SSC CGL 13th August 2021 Shift-1

1. **Who among the following was elected as the President of Veterinary Council of India in January 2021?**

A   Rajeev Arora

B   Dipankar Seth

C   **Umesh Sharma**

D   KK Verma

Solution

- As of January 2021, Umesh Sharma was elected as the President of the Veterinary Council of India.
- Veterinary Council of India is a statutory body established under the Indian Veterinary Council Act 1984.
- It was established under the Ministry of Agriculture of the Government of India in 1984.

2. Which of the following statements about Swami Dayanand Saraswati is INCORRECT?

A   He authored the book 'Satyarth Prakash'.

B   He was the founder of Arya Samaj.

C   His birthplace was Gujarat.

D   **He was the founder of Brahmo Samaj.**

Solution

Swami Dayananda Saraswati was a social reformer in the Indian subcontinent.

- His birthplace was Gujarat.
- The childhood name of Swami Dayananda Saraswathi is Mul Shankar.
- He is the founder of Arya Samaj.
- It was founded in 1875 as its headquarters in Mumbai.
- He is popularly called "Martin Luther of Hindustan".

3. **Who among the following had written Kitab-ul-Hind that gave an incisive description of early 11th Century India?**

A   Al-Bukhari

B   Al-Khwarizmi

C   **Al-Biruni**

D   Al-Kindi

Solution

- Al-Bukhari was a Persian Islamic scholar who was born in Bukhara.
- Al-Khwarizmi was a Muslim mathematician who introduced Hindu-Arabic numerals and the concepts of algebra into European mathematics.
- Al-Kindi is popularly called "the philosopher of the Arabs."

4. **Which of the following is the application of sciences such as physics, chemistry, biology, computer science and engineering to matters of law and to the identification of various facts of civilian investigation?**

A Psychology

B Morphology

C **Forensic science**

D Kalology

Solution

- Forensic science is the use of scientific methods or expertise to investigate crimes or examine evidence that might be presented in a court of law.
- It is also known as criminalistics.
- It is the application of sciences such as physics, chemistry, biology, computer science, and engineering to matters of law and to the identification of various facts of the civilian investigation.

5. **As per the Union Budget of 2021-22, how many regional national institutes of virology will be set up?**

A ○ Six

B ○ Two

C ○ Three

D ○ **Four**

Solution

- As per the Union Budget of 2021-22, The central government has announced the setting up of four regional institutes of virology.
- Regional NIV will help in efficiently countering the threats of viral pandemics/epidemics in the future.
- Apart from the new virology institutes the budget proposals also include the setting up of a regional research platform for the WHO South-East Asia region.
- It also established the National Institute of One Health (NIO) at Nagpur for research in 'One Health'.
- The Union Budget 2021 allocated Rs 2,663 crore for Health Research for the upcoming fiscal year 2021-22.

6. **In Leh, the first ever ice climbing festival was celebrated in ....**
   valley in January 2021.

A Nubra

B Ripchar

C Markha

D Dras

Solution

- Nubra Valley is the northernmost part of Jammu and Kashmir.
- Nubra is currently administered as a subdivision and a tehsil in the Leh district.
- It is known as the Orchard of Ladakh.
- It was originally called Ldumra(valley of flowers).
- Nubra was listed as one of the five natural and historical divisions of Ladakh by Alexander Cunningham.

7. **Which of the following places is famous for a copper mine?**

A   **Khetri**

B   Keonjhar

C   Gaya

D   Satna

Solution

- Khetri is a town in the Jhunjhunu district of Rajasthan.
- Khetri is situated at the foothills of the Aravalli Range.
- Khetri is famous for its copper mines.
- Khetri mines are owned by Hindustan Copper Ltd.
- The Khetri region is highly contaminated by copper with higher values in the soil near overburden material and tailings.

8. **Who among the following was one of the founders of the Hindustan Republic Association?**

A   Jatindranath Mukherjee

B   **Ram Prasad Bismil**

C   Surya Sen

D   Lala Lajpat Rai

Solution

- Ram Prasad Bismil was an Indian revolutionary who participated in the Mainpuri Conspiracy and the Kakori Conspiracy.
- He was hanged by the British on 19 December 1927.
- Jatindranath Mukherjee was the principal leader of the Jugantar party(central association of revolutionary independence activists in Bengal).
- Surya Sen was a Bengali revolutionary who was best known for leading the 1930 Chittagong armoury raid.
- Lala Lajpat Rai was an Indian independence activist who was best known for his peaceful protest march against the all-British Simon Commission.

9. **In which of the following years was the Planning Commission of India set up?**

A	1962

B	1945

C	**1950**

D	1958

Solution

- The planning commission was an institution that formulated Five-Year Plans in India.
- The planning commission was set up in 1950.
- The planning commission is only an advisory body.

10. **Baghmara Pitcher Plant Sanctuary is located in which of the following states?**

A   Assam

B   Karnataka

C   Goa

D   **Meghalaya**

Solution

- Baghmara Pitcher Plant Sanctuary is a sanctuary located in the South Garo Hills district of Meghalaya.
- It is named after a rare insectivorous Pitcher Plant, Nepenthes khasiana.
- Nepenthes khasiana is endemic to the Meghalaya region only.
- The Pitcher plant is locally known as "Me'mang-Koksi" (Ghost Basket).
- Locals regard it as a sacred plant or the Ghost basket.
- Baghmara Pitcher Plant Sanctuary is the only Sanctuary in Meghalaya where in-situ conservation of Pitcher Plant is being carried out.

11. **In December 2020, the Ministry of Home Affairs declared the entire State of .... as a 'disturbed area' for six more months under the Armed Forces (Special Powers) Act, 1958 (AFSPA).**

A   Jharkhand

B   Punjab

C   **Nagaland**

D   West Bengal

Solution

- AFSPA was passed on 11th September 1958 for civil rights activists from Manipur.
- AFSPA was first enacted to deal with the Naga insurgency in the Assam region.
- The central government enacted the Armed Forces (Punjab and Chandigarh) Special Powers Act in 1983.

