# SSC CGL 16th August 2021 Shift-1





Select the number from among the given options that can replace the question mark (?) in the following series.

1. 10, 22, 35, 40, 72, 40, ?



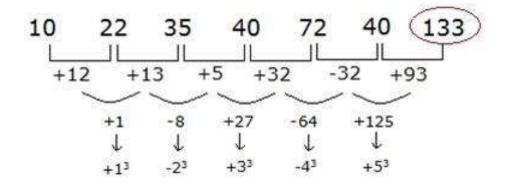
**B** 134

**C** 133

**D** 143

#### **Solution**

The pattern is as follows:



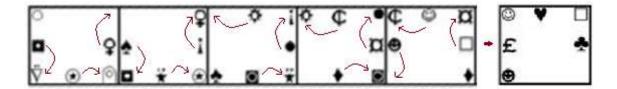
Hence, option C is the correct answer.

Select the figure among the given option that can replace the question mark (?) in the following series.

2. D

**Solution** 

Logic: Here the movement of elements is shown below in each step by brown arrows. As we can see that the movements of elements in first and second figure is same, similarly the movements of elements in third and fourth figure is same, however the movement of elements in fifth figure to sixth figure is little different as shown below; We can see that in the from first to second figure the 1st, 3rd, 5th elements in anticlockwise direction from the left upper corner, are either replaced by new element of their position occupied by the previous element. Similarly a pattern is follows from 3rd to 4th figure and so from 5th to 6th.



Hence, option C is the correct answer.

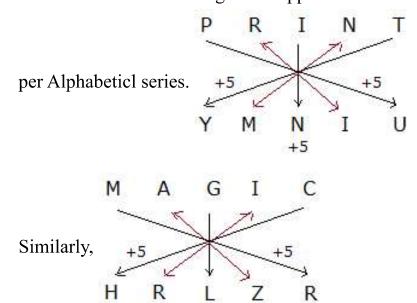
3. In a certain code language, 'PRINT' is written as 'YMNIU'. How will 'MAGIC' be written in that language?





#### **Solution**

Logic: 1st, 3rd and 5th letters are moved 5 steps forward and 2nd and 4th letters are coded according to the opposite letter of the respective letter as



Hence, option A is the correct answer.

Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

- 4. UA\_B\_TU\_CBD\_\_ACB\_TUAC\_\_T
  - (A) C, D, A, T, U, D, B, D
  - $\left(\begin{array}{c}\mathbf{B}\end{array}\right)$  C, D, A, T, U, D, C, D
  - **C** D, C, A, T, U, D, D, B
  - $\left(\begin{array}{c} \mathbf{D} \end{array}\right)$  C, D, A, U, U, D, B, D

#### **Solution**

• Here the set of letters 'UACBDT' is repeating as shown below:

UACBDT/UACBDT/UACBDT / UACBDT

Thus the correct combination is C, D, A, T, U, D, B, D

Hence, option A is the correct answer.

Select the option in which the numbers are related in the same ways as are the numbers of the following set.

5. (6, 9, 45)

- (2, 8, 46)
- **B** (6, 8, 60)
- $(\mathbf{C})$  (7, 4, 48)
- (D) (8, 10, 36)

#### **Solution**

Logic: (1 st number + 2 nd number) × (2 nd number – 1 st number) = third number. So,  $(6, 9, 45) \rightarrow (6 + 9) \times (9 - 6) = 15 \times 3 = 45$ 

Similarly,

(8, 10, 36)

$$-> (8+10) \times (10-8) = 18 \times 2 = 36$$

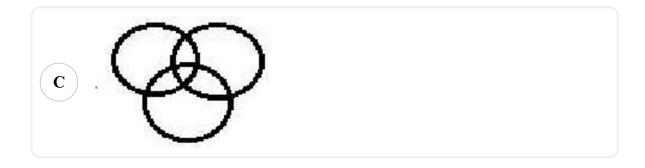
Hence, option D is the correct answer.

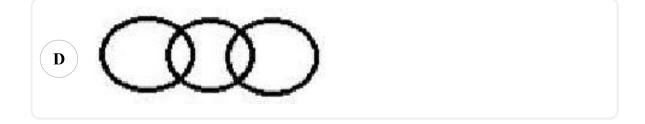
Select the Venn diagram that best illustrates the relationship between the following classes.

6. Coriander seed, Spices, Cinnamon



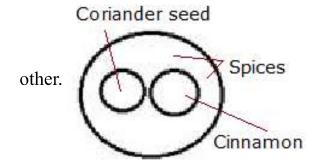






**Solution** 

Both cinnamon and coriander seed are spices but are different from each

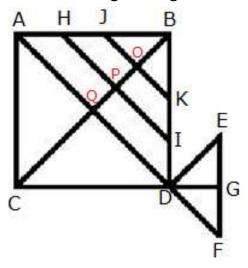


Hence, option B is the correct answer.

How many triangle are there in the given figure? 7. 15 16 В  $\mathbf{C}$ 18 D **17** 

**Solution** 

First label the given figure as shown below:



Thus, the triangle formed are: ACD, ACQ, DCQ, ABD, ABQ, BDQ, BHI, BHP, BIP, BJK, BJO, BKO, ACB, BCD, DFE, DGE, DGF.

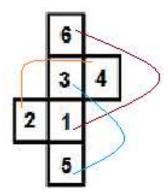
There are total 17 triangles.

Hence, option D is the correct answer.

Select the boxes that can formed by folding the given sheet along the lines. 2 8. Only C and D A В Only A and C Only B and C  $\mathbf{C}$ Only A, C and D D

**Solution** 

The colour lines show the opposite faces as shown below:



# Opposite faces are:

6 <-> 1 2 <-> 4 3 <-> 5 Only A and C can be formed, because opposite faces cannot be on adjacent side.

Hence, option B is the correct answer.

Select the option that is related to the third word in the same way as the second word is related to the first word.

9. Leaves: Rustle:: Owl:?

**A** Grunt

B Hoot

C Chirp

(D) Quack

#### **Solution**

The soft, muffled crackling sound caused by the movement of leaves or paper is called rustle. Likewise, hoot is a low, wavering musical sound which is the typical call of many kinds of owl. Hence, option B is the correct answer.

Select the correct option that indicates the arrangement of the given words in the order in which they appear in an English dictionary.

- **10. 1) Sorting** 
  - 2) Solitary
  - 3) Solution
  - 4) Sophisticate
  - 5) Solvent



 $(\mathbf{B})$  2, 3, 1, 4, 5

 $\left(\begin{array}{c} \mathbf{C} \end{array}\right) \ \ 2, 4, 1, 3, 5$ 

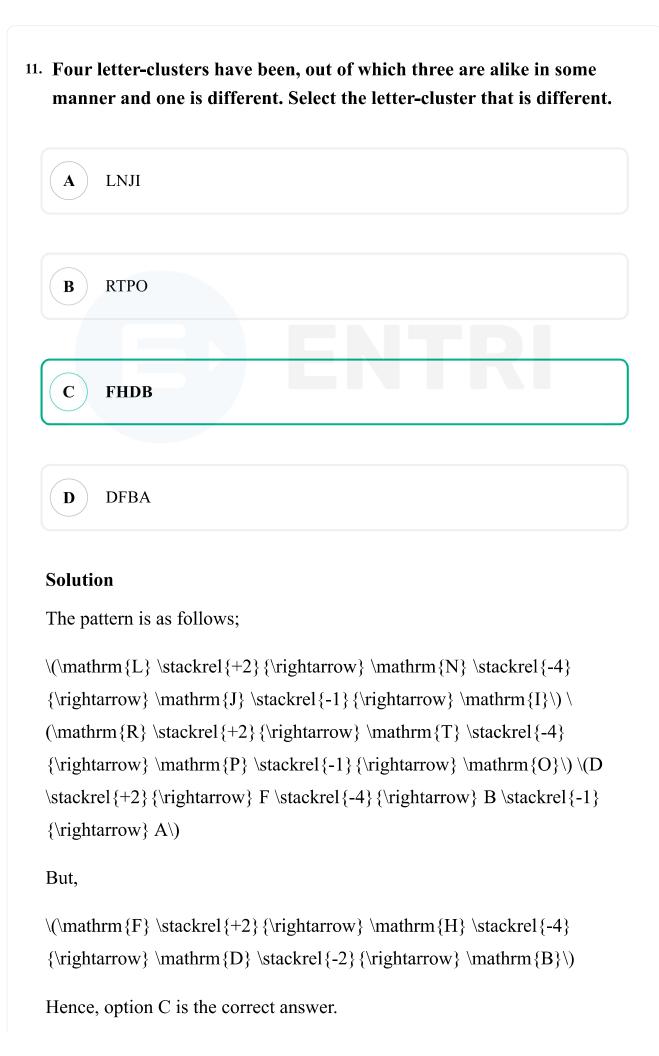
 $(\mathbf{D})$  2, 5, 3, 4, 1

#### **Solution**

Here the first two letters 'So' are fixed and rest are arranged as per Alphabetical order;

1. Solitary, 3. Solution, 5. Solvent, 4. Sophisticate, 1. Sorting

Hence, option A is the correct answer.



Select the option that is embedded in the given figure (rotation is NOT allowed).

**12.** 











#### **Solution**

Here the option figure (D) is perfectly embedded in the given figure as

shown below:

Hence, option D is the correct answer.

Select the option in which the words share the same relationship as that shared by the given pair of words.

13. Anger: Emotion

A Bicycle: Roads

B Pomegranate: Fruit

C Mattress: Bed

**D** Television : Entertainment

#### **Solution**

Anger is an emotion which arises when you feel that something has gone wrong or someone has wronged you. Likewise, Pomegranate is a fruit which is related in the same way as the given word pair. Hence, option B is the correct answer.

- 'A # B' means 'A is the son B'. 'A @ B' means 'A is the mother of B'.
- 'A & B' means 'A is the wife of B'.
- 'A % B' means 'A is the sister of B'.
- 14. If 'M @ R % K # G # N & T', then which of the following statements is NOT correct?
  - **A** M is the mother of K.
  - **B** N is the paternal grandmother of K.
  - **C** R is the daughter of G.
  - D T is the paternal grandfather of M.

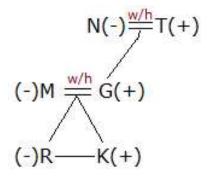
#### **Solution**

As per the given information;

Symbol	#	@	&	%
Meaning	son	mother	wife	sister

Thus the expression 'M @ R % K # G # G # N & T' means M is the mother of R, R is the sister of K, K is the son of G, G is the son of N, N is the wife of T.

Therefore,



Clearly, T is the paternal grandfather of M is a false statement.

Hence, option D is the correct answer.

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

15.

