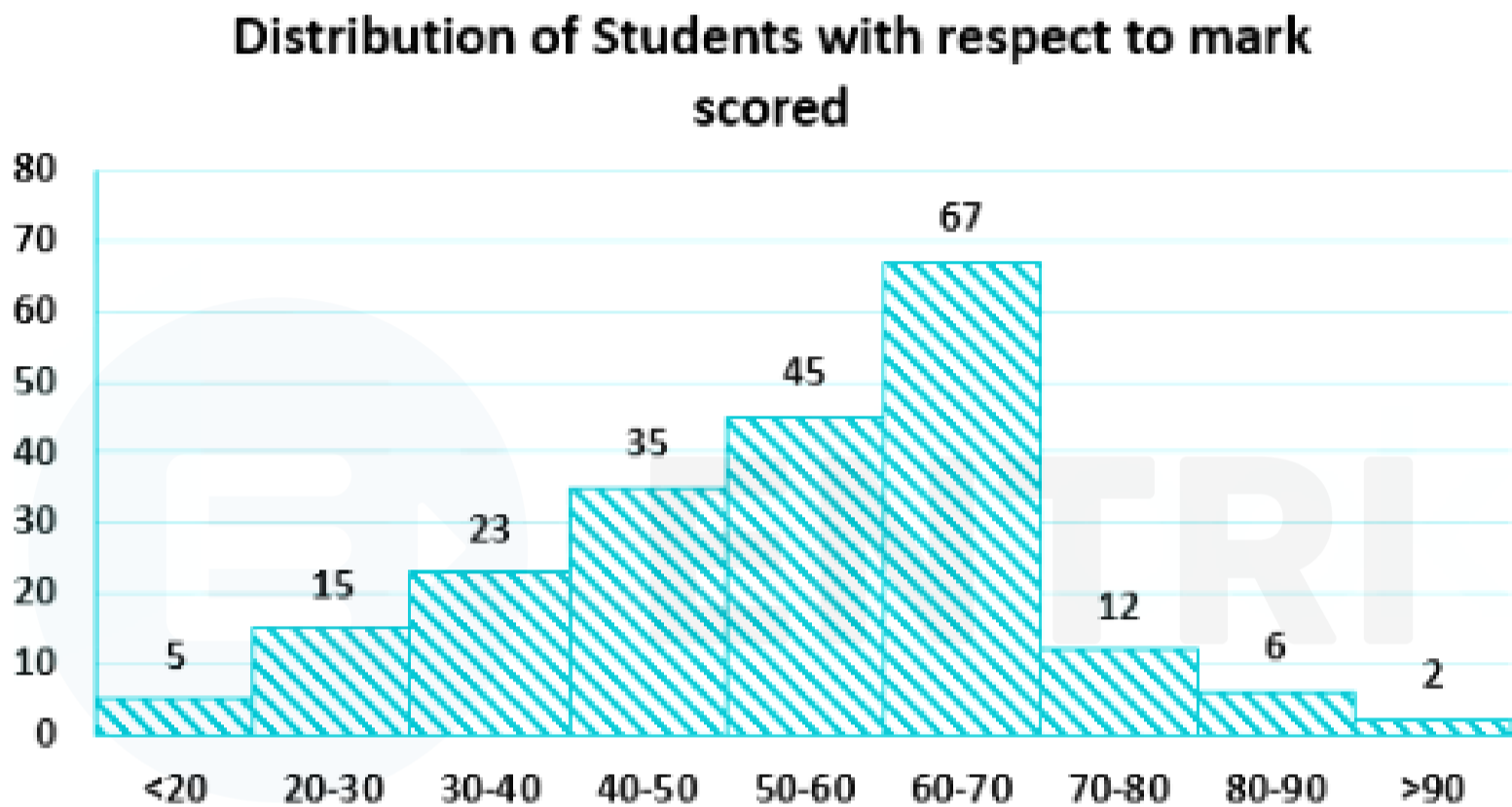
- Now, the efficiency of 25 women and 50 men

$$\Rightarrow (25 \times 2 + 50 \times 1) = 100 \text{ units/day}$$

$$\Rightarrow \text{Time to complete 200 unit work} = 200/100 = 2 \text{ days.}$$

∴ The required time is 2 days.