12. Who among the following won the '3rd Rabindranath Tagore Literary Prize' for his novel 'The City and The Sea' in December 2020?

A **Raj Kamal Jha**

B Shekhar Gupta

C Siddhartha Sarma

D Rajdeep Sardesai

Solution

- Raj Kamal Jha is a newspaper editor and novelist in India.
- He is currently the Editor-in-Chief of The Indian Express.
- He was honoured with the 3rd Rabindranath Tagore Literary Prize' for his novel 'The City and The Sea' in December 2020.
- In September 2021, he was honoured with the Editor of The Year award by the India Chapter of the International Advertising Association.
- He was honoured with the Commonwealth Writers Prize for Best First Book for his work 'The Blue Bedspread' in 2000.

13. **In which of the following years was the Second Round Table Conference in London held?**

A   **1931**

B   1941

C   1939

D   1925

Solution

- The Second Round Table Conference was held in London in 1931.
- It was held from 7 September 1931 to 1 December 1931.
- Gandhiji participated in the Second Round Table Conference.
- Gandhi-Irwin Pact is associated with the Second Round Table Conference.
- The Second Round Table Conference was considered a failure due to strong disagreements among the participants.

14. Unique Transaction Reference number is a .... character code used to uniquely identify a transaction in the RTGS system.

A 34

B 45

C **22**

D 17

Solution

- RTGS stands for Real-Time Gross Settlements.
- RTGS is a system where there is a continuous and real-time settlement of fund transfers, individually on a transaction-by-transaction basis.
- Unique Transaction Reference (UTR) number is a 22 character code used to uniquely identify a transaction in the RTGS system.
- The unique Transaction Reference number is used to identify a specific bank transaction in India.

15. **Who among the following is a Padma Vibhushan awardee of 2021?**

A **Sudarshan Sahoo**

B Tarlochan Singh

C Mouma Das

D Sumitra Mahajan

Solution

Sudarshan Sahoo is an Indian sculpture artist from Puri in Odisha.

- He was awarded the Padma Vibhushan in 2021.
- Crafts Museum in Puri was developed by Sudarshan Sahoo.
- It was established in 1977.
- He was honoured with the National Award for stone carving in 1981.

16. **Which of the following is NOT a town/city on the west coast of India?**

A   Surat

B   **Gopalpur**

C   Karwar

D   Mangalore

Solution

- Surat is a town/city on the west coast of India located in Gujarat.
- Karwar is a town/city on the west coast of India located in Karnataka.
- Mangalore is a town/city on the west coast of India located in Karnataka.

17. **Which of the following is a process in which hot, less dense materials rise upward and are replaced by colder, more dense materials?**

A   Condensation

B   Radiation

C   Conduction

D   **Convection**

Solution

- Convection is a mode of heat transfer by the actual motion of matter.
- Convection is a process in which hot, less dense materials rise upward and are replaced by colder, more dense materials.
- Convection is possible only in fluids.
- Convection can be either be natural or forced.
- Gravity plays a major role in natural convection.

18. **Who among the following replaced Morarji Desai as the Prime Minister of India in 1979?**

A   Jagjivan Ram

B   **Charan Singh**

C   Chandrasekhar

D   Devi Lal

Solution

- Charan Singh was the 6th Prime Minister of India between 1979 and 1980.
- He was the 3rd Deputy Prime Minister of India.
- He became the Deputy Prime Minister of India in the Morarji Desai government in 1977.
- Morarji Desai was the 5th Prime Minister of India.

19. **Which of the following has the same dimension as that of linear momentum?**

A   **Impulse**

B   Work

C   Stress

D   Energy

Solution

Impulse is the effect of impulsive force.

- Impulse is the force that changes the momentum of a body,
- Impulse has the same dimension as that of linear momentum.
- Impulse(I) = Force(F) × Time(V).

20. **Gurdwara Patalpuri Sahib is located on the bank of river ....**

A   Ganga

B   **Sutlej**

C   Yamuna

D   Beas

Solution

- Gurdwara Patal Puri is situated at Rupnagar district in Punjab.
- It is built on the banks of the River Sutlej.
- Guru Hargobind in 1644 as well as Guru Har Rai in 1661 were cremated in Gurdwara Patal Puri.
- River Sutlej originates from Rakshastal Lake.

21. **Who won the Toyota Thailand Open Women's Singles Title in Bangkok in January 2021?**

A   Ashwini Ponnappa

B   **Carolina Marin**

C   Tai Tzu-ying

D   PV Sindhu

Solution

- Carolina Marin is a professional badminton player from Spain.
- She became the World Champion in the women's singles three times, 2014, 2015, and 2018.
- She is the Second female badminton athlete to win three women's singles World Champion titles after Han Aiping of China.
- Carolina Marin won the Toyota Thailand Open Women's Singles Title in Bangkok in January 2021.

22. **Which of the following schemes is aimed at helping accelerate the uptake of broadband internet services?**

A   PM-DHWANI

B   PM-INTERNET

C   **PM-WANI**

D   PM-VAARTA

Solution

- PM WANI stands for Prime Minister Wi-Fi Access Network Interface.
- PM-WANI is a scheme aimed at helping accelerate the uptake of broadband internet services.
- The initiative aims to elevate wireless internet connectivity in the country.
- The PM-WANI scheme was announced by the Department of Telecommunications.
- The government aims to provide internet connectivity through Public Data Offices (PDOs) as a part of the WANI scheme.

23. .... is the structural and functional unit of kidney.

A **Nephron**

B Cortex

C Ureter

D Medulla

Solution

- Kidneys are bean-shaped organs in the human body.
- Excretion is the major function of the kidney.
- Kidney act as the filter of the body.
- Nephron is the structural and functional unit of the kidney.

24. **Electron–volt is a unit of ....**

A current

B power

C potential difference

D **energy**

Solution

- The electron volt is the unit of energy commonly used in atomic and nuclear physics.
- The amount of energy gained by the charge of a single electron moved across an electric potential difference of 1 volt is called an electron volt.
- It is commonly used in atomic and nuclear physics applications.