14	16	13
18	6	?
12	21	17

 $\mathbf{A}$ 

8



6



/



5

### **Solution**

- The logic followed here is:
- In a row: [2nd number (1st number ÷ 2)] + (multiply of digits of 1st number) = 3rd number
- Row 1: 14, 16, 13

$$= [16 - (14 \div 2)] + (1 \times 4)$$

$$= [16 - 7] + 4$$

$$=9+4=13$$

• Row 3: 12, 21, 17

$$= [21 - (12 \div 2)] + (1 \times 2)$$
$$= [21 - 6] + 2$$
$$= 15 + 2 = 17$$

• Similarly,

• Hence, the correct answer is 5.

16. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different.

(A) 27:181

**B** 21:139

**C** 25:167

D 15:197

#### **Solution**

The pattern is as follows: A.  $27 \times 7 = 189 - 8 = 181$ 

B. 
$$21 \times 7 = 147 - 8 = 139$$

C.  $25 \times 7 = 175 - 8 = 167$  But,

D. 
$$15 \times 13 = 195 + 2 = 197$$

Hence, option D is the correct answer.

# 17. What was the only of the week on 17 April 2014? Wednesday Friday В Saturday $\mathbf{C}$ D Thursday Solution As per the given information; Month Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec Code 0 3 3 6 4 6 2 5 0 3 5

Code	Day
0 or 7	Sunday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday

Code for Days:

#### Code for centuries:

 $1600 \rightarrow 6\ 1700 \rightarrow 4\ 1800 \rightarrow 2\ 1900 \rightarrow 0\ 2100 \rightarrow 6\ 2200 \rightarrow 4\ 2300 \rightarrow 0$  for, 17 April 2014 Date =17 Code for month = 6 Code for Century = 6 2014 = 2000 + 14 for, 14 it is 14 And,  $14 \div 4 = 3$  Adding all these =  $17 + 6 + 6 + 14 + 3 = 46\ 46 \div 7 = 4$  (here we consider the remainder) 4 is the code for thursday. 17 April 2014 is Thursday. Hence, option D is the correct answer.

18. In a certain code language, 'FRENCH' is coded as '114' and 'LOSS' is coded as '47'. How will 'COURSE' be coded in that language?

**(A)** 103

**B** 120

**C** 87

 $\bigcirc$  81

#### **Solution**

Logic: code = sum of positional values + Number of letters in each word

Letter	С	0	U	R	S	E
Opposite letter	X	L	F	I	Н	V
Place value of opposite letter	24	12	6	9	8	22

Now, 21+9+22+13+24+19 = 108 + 6 = 114

Similarly, LOSS = 47

Thus,

Letter	C	0	U	R	S	E
Opposite letter	Х	L	F	I	Н	V
Place value of opposite letter	24	12	6	9	8	22

Now, 24+12+6+9+8+22 = 81+6 = 87

Hence, option C is the correct answer.

Which two numbers should be interchanged to make the given equation correct?

19. 
$$36 \times 81 \div 9 - (88 \div 4) + 14 + (22 + 7) = 169$$

**A** 9 and 36

B 36 and 14

**C** 14 and 22

**D** 81 and 36

#### **Solution**

Number given in option (B) should be interchanged to make the given equation correct;  $14 \times 81 \div 9 - (88 \div 4) + 36 + (22 + 7) = 169$ 

On solving L.H.S we get;

$$= 14 \times 81 \div 9 - (88 \div 4) + 36 + (22 + 7)$$

$$= 14 \times 9 - (22) + 36 + (22 + 7)$$

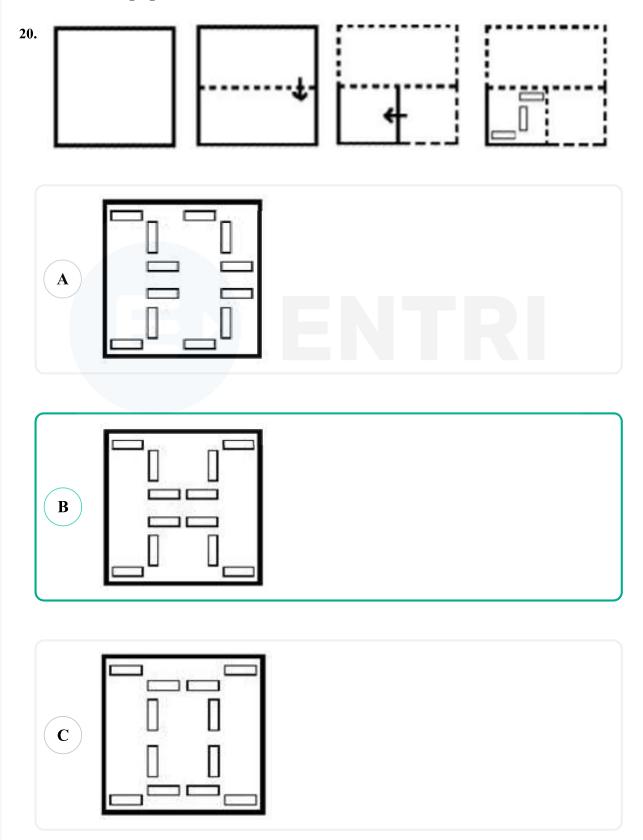
$$= 14 \times 9 - (22) + 36 + (22 + 7)$$

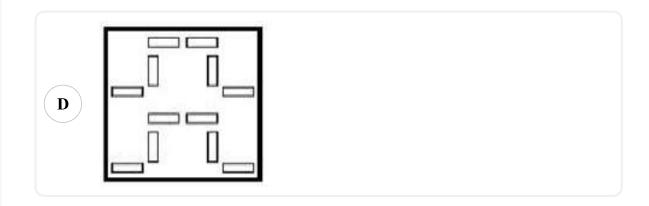
$$= 126 - (22) + 36 + (29)$$

$$= 126 - 22 + 65 = 169 => R.H.S$$

Hence, option B is the correct answer.

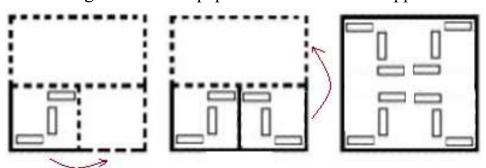
The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown in the following figures. How would this paper look when unfolded?





## **Solution**

When the given sheet of paper is unfolded it will appear as shown below:



Hence, option B is the correct answer.

Select the option that is related to the third number in the same way as the second number is related to the first number?

21. 16:144::28:?

 $\left(\begin{array}{c}\mathbf{A}\end{array}\right)$  263

**B** 544

C 420

**(D)** 364

#### **Solution**

Here 16 is related to 144 as: 144 is divided by 16 gives 9 (which is an odd number but not a prime number).

Similarly,

When 420 is divided by 28 will give 15 which is an odd number but not a prime number).

Hence, option C is the correct answer.

	Jealousy
<b>B</b>	Empathy
<b>(C)</b>	Hatred
<b>D</b> 1	Envy
Solution	1
Except f	For the word 'Empathy' which means the capacity to understand
what and	other person is feeling emotions wise.
	r, the rest three words has same meaning, or they are synonym
Howeve	i, the rest times words has same meaning, or they are synonym
Howeve words.	i, the rest times words has same meaning, or they are synonym

Select the correct mirror image of the given combination when the mirror is placed at MN as shown.

Q e 1 f P 5 4 N

- Qe1fP5tN A
- **G** 6 1 f P 5 4 N (8)
- QellP24N o
- Qe1fP54N (a)

### **Solution**

The correct mirror image is as shown below:

Qe1fP54N NAC9119Q

Hence, option D is the correct answer.

Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if appears to be at various with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

### 24. Statements:

No bank is an office.

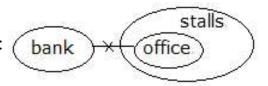
All offices are stalls.

## **Conclusions:**

- I. No bank is a stall.
- II. No stall is a bank.
- III. Some stalls are offices.
- IV. All the stalls are offices.
  - **A** Only conclusions I follow
- **B** Both conclusions I and IV follow
- C ) Only conclusions III follows
- **D** Both conclusions I and follow

### **Solution**

The least possible Venn-diagram will be:



# Conclusions:

- I. No bank is a stall It is not a definite case, hence false.
- II. No stall is a bank It is not a definite case, hence false.
- III. Some stalls are offices It is a definite case, hence true.
- IV. All the stalls are offices It is not a definite case, hence false.

So, only conclusions III follows. Hence, option C is the correct answer.

Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

25. THME, WKJB, ZNGY, CQDV, ?

(A) FTAS

- B FUAS
- (C) FTAR
- $\left(\begin{array}{c}\mathbf{D}\end{array}\right)$  FTBS

# **Solution**

The pattern is as follows:

$$T \xrightarrow{+3} W \xrightarrow{+3} Z \xrightarrow{+3} C \xrightarrow{+3} F$$
 $H \xrightarrow{+3} K \xrightarrow{+3} N \xrightarrow{+3} Q \xrightarrow{+3} T$ 
 $M \xrightarrow{+3} J \xrightarrow{+3} G \xrightarrow{+3} D \xrightarrow{+3} A$ 
 $E \xrightarrow{+3} B \xrightarrow{+3} Y \xrightarrow{+3} V \xrightarrow{+3} S$ 

Hence, option A is the correct answer.

A	Heart
В	Bones
<b>C</b>	Eyes
D	Skin

- Bones.
- Rickets causes bone pain and muscle weakness in children.
- It is caused due to the deficiency of Vitamin D or calcium in a child.
- Sources of Vitamin D are sunlight and food such as fish liver oil, milk, eggs etc.
- Sources of Calcium are dairy products such as milk, cheese and yoghurt, and green vegetables such as broccoli and cabbage.

27. How many trains were flagged off by Prime Minister Narendra Modi in January 2021 connecting the location of the Statue of Unity to different parts of India?

A Eight	
B Six	
C Five	
D Seven	

### **Solution**

- Prime Minister Narender Modi flagged off eight trains connecting the location of the Statue of Unity to different parts of India.
- The eight trains are Kevadiya-Varanasi(Mahamana Weekly Express), Kevadiya-Darbar (Darbar Kevadiya Daily Express), Kevadiya-Ahmedabad (Janshatabdi Daily Express), Kevadiya —Hazrat Nizamuddin (Nizamuddin Kevadia Sampark Kranti Bi-Weekly Express), Kevadiya Rewa (Kevadia Rewa Weekly Express), Kevadiya Chennai (Chennai Kevadiya Weekly Express), Kevadiya Pratapnagar (MEMU Daily) and Pratapnagar-Kevadiya (MEMU Daily).
- This step will benefit both the tourists and local Adivasis by bringing new avenues of self-employment and employment.

- The Statue of Unity is located in Kevadiya, Gujarat. It is the statue of Sardar Vallabhbhai Patel.
- It is the world's tallest statue, with a height of 182 meters (597 feet).

	among the following was the first Indian to unfurl the tricolour reign land?
A	Annie Besant
В	Bhikaji Cama
C	Begum Hazrat Mahal
D	Lakshmi Seghal
Solutio	on
• The Cama.	first Indian to unfurl the tricolour on foreign land was Bhikaji
	taji Cama unfurled the first version of the Indian National Flag at the ational Socialist Congress held at Stuttgart, Germany.
• She	was an Indian political activist and advocate for women's rights.