26. The graph shows the relative distribution of the students with respect to the marks scored in the examination. Assuming that the histogram chart gets replaced by a pie chart, then find the central angle corresponding to the number of students scoring in the range 50 - 60 (to the nearest degree)?



**A**  $77^\circ$

**B**  $45^\circ$

**C**  $85^\circ$

**D**  $90^\circ$

**Solution**

- Total students obtaining marks in the range 50 to 60 = 45.
- Total number of students =  $5 + 15 + 23 + 35 + 45 + 67 + 12 + 6 + 2 = 210$ .
- All the slices of the pie chart make up 360 degrees and all the data when combined make up 100 per cent.

$$\therefore \text{Central angle} = \frac{45}{210} \times 360^\circ = 77^\circ$$

The central angle is  $77^\circ$ .

27. Find the greatest four-digit number such that when it is divided by 14, 20, 23 and 30, it leaves remainder 4 in each case?

A 9670

**B 9664**

C 9668

D 9666

### Solution

- Given:

Numbers = 14, 20, 23 and 30.

Remainder in each case = 4.

- Concept used:

In such questions, we use LCM of given numbers to find the greatest such-digit possible.

- Calculation:

LCM of given numbers,

$\text{LCM}(14, 20, 23, 30) = 9660$

For this to leave remainder 4 in each case,

$$= 9660 + 4$$

$$= 9664.$$

$\therefore$  The number will be 9664.



28. Select the most appropriate word to fill in the blank in the given sentence. What do the initials in your name stand \_\_\_?

A To

B In

C For

D Among

### Solution

- Using the Preposition “for”: It can serve as another means of disclosing distance, quantity, or a duration of time.
- One of the most common uses of “for” is simply to identify the object in a sentence.
- Ex: What are you waiting for?

29. While selling a mobile phone a shopkeeper gives a discount of 10%. If he gives a discount of 15%, he earns Rs. 420 less as profit. What is the original price of the mobile phone?

A Rs. 9,000

B Rs. 8,000

C Rs. 8,400

D Rs. 9,600

### Solution

- Given that,

Selling a mobile phone a shopkeeper gives a discount of 10%.

If he gives a discount of 15%, he earns Rs. 420 less as profit.

- Formula used:

Selling price = original price - discount% on the original price.

- Calculations:

Let the original price be Rs.  $x$ .

- Therefore,

First Selling price ( $SP_1$ ) =  $\frac{90}{100}$  of  $x$  = Rs  $0.90x$ .

Second Selling price( $SP_2$ ) =  $\frac{85}{100}$  of  $x$  = Rs  $0.85x$ .