25. **For which of the following franchise teams did AB de Villiers play in IPL 2020?**

| A | Delhi Capitals |

| B | **Royal Challengers Bangalore** |

| C | Kolkata Knight Riders |

| D | Mumbai Indians |

Solution

The Royal Challengers Bangalore is a franchise cricket team based in Karnataka.

- It was founded in 2008.
- Royal Challengers Bangalore have never won the IPL trophy.
- Virat Kohli is the current captain of the Royal Challengers Bangalore.
- Royal Challengers Bangalore's Chris Morris is the most expensive player in IPL history.

26. If $x + y = 4$ and $\frac{1}{x} + \frac{1}{y} = \frac{16}{15}$ then what is the value of $\left(x^3 + y^3\right)$?

A   18

B   **19**

C   21

D   16

Solution

$$\frac{1}{x} + \frac{1}{y} = \frac{16}{15}$$
$$\Rightarrow (y + x)/Ay = 16/15$$
$$\Rightarrow 4/xy = 16/15$$
$$\Rightarrow xy = 15/4$$
$$x + y = 4$$

By squaring both sides.

$$x^2 + y^2 + 2xy = 16$$
$$\Rightarrow x^2 + y^2 = 16 - 2xy$$
$$\Rightarrow x^2 + y^2 = 16 - 2 \times 15/4$$
$$\Rightarrow x^2 + y^2 = 16 - 15/2 = 17/2$$
$$\because \left(x^3 + y^3\right) = (x + y)\left(x^2 - xy + y^2\right)$$
$$\Rightarrow \left(x^3 + y^3\right) = 4 \times (17/2 - 15/4)$$
$$\therefore \left(x^3 + y^3\right) = 19$$

27. If the 5-digit number 676xy is divisible by 3, 7 and 11, then what is the value of (3x - 5y)?

A 9

B 11

C 10

D 7

Solution

LCM $(3, 7, 11) = 231$

By taking the largest 5 -digit number 67699 and divide it by 231 .

$\because 67699 = 231 \times 293 + 16$

$\Rightarrow 67699 = 67683 + 16$

$\Rightarrow 67699 - 16 = 67683$ (completely divisible by 231)

$\therefore 67683 = 676 \times y$ (where $x = 8, y = 3$)

$(3x - 5y) = 3 \times 8 - 5 \times 3$

$\Rightarrow 24 - 15 = 9$

$\therefore$ The required result $= 9$

28. $\triangle ABC \sim \triangle PQR$, **the areas of** $\triangle ABC$ **and** $\triangle PQR$ **are** 64 cm^2 **and** 81 cm^2, **respectively and** AD **and** PT **are the medians of** $\triangle ABC$ **and** $\triangle PQR$. **respectively. If** $PT = 10.8 \text{ cm}$, **then** $AD = ?$

A   9 cm

B   12 cm

C   8.4 cm

D   **9.6 cm**

Solution

The ratio of the areas of two similar triangles is equal to the ratio of the squares of the corresponding sides & medians.

Given:

$\triangle ABC \sim \triangle PQR$

Area of $\triangle ABC = 64 \text{ cm}^2$

Area of $\triangle PQR = 81 \text{ cm}^2$

$PT = 10.8 \text{ cm}$

AD is the median of $\triangle ABC$

PT is the median of $\triangle PQR$

$\text{ar}(\triangle ABC)/\text{ar}(\triangle PQR) = AD^2/PT^2$

$\Rightarrow 64/81 = AD^2/PT^2$

$\Rightarrow \sqrt{64/81} = AD/PT$

$\Rightarrow 8/9 = AD/10.8$

$\therefore AD = 9.6 \text{ cm}$

29. **Some fruits are bought at 15 for Rs 140 and an equal number of fruits at 10 for Rs 120. If all the fruits are sold at Rs 132 per dozen, then what is the profit percent in the entire transaction?**

A $4\frac{1}{2}$

B $2\frac{1}{4}$

C $3\frac{1}{8}$

D   3

Solution

Let 30 fruits are bought at 15 for Rs. 140 , then cost of 30 fruits

$= 140/15 \times 30 =$ Rs. 280

$\Rightarrow$ 30 fruits are also brought at 10 for Rs. 120 , then cost of 30 fruits

$= 120/10 \times 30 =$ Rs. 360

$\Rightarrow$ Total cost of 60 fruits $=$ Rs. 280+ Rs. 360 $=$ Rs. 640

SP of 12 fruits $=$ Rs. 132

$\Rightarrow$ SP of 1 fruit $=$ Rs. 11

$\Rightarrow$ SP of 60 fruits $=$ Rs. 11 $\times$ 60 $=$ Rs. 660

Profit $=$ SP - CP $=$ Rs. 660 - Rs.640

$\Rightarrow$ Rs. 20

Profit percent $= 20/640 \times 100 = 3\frac{1}{8}$

$=$ The required profit percent $= 3\frac{1}{8}\%$

Study the following table and answer the question:

30. **Number of cars sold by dealers A, B, C, D & E during first six months of 2018.**

Month \ Dealer	January	February	March	April	May	June
A	620	640	628	635	430	625
B	600	642	635	580	450	620
C	640	635	640	540	625	740
D	520	645	722	740	600	780
E	548	638	720	740	650	800

The ratio of the total number of cars sold by dealer B in January, April and June to the total number of cars sold by dealers A and D in March is:

A   8 : 9

B   7 : 5

C   10 : 9

| D | 4 : 3 |

Solution

Total no of cars sold by dealer B in January, April and June = 600 + 580 + 620 = 1800