• Begum Hazrat Mahal was the regent of Awadh in 1857-1858 and she played an important role in the Indian rebellion of 1857.

educationist, and she was the first woman president of the Indian National

• Annie Besant was a British socialist, women's rights activist and

Congress.

• Lakshmi Sehgal was an officer of the Indian National Army and the Minister of Women's Affairs in the Azad Hind government.

A	Plague
В	Goitre
	ED ENTRI
$\overline{\mathbf{c}}$	Malaria
D	Pneumonia
Solutio	
Solutio • Mala	n
Solutio  Mala  Female	n ria disease is caused by the Plasmodium parasite and its carrier is
Solution Mala Female It aff	on ria disease is caused by the Plasmodium parasite and its carrier is Anopheles.
Solution Mala Female It afford Plagu	ria disease is caused by the Plasmodium parasite and its carrier is Anopheles.  ects RBC and the Liver.

# 30. Which of the following is a work on statecraft written by Krishnadevaraya? Kadambari B Amuktamalyada Karpuramanjari Tolkappiyam D **Solution** • Krishnadevaraya, the most famous ruler of Vijayanagara, composed

- a work on statecraft in Telugu known as the Amuktamalyada.
- Krishnadevaraya was a Yadava Emperor of the Vijayanagar Empire.
- He was the third ruler of the Tuluva Dynasty.
- Kadambri was composed by Banabhatta.
- Karpurmanjari was written by Rajashekhara.
- Tolkappiyam was written by Tolkappiyar.

# 31. With which of the following sports is the term 'Chinaman' associated? Cricket B Polo **Table Tennis** Swimming D **Solution** • The term 'Chinaman' is associated with Cricket. It is left-arm wrist spin bowling. • Preeti Dimiri is the first chinaman bowler in Indian cricket and the second one is Kuldeep Yadav.

• Some other important Cricket terms are Googly, Gully and Declare.

• Terms related to Swimming are Anchor, Breaststroke, Paddle, Butterfly

• Terms related to Polo are Chukka, Bocha, Girth etc.

stroke etc.

• Terms related to Table Tennis are Spin, Let, Deuce etc.

A	Availability
В	Accessibility
C	Acceptability
D	Affordability

- Food security means that all people at all times have physical, social, and economic access to sufficient, safe, and nutritious food.
- The pillars of food security are availability, accessibility and affordability.
- Availability means the production of sufficient food within the country.
- Accessibility means food is within the reach of every person.
- Affordability means everyone has enough money to buy sufficient, safe and nutritious food.

A	Mid-ocean ridge
В	Oceanic trench
C	Mountain building
D	Land erosion

- Mountain building is created by the collision of convergent plate boundaries.
- A convergent boundary is an area where two or more lithospheric plates collide.
- Convergent boundaries are of three types: ocean-ocean, ocean-continent, and continent-continent.
- Ocean-Ocean convergent zone forms a trench and volcanic island, e.g. The Mariana trench in the Pacific Ocean.
- Ocean Continent convergent zone forms a trench and volcanic mountains, e.g. The Andes Mountains and the Peru trench.

• Continent – Continent zone forms Mountains, e.g. The Himalaya Mountains.

A Russia			
B The US			
C Serbia			
<b>D</b> Estonia			

# **Solution**

- India and Russia were declared joint winners of the 2020 Online FIDE Chess Olympiad.
- The FIDE Online Chess Olympiad 2020 was an online chess tournament organized by the FIDE and hosted by Chess.com.
- It was held between 24 July and 30 August.
- The event was organized after the postponement of the 44th Chess Olympiad due to the Covid-19 pandemic.
- The final match between Russia and India was called off and both were declared joint winners.
- The winner of FIDE Online Chess Olympiad 2021 was Russia.

# 35. When is National Girl Child Day observed annually in India? A 24 January B 12 May C 5 June D 9 September Solution

- National Girl Child Day is observed on 24 January in India every year.
- In 2021 the campaign was based on Beti Bachao Beti Padhao.
- The theme of the National Girl Child Day in 2019 was Empowering girls for a Brighter Tomorrow.
- Mother's Day is celebrated on 12 May every year.
- World Environment day is celebrated on 5 June every year.
- International Sudoku Day is observed on 9 September every year.

6. Who among the following never became the Vice President of India?
A VV Giri
B BD Jatti
C Gulzarilal Nanda
D Zakir Hussain
Solution
• Gulzarilal Nanda never became the Vice President of India.
• Gulzarilal Nanda was an Indian politician who twice served as interim
prime minister, in 1964 following the death of Jawaharlal Nehru and in
1966 following the death of Lal Bahadur Shastri.
• VV Giri was the fourth vice president of India from 1969 to 1974.

• BD Jatti was the fifth vice president of India from 1974 to 1979.

vice president from 1962 to 1967.

• Zakir Hussain was the third president of India and served as the second

# 37. Tapovan Vishnugad Hydroelectric Project is located in: Himachal Pradesh Ladakh B Uttarakhand Jammu and Kashmir D **Solution** • Tapovan Vishnugad Hydroelectric Project is located in Uttarakhand.

- It is located on the Dhauliganga River in the Chamoli District of Uttarakhand.
- The hydroelectric projects in Jammu and Kashmir are the Kishanganga Hydroelectric project, Ranjit Sagar Dam Hydroelectric project, Iqbal Hydroelectric project.
- The hydroelectric projects in Himachal Pradesh are the Andhra Hydroelectric project, Sanjay Vidyut Pariyojna (Bhabha) Hydroelectric project, Bhakra Hydroelectric project.
- The hydroelectric projects in Ladakh are the Chutak Hydroelectric project, Nimoo Bazgo Hydroelectric project.

38. According to the Puranas, Lord Vishnu took the shape of in order to rescue the earth, which had sunk into the water. a boar a lion B an elephant  $\mathbf{C}$ a tiger D **Solution** • According to the Puranas, Lord Vishnu took the shape of a boar in order to rescue the earth, which had sunk into the water. • Varaha or boar is the third of the 10 incarnations of Lord Vishnu. • Vishnu is a Supreme God in Hinduism. • The Puranas are the Hindu religious texts that deal with Indian myths and religious legends. • There are a total of 18 puranas.

# 39. Who among the following was the Nizam of Hyderabad in 1947? Osman Ali Nasir Jung В Mir Mahabud Ali Khan Akbar Ali khan D **Solution** • Osman Ali was the Nizam of Hyderabad in 1947. • He was the seventh and the last Nizam of Hyderabad. • He was known as the 'Architect of modern Hyderabad' and was the founder of Osmania University. • Nizam of Hyderabad was the title of the monarch of the Hyderabad State. • Asaf Jah I was the first Nizam of Hyderabad and established the Asaf Jahi dynasty. • Hyderabad was integrated into India by Operation polo after independence.

A	Moradabad	
В	Ranikhet	
$\overline{\mathbf{c}}$	Kolkata	
D	Patna	
Solutio	n	
Ranil	whet has the highest altitude among the given options.	
It is a	at an altitude of 1,869 meters above sea level.	
It is a	hill station in the Almora district of Uttarakhand.	
	Class IV town with a civic status of a Cantonment board.	

• It is the headquarters of the Kumaon Regiment of the Indian Army.

A Article 269A		
B Article 279A		
C Article 323A		
D Article 246A		

# **Solution**

- Article 279A of the Constitution of India provides for the creation of a GST Council.
- Goods and Services Tax Council (GST Council) is a constitutional body for making recommendations to the Union and State Government on issues related to Goods and Service Tax.
- It was introduced by the 101st Amendment Act.
- Article 269A is related to Levy and Collection of GST for Inter-State Supply.
- Article 323A is related to the Administrative Tribunals.
- Article 246A is related to the power to levy GST.

# 42. What is the objective of the 'Doughnut Model' of development?



It envisions rapid development at an environmental cost, then makes up for it later.

В

It envisions a world in which people and the planet can drive in balance.

**C** It envisions a food processing industry of development.

D

It envisions total abandonment of technology to live at peace with the environment.

# **Solution**

- The objective of the 'Doughnut Model' of development is to envision a world in which people and the planet can drive in balance.
- The Doughnut is a visual framework for sustainable development.
- The term 'Doughnut Economics' was first coined by British economist Kate Raworth.
- This model is based on the concept of eradicating global poverty, all within the means of the planet's limited natural resources.
- It is visually represented by two doughnut-shaped discs: the one in the center is the social foundation and the outer ring is the ecological ceiling.

43. Which of the following is the meaning of 'Pishtaq' in the context of medieval Indo-Islamic architecture? Tall gateway B Dome Water tank True arch D **Solution** • The meaning of 'Pishtaq' in the context of medieval Indo-Islamic architecture is Tall gateway. • In Muslim or Persian architecture, Pishtaq is a monumental gateway

marking the entrance to a mosque, caravanserai, madrasah, or mausoleum.

important aspects of Mughal architecture, first visible in Humayun's tomb.

• The central towering dome and the tall gateway (pishtaq) were two

• The building was constructed with red sandstone, edged with white

• Mughal architecture including dome and pishtaq came into existence

marble.

during the reign of Akbar.

44. Which of the following states 'former Governor' Mata Prasad, died in January 2021?
A Goa
B Uttarakhand
C Arunachal Pradesh
D Uttar Pradesh
Solution
• Mata Prasad was the former Governor of Arunachal Pradesh, who died in January 2021.
• Governor of Arunachal Pradesh: B.D. Mishra
Chief Minister of Arunachal Pradesh: Pema Khandu
• Governor of Goa: P.S. Sreedharan Pillai
Chief Minister of Goa: Pramod Sawant

Chief Minister of Uttarakhand: Pushkar Singh Dhami

• Governor of Uttar Pradesh: Anandiben Patel

• Governor of Uttarakhand: Gurmit Singh

Chief Minister of Uttar Pradesh: Yogi Aditya Nath

Mana	among the following was appointed as the Chairman and aging Director of Telecommunications Consultants India Limited nuary 2021?
A	Jitendra Singh
В	Rajeev Kumar
C	Sanjeev Kumar
D	Sarabjit Singh Sandhu
Solutio	on
•	eev Kumar was appointed as the Chairman and Managing Director communications Consultants India Limited in January 2021.
	L was set up in 1978 for providing Indian telecom expertise in all of telecom, Civil and IT to developing countries around the world.
• The	Headquarters of TCIL is in New Delhi.
• Jiten	der Singh is the minister of Earth Sciences and the minister of

Science and Technology.

• Rajeev Kumar is the Election Commissioner of India.