- According to the question,

$$0.90x - 0.85x = 420$$

$$0.05x = 420$$

$$x = \frac{420}{0.05}$$

$$x = 420 \times 20 = 8400.$$

30. What is  $2\sin^6\theta + 2\cos^6\theta - 3\sin^4\theta - 3\cos^4\theta$  equal to ?

**A** -1

**B** 0

**C** 1

**D** 2

### Solution

- $2\sin^6\theta + 2\cos^6\theta - 3\sin^4\theta - 3\cos^4\theta$

- **Shortcut Trick**

We have,

$$\Rightarrow 2\sin^6\theta + 2\cos^6\theta - 3\sin^4\theta - 3\cos^4\theta$$

Put  $\theta = 0^\circ$

$$\Rightarrow 2\sin^6 0 + 2\cos^6 0 - 3\sin^4 0 - 3\cos^4 0$$

$$\Rightarrow 0 + 2 - 0 - 3$$

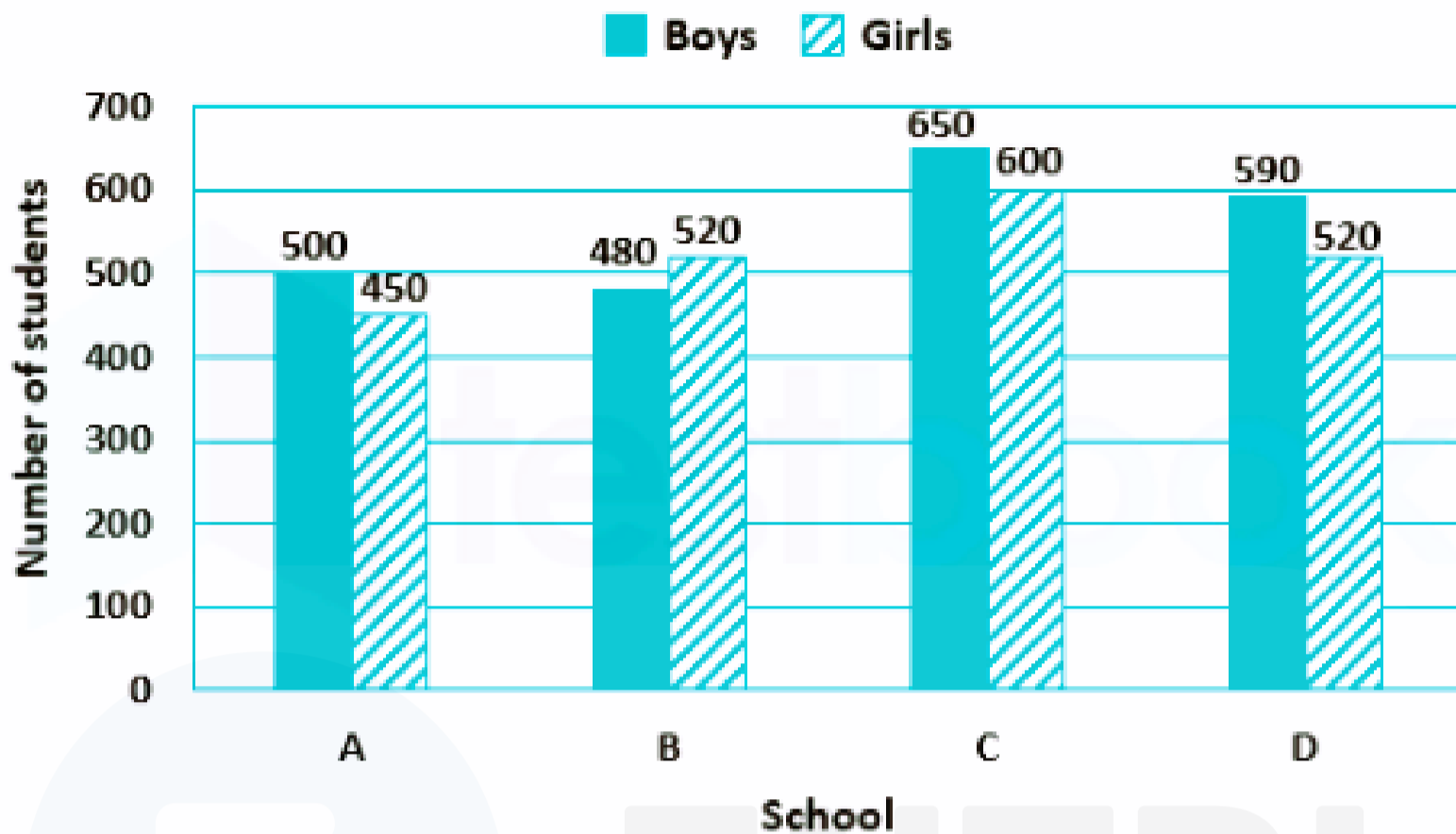
$$\Rightarrow 2 - 3$$

$$\Rightarrow -1.$$

- Answer is -1.



31. Study the given graph and answer the question that follow. The graph shows the number of students (boys and girls) in four different schools as of 1 July 2020.