Total no of cars sold by dealers A and D in March = 628 + 722 = 1350

∴ The required ratio = 1800 : 1350

⇒ 4 : 3

31. **If $x + \frac{1}{x} = 4$, then the value of $x^5 + \frac{1}{x^5}$ is:**

A   776

B   736

C   **724**

D   684

Solution

$x + \frac{1}{x} = 4$

By squaring and cubing both sides

$\Rightarrow x^2 + 1/x^2 = 16 - 2 \times 1 = 14$

$\Rightarrow x^3 + 1/x^3 = 64 - 3 \times 4 = 52$

$(1) \times (2)$

$\left(x^2 + 1/x^2\right) \times \left(x^3 + 1/x^3\right) = 14 \times 52 = 728$

$\Rightarrow x^5 + 1/x + x + 1/x^5 = 728$

$\Rightarrow x^5 + 1/x^5 = 728 - 4 \quad \because \left[x + \dfrac{1}{x} = 4\right]$

$\therefore x^5 + 1/x^5 = 724$

32. **The average of 28 numbers is 77. The average of first 14 numbers is 74 and the average of last 15 numbers is 84. If the 14th number is excluded, then what is the average of remaining numbers? (correct to one decimal places)**

A 74.7

B 77

C 73.1

D 76.9

Solution

Average of 28 numbers $= 77$

Average of first 14 numbers $= 74$

Average of last 15 numbers $= 84$

Deviation on first 14 numbers $= 74 - 77 = -3 \times 14 = -42$

Deviation on last 15 numbers $= 84 - 77 = 7 \times 15 = 105$

14th number $= 77 - 42 + 105 = 140$

$\therefore$ Average of remaining 27 numbers $= (28 \times 77 - 140) \div 27 = 74.7$

33. The value of 20 ÷ 5 of 8 × [9 ÷ 6 × (6 – 3)] – (10 ÷ 2 of 20) is:

A 6

B 2

C 1

D 0

Solution

$20 \div 5$ of $8 \times [9 \div 6 \times (6 - 3)] - (10 \div 2$ of $20)$

$\Rightarrow 20 \div 5 \times 8 \times [9 \div 6 \times 3] - (10 \div 2 \times 20)$

$\Rightarrow 20 \div 40 \times [9 \times 3/6] - (10 \div 40)$

$\Rightarrow 20/40 \times 9/2 - 1/4$

$\Rightarrow 1/2 \times 9/2 - 1/4$

$\Rightarrow 9/4 - 1/4$

$\Rightarrow 8/4 = 2$

$\therefore 20 \div 5$ of $8 \times [9 \div 6 \times (6 - 3)] - (10 \div 2$ of $20) = 2$

34. To do a certain work, A and B work on alternate days with B beginning the work on the first day. A alone can complete the same work in 24 days. If the work gets completed in $11\frac{1}{3}$ days, then B alone can complete $\frac{7}{9}$ th part of the original work in:

A 4 days

B **6 days**

C $5\frac{1}{2}$ days

D $4\frac{1}{2}$ days

Solution

Let the total work be $= 1$

A alone can finish the task in 24 days

$\Rightarrow$ A's one-day work $= 1/24$

A and B complete the whole task in $= 11\frac{1}{3}$ days

A and B work on alternate days, with B beginning so, we can say B will work only 6 days

$\Rightarrow$ A will work only $11\frac{1}{3} - 6 = 5\frac{1}{3}$ days

If A's one day work $= 1/24$ of work A completes in 1 day

$\Rightarrow$ A's $5\frac{1}{3}$ days work $= 1/24 \times 5\frac{1}{3} = 1/24 \times 16/3$

$\Rightarrow 2/9$

Remaining work $= 1 - 2/9 = 7/9$

$\therefore$ B does the $7/9$ th part of the work in 6 days.

35. If $8(x + y)^3 - 27(x - y)^3 = (5y - x) \left(Ax^2 + By^2 + Cxy\right)$, then what is the value of $(A + B - C)$?

A   16

B   -26

C   -10

D   -16

Solution

$8(x + y)^3 - 27(x - y)^3 = (5y - x) \left(Ax^2 + By^2 + Cxy\right)$

$\Rightarrow 8 \left[x^3 + y^3 + 3xy(x + y)\right] - 27 \left[x^3 - y^3 - 3xy(x - y)\right] = 5Ax^2y + 5By^3 + 5Cxy^2 - Ax^3 - Bxy^2 - Cx^2y$

$\Rightarrow -19x^3 + 35y^3 + 105x^2y - 57xy^2 = -Ax^3 + 5By^3 + 5Ax^2y - Cx^2y + 5Cxy^2 - Bxy^2$

By comparing the values of A, B \& C in LHS \& RHS

$\Rightarrow -19x^3 = -Ax^3 \therefore A = 19 \Rightarrow +35y^3 = 5By^3$

$\Rightarrow 35 = 5B \therefore B = 7$

$\Rightarrow 105x^2y = 5Ax^2y - Cx^2y$

$\Rightarrow 105x^2y = x^2y(5A - C)$

$\Rightarrow 105 = 5A - C$

$\Rightarrow 105 = 5 \times 19 - C \quad [A = 19]$

$\therefore C = -10$

36. Length of each side of a rhombus is 13 cm and one of the diagonal is 24 cm. What is the area (in cm^2) of the rhombus?

A 60

B 120

C 300

D 240

Solution

Let the other diagonal of rhombus $= q$

$$13 = \left(\sqrt{24^2 + q^2}\right) \div 2$$
$$\Rightarrow 26^2 = 576 + q^2$$
$$\Rightarrow 676 - 576 = q^2$$
$$\Rightarrow q = \sqrt{100} = 10$$
$$= \text{Area} = 1/2 \times 24 \times 10 = 120 \text{ cm}^2$$

37. If $\dfrac{\cos^2 \theta}{\cot^2 \theta + \sin^2 \theta - 1} = 3, 0° < \theta < 90°$, **then the value of**
$(\tan \theta + \cosec \theta)$ **is:**

A $2\sqrt{3}$

B $\dfrac{4\sqrt{3}}{3}$

C $3\sqrt{3}$

D $\dfrac{5\sqrt{3}}{3}$

Solution

By value Putting Method
At $\theta = 30°$

$$\dfrac{\cos^2 \theta}{\cot^2 \theta + \sin^2 \theta - 1} \neq 3$$

At $\theta = 60°$

$$\dfrac{\cos^2 \theta}{\cot^2 \theta + \sin^2 \theta - 1} = 3$$

$\therefore \tan \theta + \cosec \theta = \sqrt{3} + 2/\sqrt{3}$
$\Rightarrow 5/\sqrt{3} = 5\sqrt{3}/3$