'Bolak-aat' is a _ from the state of Karnataka.	
A Music form	
B sculpting form	
C dance form	
D painting form	
Solution  • Bolak-aat' is a dance form from the state of Karnataka.	
• The dancer dresses up in a traditional Kodava dress.	
• The musical instrument used for this dance is called 'Dudi'.	
• The theme of the dance is based on the heroic activities of the Kodava gods and goddesses.	a

• Chief Minister of Karnataka: Basavaraj Bommai

• Governor of Karnataka: Thawar Chand Gehlot

47. Halogens have \_ electrons in their outermost shells. seven six B eight five D Solution • Halogens have seven electrons in their outermost shells. • Halogens are nonmetals. • The halogen elements are fluorine(F), chlorine (Cl), bromine (Br), iodine (I), astatine (At) and tennessine (Ts). • Halogens are very reactive, the reactivity decreases from fluorine to astatine.

• Halogens do not exist in the elemental form in nature.

• The group of halogens is the only group in the periodic table that

gasses, Bromine is a liquid, and Iodine and Astatine are solids.

contains elements in all three states of matter, Fluorine and Chlorine are

	among the following is credited with postulating three laws of tary motion?
A	Galileo Galilei
В	Isaac Newton
C	Johannes Kepler
D	Tycho Brahe
Solutio	on
• Joha	nnes Kepler discovered the three laws of planetary motion.
• The Sun.	laws of planetary motion describe the orbits of planets around the
	leo Galilei is called the father of modern physics, and he invented rmoscope and various military compasses.
• Issac	Newton gave the laws of motion.

• Tycho Brahe was a great astronomer and invented the Tychonian

Quadrant which led to the invention of several observational equipments.

A Ar	ın Shourie		
B Na	ini Singh		
C Gu	rucharan Das		
D Ra	mchandra Guha		

- He is an Indian historian, writer and public intellectual.
- He has been conferred the Honorary Foreign Member prize by the American Historical Association for the year 2019.
- His most recent work is a two-volume biography of Mahatma Gandhi: Gandhi before India and Gandhi: The Years That Changed the World.
- He is a recipient of Sahitya Akademi Award.

# So. Which of the following is a water-soluble vitamin? A Vitamin A B Vitamin K C Vitamin D D Vitamin C

### **Solution**

- Vitamin C is a water-soluble Vitamin. Vitamin B and Vitamin C are water-soluble vitamins.
- Vitamin A, Vitamin D, Vitamin E and Vitamin K are fat-soluble vitamins.
- The chemical name of Vitamin C is Ascorbic acid and its deficiency causes Scurvy.
- The chemical name of Vitamin A is Retinol and its deficiency causes Colour Blindness.
- The chemical name of Vitamin K is Phylloquinone and its deficiency causes Non-clotting of Blood.



A 220			
<b>B</b> 180			
<b>C</b> 328			
D 184			

# **Solution**

Given,

$$\[ \left( x-\frac{3}{x}\right) = 2 \]$$

Squaring both side

Again, Squaring both side

$$x^{2}\right\right)\left(\frac{9}{x^{2}}\right)=256$$

Table shows the number of trees planted in 4 cities from 2016 to 2020

Years	Chandigarh	Ahrnadabad	Pune	Kolkata
2016	1800	2500	1800	2000
2017	2500	2300	1850	1800
2018	2300	2400	1840	1760
2019	2440	1950	1900	1600
2020	2250	2100	2000	1750

52. From 2016 to 2020, how many more trees were planted in Ahmedabad as compared to trees planted in Pune?



### **Solution**

Number of trees planted in Ahmedabad from 2016 to 2020 = 2500 + 2300 + 2400 + 1950 + 2100 = 11250 Number of trees planted in Pune from 2016 to 2020 = 1800 + 1850 + 1840 + 1900 + 2000 = 9390

Required difference = 11250 - 9390 = 1860

Hence, there are 1860 more trees planted in Ahmedabad as compared to trees planted in Pune.

Table shows income (in ₹) received by 4 employees of a company during the month of December 2020 and all their income sources.

Source	Amit		Nitin	Varun
		Suresh		
Salary	35000	38500	29000	42000
Arrears	6000	6300	5000	7500
Bonus	1000	1100	1000	1240
Overtime	1800	1950	1400	1500

53. By what percent are the Arrears of Amit and Suresh taken together less than the Arrears of Nitin and Varun taken together?

(A) 1.6

 $\left(\mathbf{B}\right)$  1.2

 $\left(\mathbf{C}\right)$  1.4

 $\left(\begin{array}{c}\mathbf{D}\end{array}\right)$  1.5

# **Solution**

Arrears of Amit and Suresh taken together = 6000 + 6300 = Rs. 12300 Arrears of Nitin and Varun taken together = 5000 + 7500 = Rs. 12500

Difference = 12500 - 12300 = Rs. 200

Required percentage \(=\frac{200}{12500}\times 100=1.6 \%\)

Study the following table and answer the question: Number of students enrolled for Vocational Course (VC) in five institutes – A, B, C, D, & E

Year Institute	2013	2014	2015	2016	2017	2018
A	120	135	130	135	128	140
В	125	132	138	132	135	142
C	125	120	125	138	140	135
D	100	125	122	140	128	138
E	105	110	115	147	130	145

54. The ratio of the total number of students enrolled for VC in institutes A, C and E in 2016 to the total number of students enrolled in institutes B and D in 2018, is



$$\left(\begin{array}{c}\mathbf{B}\end{array}\right)\quad 8:7$$





### **Solution**

Total number of students enrolled for VC in institutes A, C and E in 2016 = 135 + 138 + 147 = 420 Total number of students enrolled in institutes B and D in 2018 = 142 + 138 = 280

Required ratio = 420:280 = 21:14 = 3:2

55. (x+y+z=2) and (x y+y z+z x=-11), then the value of  $(x^{3}+y^{3}+z^{3}-3 x y z)$  is:



$$\left(\mathbf{C}\right)$$
 69

## **Solution**

(x+y+z=2) and (x y+y z+z x=-11), then the value of  $(x^{3}+y^{3}+z^{3}-3 x y z)$ 

Using:  $(x^{3}+y^{3}+z^{3}-3 \times y z=(x+y+z)\left[(x+y+z)^{2}-3(x y+y z+z x)\right]$ 

\(\Rightarrow x^{3}+y^{3}+z^{3}-3 x y z=(2)[4+33]\) \(\Rightarrow x^{3}+y^{3}+z^{3}-3 x y z=74\)

56. The ratio of the present age of a mother to that of the daughter is 7:
1. After 5 years the ratio will become 4: 1. What is the difference (in years) in their present ages?

 $\left(\begin{array}{c}\mathbf{A}\end{array}\right)$  28

 $\mathbf{B}$  31

**C** 30

**D** 29

# **Solution**

The ratio of the present age of a mother to that of the daughter is 7:1. Let present age of mother = 7x years

present age of daughter = x years

After five years,

Age of mother = 7x + 5

Age of daughter = x + 5

According to question:

 $\(\Rightarrow\ 7\ x+5=4\ x+20\)$ 

 $\Rightarrow 3x = 15$ 

 $\Rightarrow x = 5$ 

Hence, Difference in present ages of mother and daughter =  $7x - x = 6x = \frac{6}{5}$  (6 \times 5=30\) years

57. On selling an article for ₹246.80, the gain is 20% more than the amount of loss incurred on selling it for ₹216. If the article is sold for ₹220.75, then what is the gain/loss percent (correct to the nearest integer)?

A Profit 7%

B Loss 4%

C Profit 3%

**D** Loss 5%

# **Solution**

As we know,  $(20 \% = \frac{1}{5})$ 

When selling price is  $\stackrel{?}{\sim}216$  let loss % = - 5x% [Here, negative sign represents loss]

On selling an article for ₹246.80, the gain is 20% more than the amount of loss incurred on selling it for ₹216.

Gain % = 6x%

According to question:

Hence, When an article is sold at Rs. 216, the amount of loss incurred on selling it is Rs. 14.

Cost price of article = Rs. 216 + Rs. 14 = Rs. 230

If Selling price is Rs. 220.75

Then loss = Rs. 230 - Rs. 220.75 = Rs. 9.25

Loss % \(=\frac{9.25}{230} \times 100=4 \%\)

58. In  $\triangle ABC$ ,  $\angle A = 90^{\circ}$ ,  $AD \perp BC$  at D. If AB = 12 cm and AC = 16 cm, then what is the length (in cm) of BD?

 $\left(\begin{array}{c}\mathbf{A}\end{array}\right)$  8.4

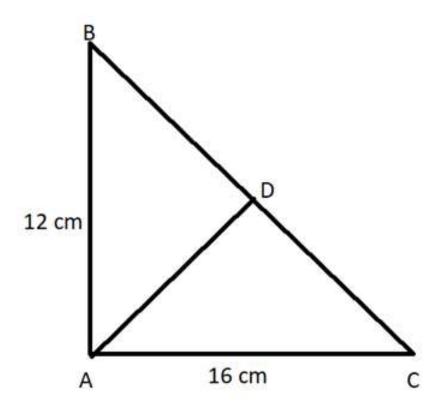
 $\left(\begin{array}{c}\mathbf{B}\end{array}\right)$  6.4

 $\left(\mathbf{C}\right)$  7.8

D 7.2

# **Solution**

In  $\triangle ABC$ ,  $\angle A = 90^{\circ}$ ,  $AD \perp BC$  at D as shown in figure below: AB = 12 cm and AC = 16 cm



# Using Pythagoras theorem:

 $\C^{2}=A B^{2}+A C^{2}$ 

 $\C^{2}=(12)^{2}+(16)^{2}=144+256=400$ 

 $\label{lem:combined} $$ \C=\sqrt{400}=20 \mathrm{mathrm}_{\sim cm})$$ 

# In triangle ADB:

Let \(\angle \mathrm{ABD}=\theta\)

 $\ \ A=90^{\circ} \ (Given)$ 

So,  $\(\angle D A C = \theta\)$ 

```
\(\angle A C D=90^{\circ}-\theta\)

Hence, VADB: VCAB
\(\Rightarrow \frac \{A B\} \{B C\}=\frac \{B D\} \{A B\}\)
\(\Rightarrow A B^{2}=B C \times B D\)
\(\Rightarrow 20 \times B D=(12)^{2}\)
\(\Rightarrow B D=\frac \{144\} \{20\}=7.2 \mathrm \{\sigmacm\}\)
```

59. A can do a certain work in 15 days. B is 25% more efficient than A. Both worked together for 4 days. C alone completed the remaining work in 8 days. A, B and C together will complete the same work in:

 $(\mathbf{A}) \setminus (4 \setminus \{1\} \setminus \{2\} \setminus)$  days

 $(\mathbf{B}) \setminus (6 \setminus \{1\} \setminus \{2\} \setminus)$  days

C 5 days

**D** 4 days

# **Solution**

A can do a work in 15 days. B is 25% more efficient than A.

As we know,  $(25 \% = \frac{1}{4})$ 

Also, Ratio of efficiency is opposite to ratio of time taken.