- Find the difference between the average number of boys in schools B and D and the average number of girls in schools A and C ?

A 12

B 8

C 10

D 15

## Solution

- Average number of boys in schools B and D

$$= (480 + 590)/2.$$

$$\Rightarrow 1070/2.$$

$$\Rightarrow 535.$$

- Average number of girls in school A and C

$$= (450 + 600)/2.$$

$$\Rightarrow 1050/2.$$

$$\Rightarrow 525.$$

- Required difference =  $535 - 525$ .

$$\Rightarrow 10.$$

$\therefore$  The difference between the average number of boys in schools B and D and the average number of girls in schools A and C is 10.

32. Select the most appropriate meaning of the given idiom. Stealing someones thunder.

A Something fishy

B Taking credit for someone else achievements

C To ignore someone

D Stop working on something

### Solution

- Stealing someones thunder – Taking credit for someone else achievements.
- Ex: I didn't mean to steal your thunder, but I just had to tell your mom about your promotion.
- Based on a 1704 quote of John Dennis, a literary critic and minor playwright, who invented a novel method for creating a sound effect for thunder.
- The play in which he first introduced this method flopped, and the next play shown in the theatre was Macbeth.



33. Given below are four jumbled sentences. Select the option that gives their correct order

A. One day, she saw a very beautiful plant in a catalogue and wanted that for her garden.

B. She loved gardening too and was very proud of her garden.

C. She ordered it and planted it at the base of the stonewall in her backyard.

D. A young woman inherited a beautiful garden from her grandmother.

A ABCD

**B DBAC**

C ACDB

D BCDA

### Solution

- A young woman inherited a beautiful garden from her grandmother.
- She loved gardening too and was very proud of her garden.
- One day, she saw a very beautiful plant in a catalogue and wanted that for her garden.

- She ordered it and planted it at the base of the stonewall in her backyard.

34. Select the word which means the same as the group of words given.

All the words that make up a language or dialect.

A Langue

B Parole

C **Wordstock**

D Dictionary

### Solution

- Wordstock is all the words that make up a language or dialect, or the set of words that are known or used by a particular person or group; vocabulary.
- The wordstock of English consists of native and borrowed words.
- To communicate in any language, you need a word-stock of at least 3,500 words.

35. Select the most appropriate **ANTONYM** of the given word.

**Dictatorship**

**A** Republic

**B** Despotism

**C** Autocracy

**D** Tyranny

**Solution**

- Dictatorship is a government by a dictator.
- Despotism, autocracy, tyranny are the synonyms of Dictatorship.
- A dictatorship is a government or a social situation where one person makes all the rules and decisions without input from anyone else.

36. Select the most appropriate word to fill in the blank in the given sentence. Children enjoy \_\_\_ the TV programs.

A To look at

**B Watching**

C To see

D To watch

### Solution

- Watching is the Direct Object of the Verb-enjoy.
- Here, watching is the right usage.
- The word 'watching' is a gerund. Gerund actually means a verb which acts as noun, therefore, it can also be called as verbal noun.

37. Select the word which means the same as the group of words. A person's peculiar habit.

**A** Idiosyncrasy

**B** Habitat

**C** Etymology

**D** Biography

### Solution

- Idiosyncrasy: a mode of behaviour or way of thought peculiar to an individual.
- Ex: One of his little idiosyncrasies was always preferring to be in the car first.
- She often cracks her knuckles when she's speaking - it's one of her little idiosyncrasies.

38. Which of the following is a bowed instrument that Pandit Ram Narayan, an Indian musician popularised and made him known internationally?

A Guitar

B Mandolin

C Veena

D Sarangi

### Solution

#### Pandit Ram Narayan :

- He is a Hindustani classical musician who plays the bowed instrument, the Sarangi.
- He is credited with popularizing the sarangi as a solo classical instrument.
- He was born in 1927 in Amber village in Rajasthan.
- Ustad Imrat Khan and Pandit Ravishankar are famous Sitar players.
- Hari Prasad Chaurasia is famous for playing the Flute.
- Pandit Shiv Kumar Sharma is a renowned Santoor player.
- Zakir Hussain is a famous Indian Tabla player.