38. Let $\triangle ABC \sim \triangle PQR$ **and** $\dfrac{3r(\triangle ABC)}{3r\triangle QPR)} = \dfrac{144}{49}$ **If**

$AB = 12$ cm, $BC = 7$ cm **and** $AC = 9$ cm**, then** $PR($ **in** cm$)$ **is equal to:**

A   12

B $\dfrac{49}{12}$

C $\dfrac{108}{7}$

D $\dfrac{21}{4}$

Solution

$\text{ar}(\triangle ABC)/\text{ar}(\triangle PQR) = AC^2/PR^2$

$\Rightarrow \sqrt{144/49} = 9/PR$

$\Rightarrow 12/7 = 9/PR$

$\therefore PR = 21/4$ cm

39. In July 2018, if the sales of cars by the dealer D increases by the same percentage as in June 2018 over its previous month, then what is the number of cars sold by D in July 2018 ?

A   1020

B   975

C   959

D   **1014**

Solution

Percentage increase of sales in June 2018 over May 2018 = 30%

July sales = June sales × (100 + 30)%

⇒ 780 × 130%

⇒ 780 × 130/100 = 1014

40. A shopkeeper earns a profit of 21% after selling a book at 21% discount on the printed price. The ratio of the cost price and selling price of the book is:

A   100 : 79

B   79 : 100

C   **100 : 121**

D   121 : 100

Solution

By Ratio Method

Discount % = Discount/Printed Price

21/100 = Discount/Printed Price

Selling Price = Printed Price - Discount = 100 - 21 = 79

Profit % = Profit/Cost Price

21/100 = Profit/Cost Price

Selling Price = Profit + Cost Price

Selling Price = 21 + 100

$\Rightarrow$ Selling Price = 121

$\therefore$ Cost Price : Selling Price = 100 : 121

Study the table and answer the question

41. In the table, production and sale (in 1000 tonnes) of a certain product of a company over 5 years is given.

Years	Production (in 1000 tonnes)	Sale (in 1000 tonnes)
2015	1250	1000
2016	1400	1290
2017	1450	1100
2018	1500	1450
2019	1600	1390

In which year(s) sale is more than 90% of the production?

A 2015, 2017, 2019

B **2016, 2018**

C 2016, 2017

D 2017, 2018

Solution

Percentage of sales over production in 2015 = 1000/1250 × 100 = 80%

Percentage of sales over production in 2016 = 1290/1400 × 100 = 92.14%

Percentage of sales over production in 2017 = 1100/1450 × 100 = 75.86%

Percentage of sales over production in 2018 = 1450/1500 × 100 = 96.67%

Percentage of sales over production in 2019 = 1390/1600 × 100 = 86.875%

∴ Clearly, in 2016 and 2018 sales are more than 90% of the respective production.

42. When x is subtracted from each of 19, 28, 55 and 91, the numbers so obtained in this order are in proportion. What is the value of x ?

A 5

B 8

C 7

D 9

Solution

As per the question;
$(19 - x)/(28 - x) = (55 - x)/(91 - x)$
$\Rightarrow (19 - x) \times (91 - x) = (28 - x) \times (55 - x)$
$\Rightarrow 1729 - 19x - 91x + x^2 = 1540 - 28x - 55x + x^2$
$\Rightarrow 189 = 27x$
$\therefore x = 7$

43. A chord 21 cm long is drawn in a circle of diameter 25 cm. The perpendicular distance of the chord from the centre is:

A   √41

B   √23

C   √56

D   **√46**

Solution

Let AB be the chord of length 21 cm.

$\Rightarrow OD$ be the perpendicular distance

$\Rightarrow AO$ be the radius of the circle

$OA^2 = OD^2 + AD^2$

$\Rightarrow (25/2)^2 = OD^2 + (21/2)^2$

$\Rightarrow 625/4 = OD^2 + 441/4$

$\Rightarrow OD^2 = 625/4 - 441/4 = 184/4 = 46$

$\therefore OD = \sqrt{46}$

Study the table and answer the question

44. Table shows District-wise data of the number of primary school teachers posted in schools of a city.

District	Male teachers	Female teachers
East	1650	2375
North	1075	2651
West	1280	1520
South	1170	1085
Central	690	859

What is the ratio of the number of male teachers to the number of female teachers in the city?

A 195 : 283

B 586 : 849

C **391 : 566**

D 78 : 113

Solution

Given:

Total no of male teachers in the city = 1650 + 1075 + 1280 + 1170 + 690 = 5865

Total no of female teachers in the city = 2375 + 2651 + 1520 + 1085 + 859 = 8490

∴ Male teachers : Female teachers = 5865 : 8490

⇒ 391 : 566

45. **What is the compound interest (in Rs.) on a sum of Rs. 8192 for $1\frac{1}{4}$ years at 15% per annum, if interest is compounded $5-$ monthly ?**

A 1740

B 1735

C **1634**

D 1640

Solution

Time period $= 3(15 \text{ month } //5)$

Rate as per 5 -monthly basis $= 5/12 \times 15 = 25/4\%$

Compound Interest $= 8192 \times (1 + 25/4 \div 100)^3 -$ Principal

$\Rightarrow 8192 \times (1 + 1/16)^3 - 8192 = 8192[17/16 \times 17/16 \times 17/16 - 1]$

$\Rightarrow 8192[(4913 - 4096) \div 4096]$

$\Rightarrow 8192 \times 817/4096$

$\Rightarrow 1634$

46. **X, Y are two points in a river. Points P and Q divide the straight line XY into three equal parts. The river flows along XY and the time taken by a boat to row from X to Q and from Y to Q are in the ratio 4 : 5. The ratio of the speed of the boat downstream to that of the river current is equal to:**

A   4 : 3

B   10 : 3

C   3 : 10

D   3 : 4

Solution

Speed of the boat going downstream = (Speed of the boat + Speed of the current)