	Α	В
Efficiency	4x	5x
Number of days taken to complete work	5x	4x

According to question:

$$5x = 15$$

$$\Rightarrow x = 3$$

$$\Rightarrow$$
 4x = 12

Hence, B can do a work in 12 days.

Let total work = LCM (15,12) = 60 unit

Efficiency of  $A = (\frac{60}{15}=4)$  unit/day

Efficiency of B =  $(\frac{60}{12}=5)$  unit/day

Efficiency of A and B together = 4 + 5 = 9 unit/day

Both work together for 4 days only.

Work finished by them in 4 days =  $(9 \times 4=36)$  unit

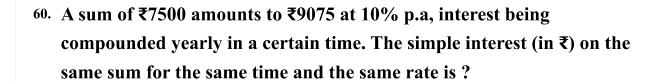
Remaining work = 60 unit - 36 unit = 24 unit

C completed the remaining work in 8 days.

Efficiency of  $C = (=\frac{24}{8}=3)$  unit/day

Efficiency of A, B and C together = 4 + 5 + 3 = 12 unit/day

Number of days taken by A,B and C to complete the whole work  $(=\frac{60}{12}=5)$  days



**(A)** 1480

B 1500

**C** 1530

 $\left(\mathbf{D}\right)$  1520

# **Solution**

- A sum of ₹7500 amounts to ₹9075 at 10% p.a, interest being compounded yearly in a certain time.
- Amount =  $\ensuremath{\mbox{\sc P}(P\left(1+\frac{R}{100}\right)^{t})^{t}}$

 $\c 9075=7500\left(1+\frac{10}{100}\right)^{t}$ 

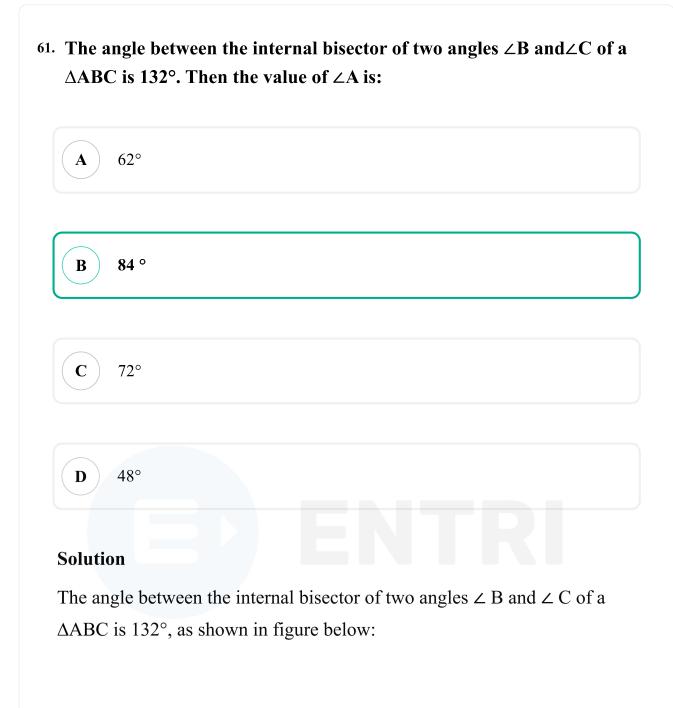
 $\label{lem:left} $$ \operatorname{frac} 121} = \left( \frac{11}{10} \right)^{t} )$ 

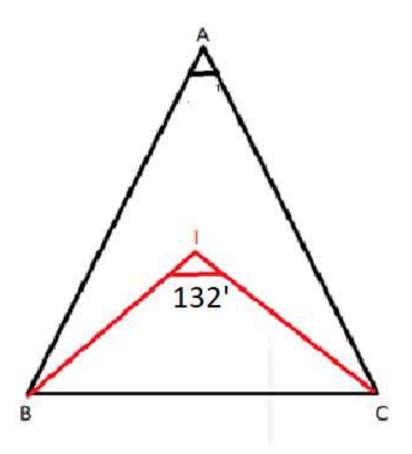
 $\label{lem:left(frac {11} {10} \right)^{2} = \left(\frac{11}{10}\right)^{t}} $$ {10}\right)^{t})$ 

 $\Rightarrow$  t = 2 years

Hence, Time = 2 years.
 Simple Interest \(=\frac{\text { Principal } \times \text { Rate } \times \text { time }} {100}\)

Simple Interest  $\ (=\frac{7500 \times 10 \times 2}{100}=R \text{ s }.1500).$ 





# In triangle BIC

# In triangle ABC

62. The selling price of an article marked for ₹10000 after giving three discounts, 20% 10% and k% is ₹6120. What will be the selling price (in ₹) of the same article if a single discount of (k + 20) % is allowed?

**A** 8500

**B** 6800

**C** 8000

**D** 6500

# **Solution**

The selling price of an article marked for ₹10000 after giving three discounts, 20% 10% and k% is ₹6120. According to question:

 $\(\Rightarrow\ 7200-72\ k=6120\)\ (\Rightarrow\ 72\ k=1080\)$ 

$$\Rightarrow$$
 k = 15

$$\Rightarrow$$
 k + 20 = 15 + 20 = 35

Now, Marked price of article = Rs. 10000

Discount percentage = 35%

Selling price of article  $(=10000 \text{ times } frac\{(100-35)\}\{100\}=\)$  Rs. 6500

63.  $(1+2 \tan ^{2} \cdot \cdot )$  is equal to:

 $A \setminus (\frac{1+\sin \theta}{1-\sin \theta})$ 

 $\bf B$  \(\frac{1+\cos \theta}{1-\cos \theta}\)

 $\mathbf{C} \setminus (\frac{1-\sin \theta}{1+\sin \theta})$ 

 $(\mathbf{D}) \setminus (\frac{1-\cos \theta}{1+\cos \theta})$ 

## **Solution**

Given,  $(1+2 \tan ^{2} \theta + 2 \sin \theta \sec ^{2} \theta , 0^{\circ})$ </the<ta>90^{\circ}\),

 $\ensuremath{$\langle 2 \sin^{2} \theta^{2} \rangle } = \frac{2 \sin^{2} \theta^{2} \theta$ 

 $\end{align*} $$ \end{align*} $$ \left(\cos^{2} \theta^{2} \right)^{2} $$ \end{align*} $$ \left(\cos^{2} \theta^{2} \theta^{2} \theta^{2} \right)^{2} $$ \end{align*} $$ 

 $$$ \left( =\frac{1+\sin^{2} \theta^{2} \cdot (1+\sin^{2} \theta^{2} \cdot (1+\sin^{2} \theta^{2}) \cdot (1$ 

 $^{64.}$  In a circle with centre O and radius 5cm, AB and CD are two parallel chords of lengths 6cm and respectively and the chords are on the opposite side of the centre O. The distance between the chords is 7cm. Find the value of x.

(A) 8

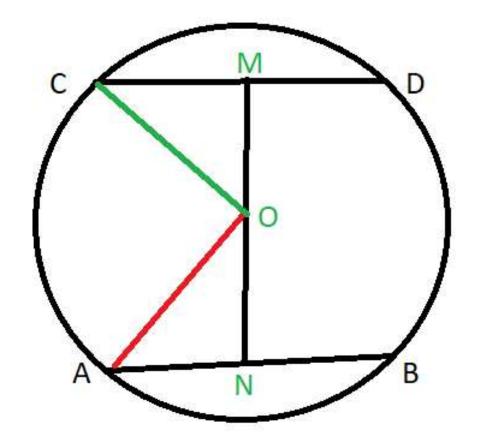
**B** ) 9

 $\left(\begin{array}{cc} \mathbf{C} \end{array}\right)$  10

 $\left(\mathbf{D}\right)$  12

# **Solution**

In a circle with centre O and radius 5 \(\mathrm{cm}\), AB and CD are two parallel chords of lengths 6\(\mathrm{cm}\) and \(x \mathrm{~cm}\) respectively as shown in figure:



Let AB = 6 cm and CD = x cm

We know that,

Perpendicular drawn from the centre of the circle to the chord, bisects the chord

In right angled triangle ANO:

Using Pythagoras theorem:

\(\Rightarrow

The distance between the chords is 7.

Therefore, MN = 7 cm

$$\Rightarrow$$
 MO = MN – ON = 7 – 4 = 3 cm

In right angled triangle CMO:

Using Pythagoras theorem : \(\\Rightarrow\)

 $\operatorname{CO}^{2}=\operatorname{CM}^{2}+\operatorname{MO}^{2}\setminus MO$ 

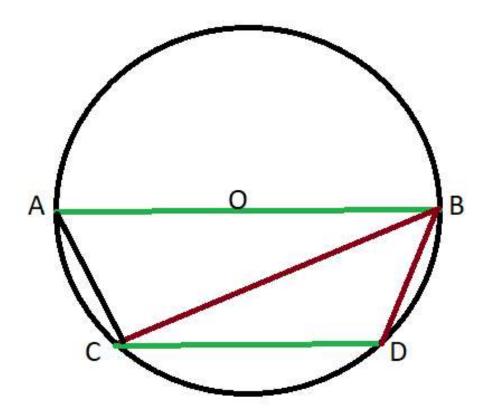
 $(\Rightarrow(5)^{2} = (\mathrm{CM})^{2} + (3)^{2} \) \ (\Rightarrow(5)^{2} + (3)^{2} \) \) \ (\Rightarrow$ 

 $\operatorname{CM}=\operatorname{CM}=\operatorname{CM}\setminus \operatorname{CM}\setminus \operatorname{$ 

 $M=2 \times 4=8 \cdot (\sim cm)$ 

<b>A</b> 30°		
B 28°		
C 32°		
D 24°		
olution		

In a circle with centre O, AB is a diameter and CD is a chord such that  $\angle$  ABC = 34° and CD = BD as shown in figure below:



We know that angle in semicircle is a right angle

$$\Rightarrow \(\angle A C B=90^{\circ})$$

In cyclic quadrilateral ABCD

Now, 
$$CD = BD$$

We know that angles opposite to equal sides of an isosceles triangle are equal.

\(\Rightarrow \angle D B C=\angle D C B\)

of the average of 22 numbers is 37.5. The average of the first 12 numbers is 40.6 and that of the last 12 number is 35.4. If 11th and 12th numbers are excluded, then what is the average of the remaining numbers?

(A) 36.9

 $\mathbf{B}$  37.4

 $(\mathbf{C})$  37.8

**(D)** 36.4

### **Solution**

The average of 22 numbers is 37.5. The average of the first 12 numbers is 40.6 and that of the last 12 number is 35.4.