- Ustad Ali Akbar Khan and Brij Narayan are some of the notable exponents of Sarod.



39. The 2022 ICC Women's Cricket World Cup was the twelfth edition of the Women's Cricket World Cup, which was held in \_\_\_\_\_.

A England

B South Africa

C Australia

D New Zealand

### Solution

- The 2022 ICC Women's Cricket World Cup was the twelfth edition of the Women's Cricket World Cup, which was held in New Zealand in March and April 2022.
- In the final of the tournament, Australia beat England by 71 runs to win their seventh World Cup.
- Australia's Alyssa Healy scored 170 runs in the match, the highest individual score made by any cricketer, male or female, in the World Cup Final.

40. The Gadgil Formula for determining the allocation of central assistance for state plans in India was introduced in \_\_\_\_\_.

**A** Fourth Five Year Plan

**B** Tenth Five Year Plan

**C** Fifth Five Year Plan

**D** Eighth Five Year Plan

### **Solution**

#### **Fourth Five Year Plan (1969-74) :**

- The Gadgil formula is named after Dhananjay Ramchandra Gadgil, a social scientist and the first critic of Indian planning.
- It was evolved in 1969 for determining the allocation of central assistance for state plans in India.
- There was a focus on the ideas of growth with stability and progress towards self-reliance.
- The Fourth Five Year Plan was based on the Ashok Rudra Menon Model.
- This plan led to the beginning of the politicisation of planning in India.

- During the Fourth Five Year Plan, The Indira Gandhi government nationalised 14 major Indian banks, and the Green Revolution in India advanced agriculture.
- India also performed the Smiling Buddha underground nuclear test (Pokhran-1) in Rajasthan on 18 May 1974.
- The target growth rate was 5.6%, but the actual growth rate was 3.3%.
- Third Five Year Plan is also called 'Gadgil Yojna'.

41. Consider the following landforms :

1. Khadar

2. Terai

3. Bhabar

4. Bhangar

Arrange them in chronological order from Mountain to River Valley.