Speed of the boat going upstream = (Speed of the boat - Speed of the current)

Time = Distance/Speed

Calculation:

Let XP = PQ = QY = d

Let the speed of the boat = a km/h

Let the speed of the current = b km/h

As per the question:

$2\,d/(a+b) \div d/(a-b) = 4/5$

$\Rightarrow 2(a-b)/(a+b) = 4/5$

$\Rightarrow 14b = 6a$

$\Rightarrow a/b = 7/3$

Speed of the boat downstream $= (7+3) = 10$

Speed of the current $= 3$

$=$ The required ratio $= 10 : 3$

Speed of the current $= 3$

$\therefore$ The required ratio $= 10 : 3$

47. $\frac{\csc\theta}{\csc\theta-1} + \frac{\csc\theta}{\csc\theta+1} - \tan^2\theta, 0° < \theta < 90°$ **is equal to:**

A $1 - \tan^2\theta$

B $\sec^2\theta$

C $2\sec^2\theta$

D $\sec^2\theta + 1$

Solution

$\frac{\csc\theta}{\csc\theta-1} + \frac{\csc\theta}{\csc\theta+1} - \tan^2\theta$

$\Rightarrow [\csc\theta \times (\csc\theta + 1) + \csc\theta$

$\times (\csc\theta - 1)] \left((\csc\theta - 1)(\csc\theta + 1) - \tan^2\theta\right)$

$\Rightarrow [\csc\theta \times (\csc\theta + 1) + \csc\theta \times (\csc\theta - 1)]/ \left(\csc^2\theta - 1\right)$

$- \tan^2\theta$

$\Rightarrow \csc\theta[\csc\theta + 1 + \csc\theta - 1]/ \left(\csc^2\theta - 1\right) - \tan^2\theta$

$\Rightarrow 2\csc^2\theta/ \cot^2\theta - \tan^2\theta$

$\Rightarrow 2\sin^2\theta/ \cos^2\theta \times \sin^2\theta - \tan^2\theta$

$\Rightarrow 2\sec^2\theta - \tan^2\theta$

$\Rightarrow \sec^2\theta + \sec^2\theta - \tan^2\theta$

$\Rightarrow \sec^2\theta + 1$

$=$ The required result $= \sec^2\theta + 1$

48. **Find the value of cot 25°cot 35°cot 45°cot 55°cot 65°.**

A   1

B $\frac{\sqrt{3}}{2}$

C $\sqrt{3}$

D $\frac{1}{\sqrt{3}}$

Solution

$\cot 25^\circ \ \cot 35^\circ \ \cot 45^\circ \ \cot 55^\circ \ \cot 65^\circ$

$\Rightarrow \cot 25^\circ \times \cot 35^\circ \times \cot 45^\circ \times \cot(90^\circ - 25^\circ) \times \cot(90^\circ - 35^\circ)$
    $[\tan 45^\circ = 1]$

$\Rightarrow 1 \times 1 \times 1 = 1$

$=$ The required result is 1

49. The income of A is 45% more than the income of B and the income of C is 60% less than the sum of the incomes of A and B. The income of D is 20% more than that of C. If the difference between the incomes of B and D is Rs. 13200, then the income (in Rs.) of C is:

A 72000

B 75000

C **73500**

D 72500

Solution

Let the income of B = 100

⇒ Income of A = 100 × 145/100 = 145

Income of C = (100 + 145) × 40/100 = 98

Income of D = 98 × 120/100 = 117.6

The difference between income of D and B = 117.6 - 100 = 17.6

⇒ 17.6 = Rs.13200

∴ Income of C = 13200 × 98/17.6 = Rs.73500

50. Sides AB and DC of a cyclic quadrilateral ABCD are produced to meet at E and sides AD and BC are produced to meet at F. If ∠ADC = 78° and ∠BEC = 52°, then the measure of ∠AFB is:

A. 30°

B. **28°**

C. 26°

D. 32°

Solution

$\angle ADC + \angle ABC = 180°$

$\Rightarrow \angle ABC = 180° - 78° = 102°$

$\angle EBC = 180° - 102° = 78°$ [Linear Pair]

In triangle BEC

$\angle BEC + \angle EBC + \angle BCE = 180°$

$52° + 78° + \angle BCE = 180°$

$\Rightarrow \angle BCE = 180° - 130° = 50°$

$\angle ADE + \angle FDC = 180°$ [Linear Pair]

$\Rightarrow \angle EDF = 180° - \angle ADC = 180° - 78° = 102°$

In triangle DCF

$\angle D + \angle C + \angle F = 180°$

$102 + 50 + \angle F = 180°$

$\therefore \angle F = 180° - 152° = 28°$

Directions: Select the option that expresses the given sentence in passive voice.

51. **The invigilator is advising the students not to carry calculators into the examination hall.**

A

The students are being advised by the invigilator not to carry calculators into the examination hall.

B

The students have been advised not to carry calculators into the examination hall by the invigilator.

C

The students were advised not to carry calculators into the examination hall

D

The students were advised the invigilator not to carry calculators into the examination hall.

Solution

- In Active Voice, a sentence emphasizes the subject, performing an action.
- In Passive Voice, a sentence emphasizes the action or the object of the sentence.
- The given sentence is in the active voice and it is in the present continuous tense.

- When we convert this sentence into passive voice, the subject 'The invigilator' of the active voice becomes the object, the object 'the students' becomes the subject.

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

52. **India is formally moving ahead to .... 21 MIG-29 and 12 Sukhoi-30MKI fighters from Russia along with upgrades of their existing fleets.**

A   accomplish

B   achieve

C   advance

D   **procure**

Solution

- The given sentence is saying something about India's attempt for 21 MIG-29 and 12 Sukhoi-30MKI fighters from Russia. (रूस से 21 MIG-29 और 12 सुखोई-30MKI लड़ाकू विमानों के लिए भारत का प्रयास)
- Procure means to obtain something, especially with care or effort. (कुछ प्राप्त करना विशेषतः प्रयास या कठिनाई से)
- Example: She managed to procure a ticket for the concert.