Average \(=\frac{\text { Sum of observations }} {\text { Total number of observation }}\)

We know that

Sum of observation \(=\) Average \(\\times\) Total number of observation

Sum of 22 numbers = \((22 \times 37.5=825\)

Sum of first 12 numbers =  $(12 \times 40.6 = 487.2)$ 

Sum of last 12 numbers =  $(22 \times 35.4=424.8)$ 

Sum of 11th and 12th number = (487.2+424.8-825=87)

Sum of all numbers except 11th and 12th number = 825 - 87 = 738

Required average =  $\backslash (\frac{738}{20}=36.9)$ 

67. If \(\frac\\operatorname\cosec\\\ \theta+\cot \\theta\\  ${\operatorname{cosec} \operatorname{-cot} \operatorname{-cot} } = 7$ ), then the value of \  $\frac{4 \sin ^{2} \theta_{1}}{4 \sin ^{2} \theta_{2}} is:$  $(-\frac{1}{9})$  $\( frac \{1\} \{3\} \)$ B \(\frac{1}{9}\)  $\mathbf{C}$  $\(-\frac{1}{3}\)$ D **Solution** \(\frac{\operatorname{\cosec} \theta+\cot \theta} {\operatorname{\cosec}}  $\theta \simeq \operatorname{cosec}$  $\frac{2 \cot \theta}{2 - \frac{7+1}{7-1}} = \frac{8}{6}$  $\hat{4} = \frac{4}{3}$ Using:  $\langle \sin^{2} \theta^{2} \rangle$  \theta=1\)  $\{16\}\$  Now,  $(\frac{4 \sin^{2} \theta_{1}}{4 \sin^{2}}$  $\frac{5}=\frac{4\left(\frac{7}{16}\right)-1}{4\left(\frac{7}{16}\right)}$ 

```
  \{16\} \land \{16\}
```

68. If the 6 - digit number  $(5 \times 423 \text{ y})$  is divisible by 88, then what is the value of  $((5 \times -8 \text{ y}))$ ?

(A) 24

 $\left(\mathbf{B}\right)$  16

**C** 14

 $\left(\mathbf{D}\right)$  28

# **Solution**

The six-digit number  $(=5 \times 423 \text{ y})$  is completely divisible by 88 We know that if a number is divisible by 88 then it must be divisible by 8 And 11.

Divisibility by 8:

A number is divisible by 8 if the number formed using last three digits of the given number is divisible by 8.

Number under consideration =  $(=5 \times 423 \text{ y})$ 

Number phone by last three digits = 23y

Using hit and trial method

Take y = 1

Clearly, 231 is not divisible by 8

Take y = 2

Clearly, 232 is divisible by 8 therefore the value of y will be 2.

Resultant number = 5x4232

Divisibility by 11:

Sum of digits at odd place – Sum of digits at even place = 11k, where k can be any whole number

 $\Rightarrow$  (2+2+x) – (3 +4+5) = 11k, where k can be any whole number

 $\Rightarrow$  (4+x) – (12) = 11k, where k can be any whole number

 $\Rightarrow$  x - 8 = 11k, where k can be any whole number

Take k = 0

$$\Rightarrow$$
 x - 8 = 0

$$\Rightarrow x = 8$$

Now, 5x - 8y = ((5)(8)-8(2)=40-16=24)

- 69. A train runs first 75 km at a certain uniform speed and next 90 km at an average speed of 10 km/h more than the normal speed. It is takes 3 hours to complete the journey, then how much time will the train take to cover 300 km with normal speed?
  - **A** 5 hours 25 minutes
  - B 6 hours
  - C 5 hours
  - **D** 5 hours 15 minutes

## **Solution**

A train runs first 75 km at a certain uniform speed and next 90 km at an average speed of 10 km/h more than the normal speed. Let normal speed of train = x km/hr

$$(\frac{75}{x}+\frac{90}{x+10}=3)$$

$$(\frac{25}{x}+\frac{30}{x+10}=1)$$

$$(x(x+10)=55 x+250)$$

$$(x^{2}-45 x-250=0)$$

$$(x^{2}-50 x+5 x-250=0)$$

$$(x(x-50)+5(x-50)=0)$$

$$((x+5)(x-50)=0)$$

$$x = -5 \text{ OR } x = 50$$

Speed can not be negative

Therefore, x = 50

Hence, normal speed of train = 50 km/hr

Time will the train take to cover 300 km with normal speed = \

 $(=\frac{300}{50}=6)$  hours

70. The value of  $(\frac{52-1170}{26+13}\times 2){2+1}$  \text  $\{ of \} 2-1 \frac{1}{4}}\) is$ 12 В 11 27 41 D **Solution**  $\c \{52-1170 \ div 26+13 \ times 2\} \{2+1 \ frac \{1\} \{8\} \ text \{ of \} 2-1 \}$  $\frac{1}{4}}$ Using BODMAS  $\frac{5}{4}}$  $\ \frac{52-45+26}{2+\frac{9}{4}-\frac{5}{4}}\$  $\(\Rightarrow\frac{33}{3}=11\)$ 

71. If  $\langle 3 \cos ^{2} \rangle + 1=0,0^{\circ} \leq 90^{\circ} \rangle$ , then \(\tan \theta+\sec \theta=?\)  $(2 \operatorname{sqrt}{3})$  $\(3 \operatorname{sqrt}{3}\)$ В  $(2 \operatorname{sqrt}{5})$  $\mathbf{C}$ \(\sqrt{5}\) D **Solution**  $3 \leq ^{2} \theta^{-4} = 0,0^{\circ} \leq ^{2} \leq ^{2}$  $\( \Rightarrow \) (3 \sin \theta - 2) = 0$ But \(\sin \theta\) can not be negative in first quadrant. Therefore,  $\ \$  theta= $\$  {2}{3}\)

72. The income of A is 30% less than the income of B and the income of B is 135.7% more than that of C. If the income of A is ₹28500 less than that of B, then the income (in ₹) of C is:

**A** 36000

**B** 50000

C 40000

**D** 48000

# **Solution**

The income of A is 30% less than the income of B. Also, the income of A is ₹28500 less than that of B.

 $\label{eq:linear_condition} $$ (\Re 3) \%=\frac{3}{10} )$ 

According to question:

 $\(\Rightarrow\mathrm{B}=\mathrm{R}.95000\)$ 

Income of B is 135.7% more than that of C.

\(\Rightarrow \frac \{237.5\} \{100\} \times C=95000\)

\(\Rightarrow C=\) Rs. 40000

Study the following table and answer the question: Number of students enrolled for Vocational Courses (VC) in five institutes – A, B, C, D & E

Year Institute	2013	2014	2015	2016	2017	2018
A	120	135	130	135	128	140
В	125	132	138	132	135	142
C	125	120	125	138	140	135
D	100	125	122	140	128	138
E	105	110	115	147	130	145

73. The total number of students enrolled for YC in institute C in 2013, and 2014 and 2017 is what percent of the total number of students enrolled in all the five institutions in 2018?









# **Solution**

total number of students enrolled for YC in institute C in 2013, and 2014 and 2017 = 125+120+140 = 385 Total number of students enrolled in all the five institutions in 2018 = 140 + 142 + 135 + 138 + 145 = 700

Required percentage \(=\frac{385}{700}\times 100=55 \%\)

74. If  $(a^{3}+b^{3}=405)$  and (a+b=9), then the value of (a b) is

 $\left(\begin{array}{c}\mathbf{A}\end{array}\right)$  10

 $\left(\mathbf{B}\right)$  15

C 12

 $\left(\mathbf{D}\right)$  8

# **Solution**

 $(a^{3}+b^{3}=405)$  and (a+b=9)

Using :  $(a^{3}+b^{3}=(a+b)\left[(a+b)^{2}-3 \ a \ b\right]$ 

(\Rightarrow 3 a b=36\) \(\Rightarrow a b=12\)

75. What is the area (in \(\mathrm{cm}^{2}\\)) of a circle inscribed in a square of area \(784 \mathrm{~cm}^{2} ?\left(\right.\) Take \(\left.\mathrm{p}=\frac{22}{7}\right)\)



**B** 924

**C** 462

**D** 616

# **Solution**

A circle inscribed in a square of area  $784 \pmod{cm}^{2}$ 

.

$$(a^{2}=784)$$

 $(a=\sqrt{784}=28 \text{mathrm} {\sim} cm)$ 

Hence, Side of square = 28 cm

If a circle inscribed in a square, then the diameter of the circle will be equal to the side of the square.

Diameter of circle = 28 cm

Radius of circle  $\ (=\frac{28}{2}=14 \ \text{mathrm} \ \text{-cm})$ 

Area of circle =  $\( \frac{22}{7} \times 14 \times 14 = 616 \times (\sim)^{2} )$ 

Direction: Select the most appropriate option to fill in the blank.

76. A souvenir will be released on the occasion of the World Meet.

A generous

**B** considerable

**C** bountiful

(D) voluminous

# **Solution**

Let us understand the meaning of the given words:-

- Generous = giving or willing to give freely.
- Considerable = great in amount, size, importance etc; large or of noticeable importance
- Bountiful = in large quantities OR giving generously.
- Voluminous = (of a piece of writing, a book etc.) very long and detailed.

Now let's find out the correct fit for the blank:

• "Generous" is used particularly in the context of "giving freely". Thus, option A is incorrect.

- "Considerable" is used in the sense of "large in terms of amount". Thus, option B is incorrect.
- "Bountiful" is used in the sense of "in large quantities". Thus, option C is incorrect.
- "Voluminous" is used in the sense of "long and detailed writings". Here in the given sentence, it means a long and detailed souvenir (memento) will be released in the event of World Meet.

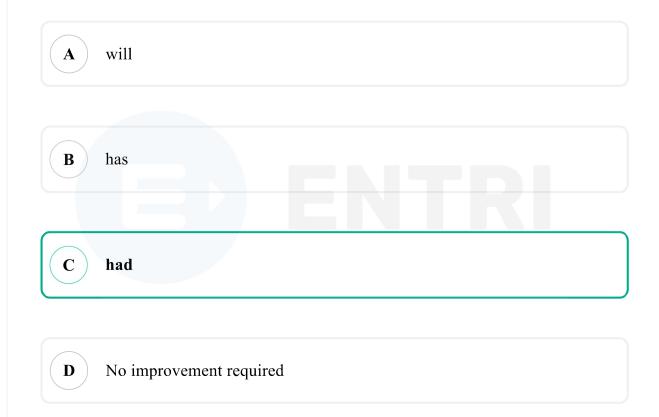
Thus, "Voluminous" becomes the correct word to fill in the blank.

Thus, the correct sentence will be:

A voluminous souvenir will be released on the occasion of the World Meet.

Direction: Select the option that will improve the underlined part of the sentence. In case no improvement is needed, select 'No improvement required'.

77. I wish 'I have' come an hour sooner.



## **Solution**

The underlined part of the sentence is grammatically incorrect.

- The underlined part requires correction in the verb.
- The given sentence is set in an imaginary context, which is quite evident from the usage of the word "wish". We know that an imaginary sentence takes a verb in the simple past tense, i.e., the second form of the verb.

For example:

I wish she had known about it beforehand.