A 2-3-4-1

B 2-3-1-4

C 3-2-4-1

D 3-1-4-2

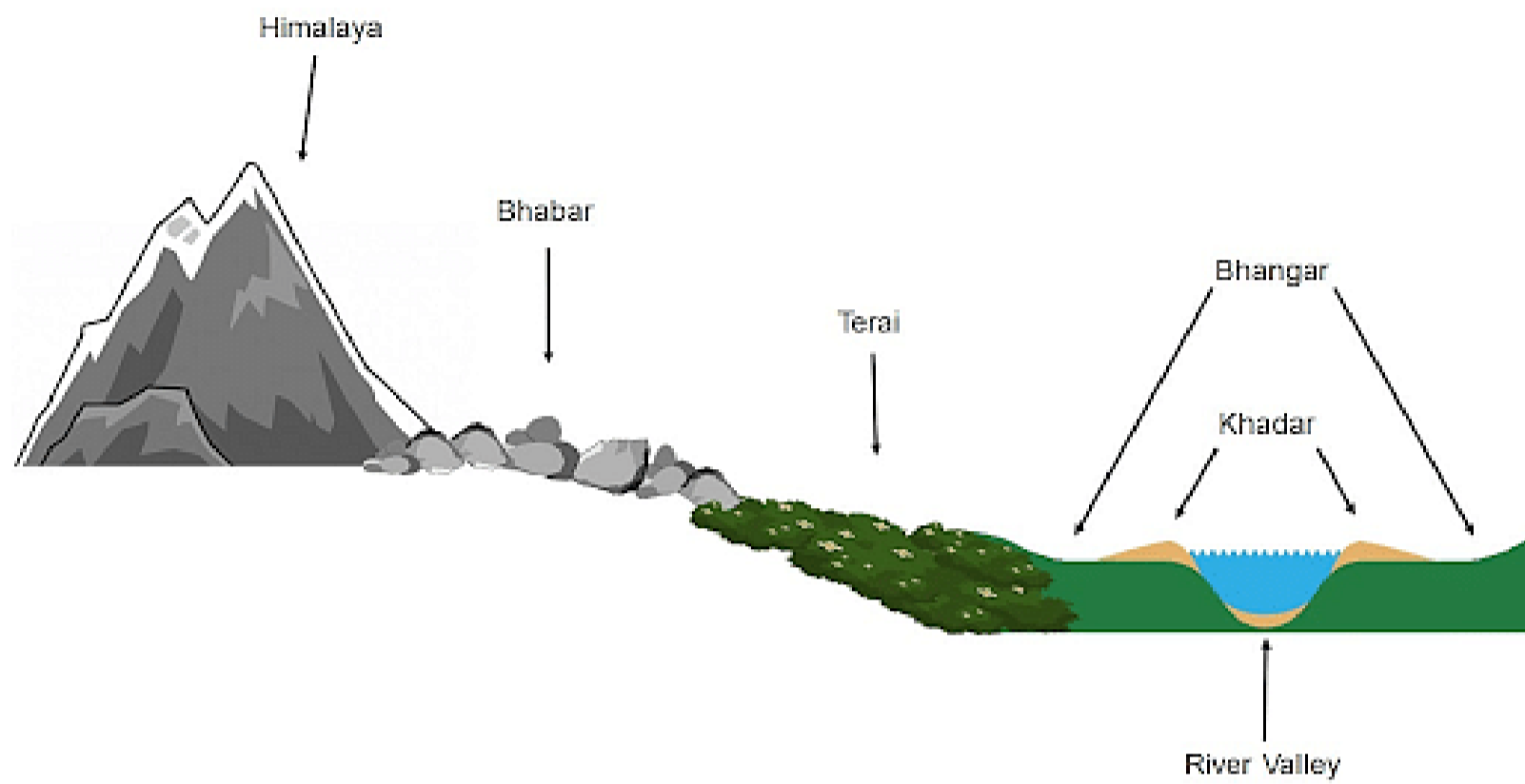
### Solution

- Bhabar, Bhangar, Khadar and Terai are the geological divisions of Alluvial Soils.
- The Physiographic Division is :
  1. Bhabar
  2. Terai

### 3. Bhangar

### 4. Khadar

- Bhabar and Terai are old Alluvium Plains.
- Bhangar and Khadar are new Alluvium Plains.



42. **Chittani Ramachandra Hegde is famous for which dance form ?**

**A** Sattriya

**B** Kuchipudi

**C** Yakshagana

**D** Kathakali

### **Solution**

- Chittani Ramachandra Hegde (1 January 1933 – 3 October 2017) was a Yakshagana artist from Honnavara, Uttara Kannada, Karnataka.
- He was the first Yakshagana artist to be awarded the Padma Shri Award by the Government of India.
- His style is so popular that it is called Chittani Gharana.
- Chittani Ramachandra Hegde fell ill with pneumonia on 29 September 2017, and died on 3 October 2017 at Manipal Hospital.

43. To help deep sea divers breathe, they carry cylinders of oxygen mixed with \_\_\_\_\_ .

A Chlorine

B Ozone

C Helium

D Nitrogen

### Solution

- Scuba divers cope with high concentrations of dissolved gases while breathing air at high pressure underwater.
- Increased pressure increases the solubility of atmospheric gases in the blood.
- When the divers come toward the surface, the pressure gradually decreases.
- This releases the dissolved gases and leads to the formation of bubbles of Nitrogen in the blood.
- This blocks capillaries and creates a medical condition known as bends, which are painful and lethal.
- To avoid bends, as well as, the toxic effects of high concentrations of nitrogen in the blood, the tanks used by Scuba divers are filled

with air diluted with Helium (11.7% Helium, 56.2% Nitrogen, and 32.1% Oxygen).