Directions: Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the right order to form a meaningful and coherent paragraph.

53. **A. But the eagle, in wrath, gave the beetle a flap of his wing, and straightaway seized upon the hare and devoured him.**

B. The beetle, therefore, interceded with the eagle, begging of him not to kill the poor suppliant, and pleaded with him not to kill so small an animal.

C. When the eagle flew away, the beetle flew after him, to learn where his nest was.

D. A hare, being pursued by an eagle, took himself for refuge to the nest of a beetle, whom he begged to save him.

A	ACDB

B	DCAB

C	CBAD

D	**DBAC**

Solution

- The sentence 'D' is independent of any other sentence as it is giving general information about "a hare". Hence, 'D' is the first part.

- Sentence B will come after D because it explains how the beetle requested or pleaded with the eagle to not kill the hare.
- Sentence A will come after B because it explains whether the eagle killed the hare or not.

54. **Select the most appropriate meaning of the given idiom.**

Bang for the buck

A   A sorrowful heart

B   **More value for money**

C   Dash against something

D   Less value for money

Solution

- Given Idiom Bang for the buck means more value for money.

- Example : How much bang for the buck did you really think you would get from a twelve-year-old bike at any price?

- So, Option "B" is the correct answer.

Directions: Select the option that expresses the given sentence in indirect speech.

55. **"Everything is going to be alright," said the doctor.**

A   The doctor said that everything are going to be alright.

B   The doctor said that everything will be alright.

C   **The doctor said that everything was going to be alright.**

D   The doctor said that everything is going to be alright.

Solution

- The given sentence is a direct speech.
- The basic rules for changing or converting direct speech into indirect speech:
- The commas, inverted commas are removed, and 'that' is added.
- The present continuous tense format 'Subject + is + V1 (go) + ing + Object' will be changed into the past continuous tense format 'Subject + was + V1 (go) + ing + Object'.

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

56. **Generic**

A Specific

B Definite

C **Universal**

D Precise

Solution

- The synonyms of the word 'Generic' are "universal, global, common".
- The antonyms of the word 'Generic' are "particular, specific, inividual".

Directions: Select the most appropriate meaning of the given idiom.

57. **Raise the bar**

A · To grow taller

B · **To set higher goals**

C · To win a competition

D · To raise the price

Solution

- Given Idiom: Raise the bar means to set higher rules or goals. (उच्च लक्ष्य निर्धारित करना)
- Example: Celebrate what you've accomplished, but raise the bar a little higher each time you succeed.
- From the given options, the second option is the most appropriate meaning of the given idiom.

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

58. **A herd or flock of animals being driven in a body-**

A   Crowd

B   Cluster

C   Throng

D   **Drove**

Solution

- 'Drove' means a herd or flock of animals being driven in a body.
  (जानवरों का झुंड या समूह)
- For example - Vikas was wounded in his left leg, but escaped behind a drove of cattle near the timber.

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

59. **Regime**

A Country

B **Rule**

C Territory

D Space

Solution

'Rule' means a statement that tells you what is allowed or what will happen within a particular system. (एक बयान जो आपको बताता है कि किसी विशेष प्रणाली के भीतर क्या अनुमति है या क्या होगा)

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

60. **The toy drummer *plays the drum if you press* the button at the back.**

A   will play the drum if you will press

B   playing the drum if you pressed

C   played the drum if you are pressing

D   **No substitution**

Solution

- In the underlined segment of the sentence, no correction is required.
- The use of the third-person present singular form of the verb 'plays' with the common noun 'toy drummer' is correct.
- The use of the definite article 'the' is correctly used before the specific or known noun 'drum'.
- The specific or known noun 'drum' is discussed earlier in "the toy drummer".

61. **Directions: Select the INCORRECTLY spelt word.**

A Unmanageable

B Wildernesses

C **Voilence**

D Exterminated

Solution

- Voilence: There is no such word in English or we can say that there is some spelling mistake in this word.
- The correct spelling is 'Violence' and it means behavior that harms or damages somebody or something physically. (किसी व्यक्ति या वस्तु को भौतिक रूप से हानि पहुँचाने वाला आचरण; हिंसा)

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

62. **Gradual**

A. **Abrupt**

B. Slow

C. Regular

D. Gentle

Solution

The given word 'Gradual' means happening slowly or over a long period of time; not sudden. (मंद गति से लंबी कालावधि में संपन्न; एकाएक नहीं)

Directions: Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the right order to form a meaningful and coherent paragraph.

63. **A. When we got near, we saw it was the steam rising from hot springs.**

    B. We saw in the distance a great column of smoke.

    C. We wondered if it came from a chimney or a burning house.

    D. We thought of taking a bath in the hot water.

A   BCDA

B   ABCD

C   **BCAD**

D   ACDB

Solution

- The sentence 'B' is independent of any other sentence as it is giving general information about "a great column of smoke". Hence, 'B' is the first part.

- Sentence C will come after B because it explains the possible source of the smoke.

- Sentence A will come after C because it explains whether the steam was coming from a burning house or from somewhere else.
- The sentence 'D' is the concluding part because it explains what those people have finally decided to do.

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

64. **Work and domestic .... made Kajal short-tempered.**

A pressures

B weights

C gravities

D forces

Solution

- The given sentence is saying something about the angry behavior of Kajal. (दिया गया वाक्य काजल के गुस्से भरे व्यवहार के बारे में कुछ कह रहा है)
- Pressures mean worries or difficulties that you have because you have too much to deal with; stress. (तनाव, दबाव, परेशानी)
- Example: The economic pressures on small businesses are intense.

65. Directions: Select the INCORRECTLY spelt word.

A   **Pieceful**

B   Creature

C   Specified

D   Decrease

Solution

- Pieceful: There is no such word in English or we can say that there is some spelling mistake in this word.
- The correct spelling is 'Peaceful' and it means calm and quiet. (शांत और नीरव)

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

66. **Seize**

A | Grab

B | Catch

C | Snatch

D | **Loosen**

Solution

- The given word 'Seize' means to take hold of something suddenly and firmly; to grab something. (किसी वस्तु को एकाएक और कसकर पकड़ लेना; झपट लेना)
- Grab, grasp, snatch etc are the synonyms of seize.
- Loosen : make (something tied, fastened, or fixed in place) less tight or firm.