- In the underlined sentence, we have used "have" instead of "had" (second form of the verb). Thus, "had" should be used.
- Hence, "had" is the correct substitution.

Thus, the correct sentence will be: I wish I had come an hour sooner.

Hence, **option C** is the correct answer.

Direction: Select the most appropriate ANTONYM of the given word.

78. Invade

A Attack

**B** Assault

C Seize

D Surrender

# **Solution**

Let's understand the meaning of the given words: Invade= to enter a country/town using military force in order to take control of it.

E.g.: American troops invaded Iraq in 2003.

Attack = to use violence to hurt/kill someone

Assault = to attack someone violently

Seize = to take someone/something in your hand suddenly and by using force.

Surrender = to admit that you have been defeated and want to stop fighting

E.g.: The insurgents were forced to surrender.

Hence, option D is the correct answer.

Direction: Select the most appropriate option to substitute the underlined segment in the given sentence. If no substitution is required, select 'No substitution'.

79. The place is too much noisy.

A No substitution

B too noisy

C much too much noisy

D much noisy

## **Solution**

The underlined part of the sentence is grammatically incorrect.

- Underlined part needs correction in adverb.
- "Too much" is a determiner and takes a noun after it. It means a situation or experience that is too difficult to deal with.

For example:

Eating too much sugar is bad for your health.

• "Much too" is an adverb and takes an adjective after it.

For example:

This coat is much too big for me.

- In the underlined sentence, we have used "noisy" which is an adjective. As mentioned above, the use of "too much" is wrong because it takes a noun after it.
- As per the meaning of the sentence, we require something that is in line with the negative sense of the sentence. Usage of "much" (an adverb) simply shows the "to a great extent" but it lacks the negative sense. Thus, "much noisy" is wrong.
- Usage of "too" (an adverb) is used to say that something is more than good in the negative sense.
- Hence, "too noisy" is the correct substitution.

Thus, the correct sentence will be: The place is too noisy.

Hence, option B is the correct answer.

Direction: Select the most appropriate meaning of the given idiom. 80. To cut a long story short Like to tell short stories Like to tell long stories B Tell something in a roundabout way D Tell something briefly **Solution** 

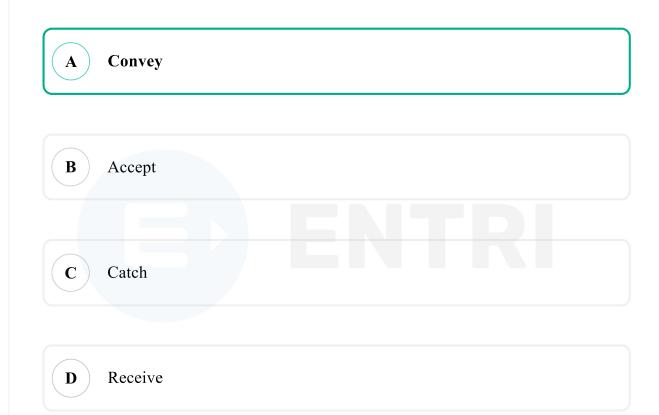
The idiom "To cut a long story short" means to get to the point very quickly without including all the details.

Example: To cut a long story short, we missed our flight early in the morning.

Hence, option D is the correct answer.

Direction: Select the most appropriate synonym of the given word.

# 81. Transmit



# **Solution**

Let's understand the meaning of the given words: Transmit= to send an electronic signal, radio or broadcast etc. OR to pass something from one person to another.

E.g., : The groundbreaking ceremony was transmitted live via satellite.

Convey = to take or carry someone/something from one place to another. OR to make ideas, feelings etc. known to someone.

E.g.: Please convey my blessings to your child.

Accept = to take willingly something that is offered

Catch = to stop and hold a moving object or person, esp. in your hands.

Receive = to get or accept something that is sent or given to you.

Hence, option A is the correct answer.

Direction: Select the option that expresses the given sentence in reported speech.

82. "Whom did you see at the shopping mall today?" I asked my daughter.



I asked my daughter whom she had seen at the shopping mall that day.

- **B** I asked my daughter that whom she saw at the shopping mall on that day.
- C I asked my daughter who she has seen at the shopping mall today.
- **D** I asked my daughter that whom did she saw at the shopping mall that day.

## **Solution**

The given sentence is of Direct Speech. The given sentence is in Direct Speech because it quotes actual words. The speech is an interrogative sentence.

- The inverted commas (" ") used in Direct Narration are removed in Indirect Narration.
- The conjunction "whom" is used to join the reporting verb with the speech. Note: In open-ended questions, we use Question Word (Why, How, When etc.) given in direct speech as conjunction in indirect speech.

- As the reporting verb is in the Past tense (asked), the tense of the speech will change from the simple past tense (did + see) to the past perfect tense (had seen).
- Also, the second-person pronoun (You) of the reported speech is changed to the pronoun (she) according to the object of the reporting verb (daughter).
- Time word: "Today" is changed to "that day".
- And "?" is removed, and a full stop is put since after conjunction we make assertive sentence structure in indirect speech i.e., Subj + Helping Verb + Main Verb + Object.

So, with the help of the above structures, we can convert the given sentence into indirect speech: I asked my daughter whom she had seen at the shopping mall that day.

Hence, option A is the correct answer.

The following sentence has been divided into parts. One of them contains an error. Select the part that contains the error from the given options.

83. It have been only / through writing / that men have been able / to spread their ideas to mankind.

**A** through writing

B It have been only

**C** that men have been able

**D** to spread their ideas to mankind

#### **Solution**

The sentence is grammatically incorrect, and the error lies in option B. The error is related to Subject Verb Agreement.

• "It" is an empty subject here, and it takes a singular helping verb with it. As an empty subject, "It" describes something (like the Clause, which is mentioned at the later part of the sentence).

# For example:

It is important to remember that verbal communication plays a key role in spreading awareness.

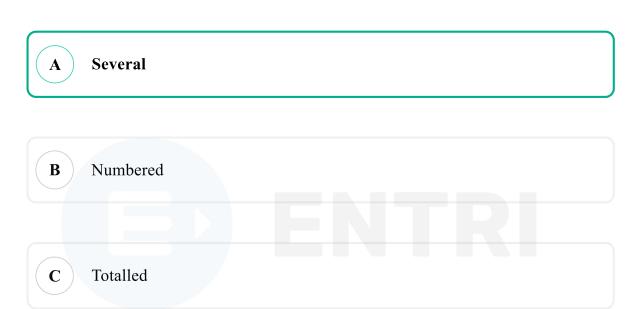
- Here in the given sentence, "have" (plural helping verb) should not be used. The singular helping verb "has" should be used.
- Hence, in the given sentence, "It has been only" is correct.

Thus, the correct sentence becomes:

It has been only through writing that men have been able to spread their ideas to mankind.

Direction: Select the most appropriate synonym of the given word.

#### 84. Numerous



D Few

## **Solution**

Let's understand the meaning of the given words: Numerous= existing in large numbers.

E.g.: She has been late to the office on numerous occasions.

Several = more than two but not very many.

E.g.: The students filed several grievances on the issue of age relaxation.

Numbered = having a number to show that it is part of a series or list.

Totalled = to add up numbers of something/someone and get a total.

Few = not many

Hence, option A is the correct answer.

Direction: Select the most appropriate ANTONYM of the given word.

## 85. Toxic

A Healthy

B Lethal

C Harmful

D Venomous

## **Solution**

Let's understand the meaning of the given words: Toxic= containing poison

E.g.: Insecticides are highly toxic.

Healthy = having good health and not likely to become ill

E.g.: He was finally starting to look healthy again.

Lethal = causing or able to cause death.

Harmful =causing damage to someone/something esp. to one's health or environment.

Venomous = producing venom OR full of bitter feeling or hate.

Hence, option A is the correct answer.

# 86. Select the INCORRECTLY spelled word. Anxious В Vishious Mimic Moisture D **Solution** Option B has incorrectly spelt word. "Vicious" is the correct spelling of the incorrect word "Vishious". It means violent and cruel. The meaning of other words are: Anxious: feeling worried or nervous Mimic: to copy the way someone speaks, moves, etc. in order to make the other laugh. Moisture: very small drops of water or other liquid that are present in the air.

87. You need not \_\_ so much fuss about a mask when you go out.

A do

B generate

C cause

D make

Solution

Direction: Select the most appropriate option to fill in the blank.

Let us understand the meaning of the given words:-

- Do = to perform an activity.
- Generate = to produce or create something.
- Cause = to make happen something happen.
- Make = to cause something to become a particular kind of thing.

Now let's find out the correct fit for the blank:

- "Do" is used particularly in the context of "performing". Thus, option A is incorrect.
- "Generate" is used in the sense of "produce". Thus, option B is incorrect.

- "Cause" is used in the sense of "to make happen". Thus, option C is incorrect.
- "Make" is used in sense of "to cause something to become a particular". Here in the given sentence, "make fuss" means to pay a lot of attention to. Here, "so much" gives the negative or the sense of unnecessary worry in the sentence. Thus, one should wear mask without making unnecessary worry (fuss).

Thus, "Make" becomes the correct word to fill in the blank.

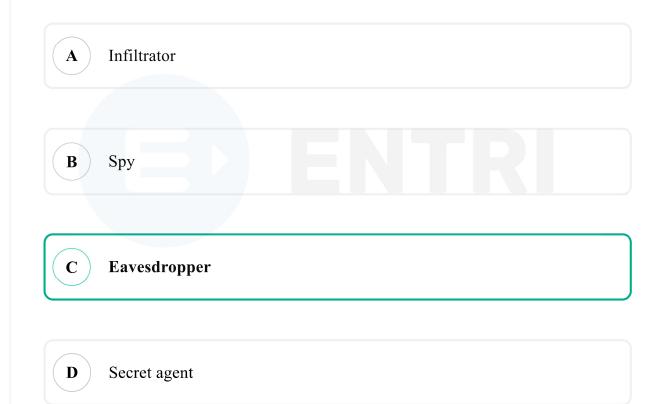
Thus, the correct sentence will be:

You need not make so much fuss about a mask when you go out.

Direction: Select the most appropriate meaning of the given idiom. 88. Full of beans A storeroom full of vegetables A dish made of French beans Full of energy Full of cowardice D **Solution** The idiom "Full of beans" means having a lot of energy. Example: He was full of beans despite skipping breakfast. Hence, option C is the correct answer.

Direction: Select the option that can be used as a one-word substitute for the given group of words.

89. A person who listens to someone's private conversation without them knowing



## **Solution**

Infiltrator: a person who secretly becomes a member of a group to get information from the group.

Spy: a person who tries to get secret information about another country/organization/person esp. someone who is employed by a govt.