44. **Who among the following Sikh Gurus created the order of the Khalsa to defend dharma ?**

**A** Guru Tegh Bahadur

**B** Guru Ram Das

**C** Guru Nanak

**D** **Guru Gobind Singh**

### **Solution**

- Guru Nanak was the founder of the Sikh religion.
- Guru Gobind Singh was the Tenth and last Sikh Guru.
- He is the son of Guru Tegh Bahadur.
- Khalsa Panth, a community that considers Sikhism as its faith was founded by Guru Gobind Singh.
- He introduced the five articles of faith that Khalsa Sikhs wear at all times.
- Guru Gobind Singh was the final human Guru of the Sikhs.

45. Which of the following river spreads over the Sapta Indus region and later dries up ?

A Chenab

B Jhelum

C **Saraswati**

D Yamuna

### Solution

- The Saraswati River is one of the rivers mentioned in the Rig Veda and later Vedic and post-Vedic texts.
- Saraswati is the name of a river originating in the Aravalli mountain range in Rajasthan, passing through Sidhpur and Patan before submerging in the Rann of Kutch desert.
- Sapta Sindhu is the seven rivers that are considered the most sacred ones in India: Indus, Jhelum, Chenab, Ravi, Sutlej, Beas.

46. A car starts at a speed of 80 km/h, with its speed increasing by 8 km/h every two hours. In how many hours will it cover 432 km?

A 6 hours 30 minutes

B 5 hours 30 minutes

C 5 hours

D 6 hours

### Solution

- Speed for first 2 hours = 80 km/h.

⇒ Distance cover in first 2 hours =  $80 \times 2 = 160$  km.

- Speed for next 2 hours =  $80 + 8 = 88$  km/h.

⇒ Distance cover in first 2 hours =  $88 \times 2 = 176$ .

⇒ Distance cover in total 4 hour =  $160 + 176 = 336$  km.

⇒ Remaining distance =  $432 - 336 = 96$  km.

- Then we know speed for next hour =  $88 + 8 = 96$  km/h.

If we drive only one hour then we cover last 96 km.

⇒ Total hour for cover 432 km =  $2 + 2 + 1 = 5$  hours.

- Therefore, Total hours for cover 432 km is 5 hours.

47. A metallic slab having dimensions  $16\text{ cm} \times 12\text{ cm} \times 9\text{ cm}$  is melted and recast in the shape of a cube. What is the surface area ( in  $\text{cm}^2$ ) of the cube?

A 865

B 860

C 880

D 864

### Solution

- Given that,

A slab in shape of Cuboid =  $16\text{ cm} \times 12\text{ cm} \times 9\text{ cm}$ .

- Formula used:

Volume of cube =  $a^3$ .

Surface area of cube =  $6a^2$ .

Volume of cuboid = length  $\times$  breadth  $\times$  height.

- Calculation:

Volume of cube = Volume of cuboid.

$$\Rightarrow a^3 = 16 \text{ cm} \times 12 \text{ cm} \times 9 \text{ cm}.$$

$$\Rightarrow a = 12 \text{ cm}.$$

$$\text{Surface area of cube} = 6a^2.$$

$$\Rightarrow 6 (12)^2.$$

$$\Rightarrow 864 \text{ cm}^2.$$

$\therefore$  Surface area of cube is  $864 \text{ cm}^2$ .

48. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

(13, 4, 18) (49, 24, 50) (87, 51, ?)

A 85

B 80

C 72

D 69

### Solution

- Given that (13, 4, 18) (49, 24, 50) (87, 51, ?)

- Pattern is:

$$(13-4) \times 2$$

$$= 9 \times 2$$

$$= 18.$$

- $(49-24) \times 2$

$$= 25 \times 2$$

$$= 50.$$

- Then,

$$(87-51)\times 2$$

$$=36\times 2$$

$$=72.$$

- Hence, option C is the correct answer.



49. In a certain code language 'AVIATION' is coded as '62714625142019'. How will 'MINISTER' be coded as in that language?