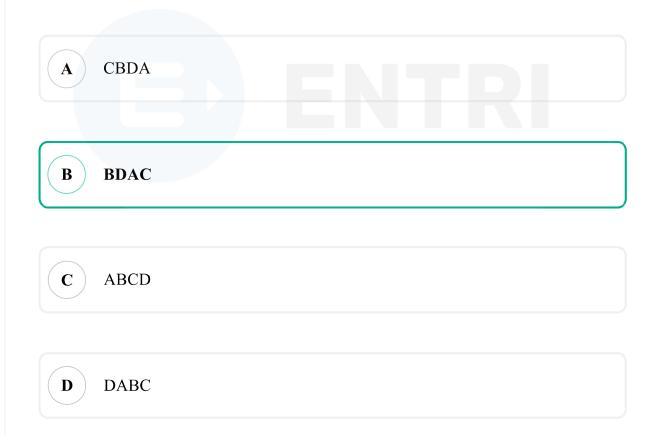
Eavesdropper: a person who listens secretly to what other people are saying.

Secret agent: a person who works secretly to obtain information for a govt. or other organisation.

Hence, option C is the correct answer.

Sentence of a paragraph are given below in jumbled order. Arrange the sentence in the right order to form a meaningful and coherent paragraph.

- 90. A. Then I took him by the hand and led him across the street.
  - B. I was going to the market when I saw a blind man trying to cross the street.
  - C. He expressed his gratitude with folded hands.
  - D. I walked across to the blind man.



## **Solution**

- The first in the sequence should be the one that introduces us to the theme of the passage. Here, the passage is about the Author helping a Blind man. Thus, B will be the first sequence.
- D will be the next in the sequence as it mentions the next immediate reaction, i.e., reaching out to the blind man to help him to cross the street.

- A will be the next as it mentions the process of crossing the street by blind man with the help of author.
- C will be the final sentence of the sequence, as in the end it mentions the thankful gesture of the blind man.

Thus, the correct sequence is BDAC.

After arranging the sentences, the passage will be:

I was going to the market when I saw a blind man trying to cross the street. I walked across to the blind man. Then I took him by the hand and led him across the street. He expressed his gratitude with folded hands.

Hence, option B is the correct answer.

91. The following sentence has been divided into four parts. One of them contains an error. Select the part that contains the error from the given options.

The Principal requested / the teacher's / to monitor / and take care of the small children.

A The teacher's

And take care of the small children

C The Principal requested

D To monitor

## **Solution**

- In the given sentence the error lies in the part "The teacher".
- We use an apostrophe + "s" to show that one person/thing owns or is a member of something.
- Example: "The shop's customers."
- In the given sentence there are many teachers who have to take care of the children.
- Therefore, "The teacher's" should be replaced with "The teachers".

• The correct sentence is "The Principal requested the teachers to monitor and take care of the small children."

Direction: Select the option that can be used as a one-word substitute for the given group of words.

92. A large building with an extensive floor area, typically for housing aircraft

A Shed

B Airport

C Barn

D Hangar

# **Solution**

Shed: a small building used for keeping things in.

Airport: a place where planes land and take off.

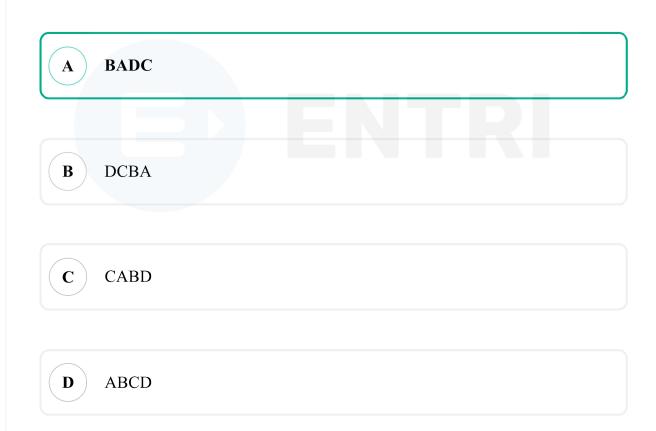
Barn: a large farm building for storing grain or keeping animals in.

Hangar: a large building in which aircraft are kept.

Hence, **option D** is the correct answer.

Sentence of a paragraph are given below in jumbled order. Arrange the sentence in the right order to form a meaningful and coherent paragraph.

- 93. 1) This invention has helped us to heal wounds caused by bacteria.
  - 2) Penicillin is one of the most useful drugs man has invented.
  - 3) In the beginning however, very few people knew of this discovery and its use.
  - 4) Its use has saved the lives of hundreds of thousands of soldiers.



## **Solution**

• The first in the sequence should be the one that introduces us to the theme of the passage. Here, the passage is about Penicillin. Thus, B will be the first sequence.

- A will be the next in the sequence, as it mentions how "Penicillin" helped in healing wounds. Also, the words "this invention" refers to the "Penicillin" mentioned in Sentence B.
- D will be the next, as it shows the usage of Penicillin in saving lives.
- C will be the final sentence of the sequence, as it concludes by mentioning the fact that initially, Penicillin was known by very few persons. This sentence is apt as conclusion because it ended in contrast to what was mentioned in the previous sentences.

Thus, the correct sequence is BADC.

After arranging the sentences, the passage will be: -

Penicillin is one of the most drugs man has invented. This invention has helped us to heal wounds caused by bacteria. Its use has saved the lives of hundreds of thousands of soldiers. In the beginning, however, very few people knew of this discovery and its use.

Hence, option A is the correct answer.

Direction: Select the option that express the given sentence in passive voice.

- 94. Someone stole his traveller's cheques when he was travelling in Europe.
  - **A** His traveller's cheques was stole when he was travelling in Europe.
  - B His traveller's cheques were stolen when he was travelling in Europe.
  - C His traveller's cheques are stole when he was travelling in Europe.

D

Someone had been stole his traveller's cheques when he was travelling in Europe.

## **Solution**

The given sentence is in active form of an assertive sentence. The sentence is in past indefinite tense.

The structures for active/passive voices are:

Active Voice: Subject + V2 + Object

Passive Voice: Object + was/were + Verb (V3 form) + by + Subject

So, with the help of the above instructions, we can convert the given sentence into passive voice:

His traveller's cheques were stolen when he was travelling in Europe.

PS: We can omit the subject of the action in passive structure if it is indefinite pronoun (Someone) like we did in the answer.

So, another possible passive structure with subject can be:

His traveller's cheques were stolen by someone when he was travelling in Europe.

Hence, option B is the correct answer.

# 95. Select the INCORRECTLY spelt word. Arbitrary Scrutinize В Cerebral Withdrawl D **Solution** Option D has incorrectly spelt word. "Withdrawal" is the correct spelling of the incorrect word "Withdrawl". It means the act of taking or moving something away or back.

The meaning of other words are:

Arbitrary: not seeming to be based on reason.

Scrutinize: to look at or examine something/someone carefully.

Cerebral: relating to brain.

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

It is true that more you study, the more you (1) **your horizon and hence your point of view undergoes a (2)** \_. A person with higher education certainly has a better (3) \_ and ideas to help in community and societal (4) \_. Ideas that are gathered from such people provide a global (5) \_ for the nation as a whole.

# A. Select the most appropriate option to fill in the blank number 2

A	backwardness
В	transformation
C	succession
D	enlargement

#### **Solution**

The given passage is about "Importance of Education".

"Backwardness" means the state of having made less progress than normal. Thus, option A is wrong.

"Succession" means a number of people or things that follow each other in order. Thus, option C is wrong.

"Enlargement" means the process or result of something becoming larger. Thus, option D is wrong.

"Transformation" means a complete change in something/someone.

Studying more completely changes a person by expanding his point of view i.e. increasing the horizon of thinking.

Hence, option B is the correct answer.

# B. Select the most appropriate option to fill in the blank number 1

(A) exchange	
B narrow	
C expand	
<b>D</b> convert	

# **Solution**

The given passage is about "Importance of Education".

"Exchange" means an act of giving something to someone and receiving something in return. Thus, option A is wrong.

"Narrow" means to become less wide. Thus, option B is wrong.

"Convert" means a person who has changed his religion, beliefs or opinions. Thus, option D is wrong.

"Expand" means to become greater in size, number or importance. Here it means, studying more widens your horizon of viewing or understanding things.

Hence, **option C** is the correct answer.

# C. Select the most appropriate option to fill in the blank number 5

A	posture
B	perspective
C	prejudice
D	proportion

## **Solution**

The given passage is about "Importance of Education".

"Posture" means the position in which you hold your body when standing or sitting. Thus, option A is wrong.

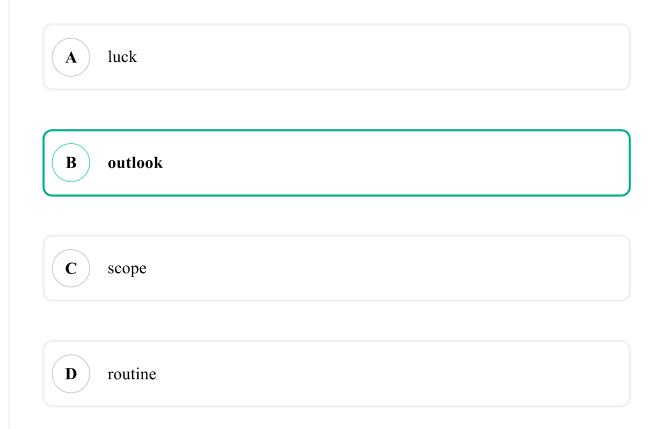
"Prejudice" means an unreasonable dislike or preference for a person/group. Thus, option C is wrong.

"Proportion" means a part or share of whole. Thus, option D is wrong.

"Perspective" means viewpoint. Ideas that come from people with higher education provides a viewpoint for the country in a more inclusive way.

Hence, option B is the correct answer.

# D. Select the most appropriate option to fill in the blank number 3



# **Solution**

The given passage is about "Importance of Education".

"Luck" means good things that happen to you by chance. Thus, option A is wrong.

"Scope" means the opportunity to do something. Thus, option C is wrong.

"Routine" means the normal order and way in which you regularly do things. Thus, option D is wrong. "Outlook" means the attitude to life and the world of a particular person, group or culture. Here it means, higher education enables a person to have a better attitude towards the life and world. It also helps in having better ideas that can help community and society.

Hence, option B is the correct answer.

# E. Select the most appropriate option to fill in the blank number 4

A	elaboration
В	ripening
	dovolonment
$oxed{c}$	development
	<b>development</b> maturity

# **Solution**

The given passage is about "Importance of Education".

"Elaboration" means a detailed explanation or description of something. Thus, option A is wrong.

"Ripening" means fully grown and be ready to be eaten. Thus, option C is wrong.

"Maturity" means the quality of behaving and thinking sensible. Thus, option D is wrong.

"Development" means the steady growth of something so that it becomes more advanced. Here it means, better attitude towards the life and world helps in having better ideas that can help in the development of the community and society.

Hence, option C is the correct answer.





(https://play.google.com/store/apps/details?
id=me.entri.entrime)