**A** 1814191424251023

**B** 1424218141951023

**C** 2510231814191424

**D** 1814191410232425

### Solution

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional Value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional Value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabet	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

- Logic is positional value + 5.

**AVIATION**  $\Rightarrow$  A(1)V(22)I(9)A(1)T(20)I(9)O(15)N(14)

$=$  A(1+5)V(22+5)I(9+5)A(1+5)T(20+5)I(9+5)O(15+5)N(14+5)

$=$  A(6)V(27)I(14)A(6)T(25)I(14)O(20)N(19)

$=$ 62714625142019.

- Similarly,

**MINISTER**  $\Rightarrow$  M(13)I(9)N(14)I(9)S(19)T(20)E(5)R(18)

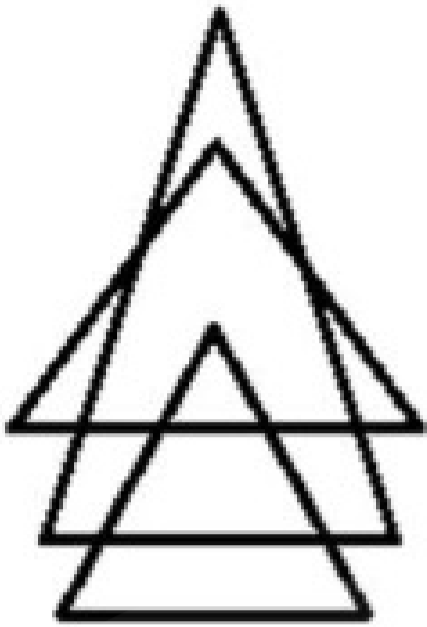
= M(13+5)I(9+5)N(14+5)I(9+5)S(19+5)T(20+5)E(5+5)R(18+5)

= M(18)I(14)N(19)I(14)S(24)T(25)E(10)R(23)

= 1814191424251023.

- Hence option A is the correct answer.

50. How many triangles are present in the given figure?



A 9

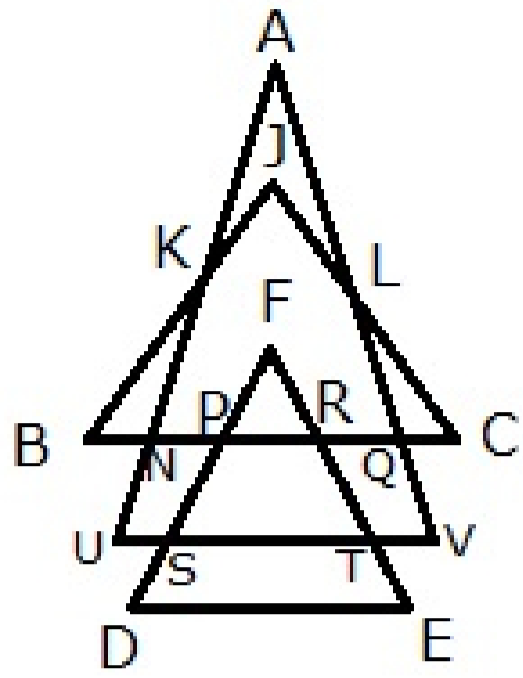
B 11

C 10

D 8

**Solution**

- The given triangle is,



- The triangles are AUV, FDE, JBC, FPR, FST, KBN, LQC, ANQ.
- There are 8 triangles in the given figure.

51. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

5	6	14
9	4	15
7	?	10

A 2

B 4

C 11

D 12

### Solution

- The pattern is:

$$(5 \times 2) + (6 \times 3) = 28, \frac{28}{2} = 14.$$

$$(9 \times 2) + (4 \times 3) = 30, \frac{30}{2} = 15.$$

- Similarly,

$$(7 \times 2) + (x \times 3) = 14 + 3x, \frac{14 + 3x}{2} = 10$$

$$14 + 3x = 20$$

$$X=2.$$

- Hence option A is the correct answer.



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