Directions: 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.

67. You must avoid riding in a crowded bus / or traveling in a metro / during rush hour / as both are quiet unpleasant experiences.

A   as both are quiet unpleasant experiences

B   during rush hour

C   or travelling in a metro

D   You must avoid riding in a crowded bus

Solution

- In the given sentence, the use of the adjective 'quiet' is incorrect.
- The adjective 'quiet' means very little or no noise.
- To modify or describe the adjective 'unpleasant', the adverb 'quite' should be used in place of the adjective 'quiet'.
- The adverb 'quiet' means to a certain degree.

Directions: The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

68. **Had you / not reached in time, / we will have / lost our lives.**

A   Had you

B   lost our lives

C   not reached in time

D   **we will have**

Solution

- In the given sentence, the use of the simple future tense "will have" is incorrect.
- The given sentence is the third conditional sentence explaining that present circumstances would be different if something different had happened in the past.
- The third conditional sentence format: past perfect, modal auxiliary (would, could, should, etc.) + have + past participle.

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

69. While washing your hands, rub them together for 20 seconds to remove the microbes on them.

A   the microbes on their

B   the microbes on those

C   the microbes on they

D   **No substitution**

Solution

- In the underlined segment of the sentence, no correction is required.
- The use of the definite article 'the' is correctly used before the specific or known noun 'microbes'.
- Microbes are tiny living things that are found all around us and are too small to be seen by the naked eye.
- The use of the preposition 'on' is correctly used as it means in a place or position.

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

70. **A group of three novels or plays, each complete in itself**

A Triplet

B Trivet

C Triumvir

D **Trilogy**

Solution

- 'Trilogy' means a group of three novels, plays, etc. that form a set. (तीन संबंधित उपन्यासों, नाटकों आदि का सेट - उपन्यास-त्रयी, नाटक-त्रयी आदि)
- For example - It's astounding to think this first film in the original trilogy was released 37 years ago.

71.

Directions: 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.

What every tourist must take back from Bhutan is pure honey, especially Putka, "Antibiotic" honey produced *(1)* Melipona Bees (stingless bees) a breed found in protected areas *(2)* 700 to 1,500 meters above sea level. Due *(3)* their small size, they can get larger nutrients *(4)* regular honeybees. It has a tangy/sour taste and can *(5)* your sore throat in a matter of minutes.

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

A   midst

B   after

C   **between**

D   among

Solution

The given sentence "a breed found in protected areas *(2)* 700 to 1,500 meters above sea level." is telling something about where the breeds of the Melipona Bees are found.

B. **Select the most appropriate option to fill in blank number 3.**

A	for

B	at

C	**to**

D	of

Solution

The given sentence "Due *(3)* their small size, they can get larger nutrients" is telling something about the benefits of the small size of the bees.

C. **Select the most appropriate option to fill in blank number 4.**

A	then

B	**than**

C	though

D	and

Solution

The given sentence "Due to their small size, they can get larger nutrients *(4)* regular honeybees." is telling something about the comparison between small bees and regular bees.

D. **Select the most appropriate option to fill in blank number 5**

A	pacify

B	appease

C	**soothe**

D	calm

Solution

- The given sentence "It has a tangy/sour taste and can *(5)* your sore throat in a matter of minutes." is indicating the benefits of the Putka honey.
- The use of the word 'sore' in the sentence indicates pain or aching.

E. **Select the most appropriate option to fill in blank number 1.**

A   of

B   through

C   **by**

D   with

Solution

The given sentence "Antibiotic honey produced *(1)* Melipona Bees (stingless bees)" is telling something about the production of the Antibiotic honey - Putka.

72. **Select the option that is related to the third number in the same way as the second number is related to the first number.**

12 : 60 :: 16 : ?

A   210

B   **112**

C   121

D   201

Solution

The pattern is as follows:

12 × 5 (direct multiply by a prime number) = 60

Similarly,

16 × 7 (direct multiply by a prime number) = 112

Hence, option B is the correct answer.

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

Depression : Mood :: Insomnia : ?

A **Sleep**

B Night

C Thinking

D Dreams

Solution

Depression is a group of conditions associated with lowering or elevation of a person's mood. Likewise, Insomnia is a common disorder of sleep.

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

4	7	6
15	?	21
44	68	60

A 19

B 20

C 18

D **24**

Solution

The pattern is as follows:

1st Column:

$15 - 4 = 11 \times 4 = 44$

3rd Column:

$21 - 6 = 15 \times 4 = 60$

Similarly,

2nd Column:

$24 - 7 = 17 \times 4 = 68$

Hence, option D is the correct answer.

75. **Select the Venn diagram that best illustrates the relationship among the following classes.**

   Women, Researchers, Introverts

A

B

C

D
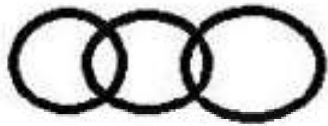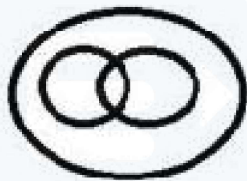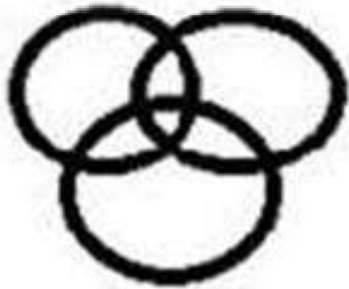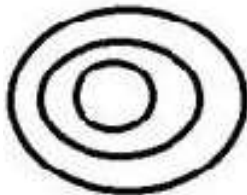
Solution

Here the Venn-diagram given in option (C) best illustrates the relationship among the given classes as shown below; Women can be introverts and researchers.

76. **A cube is made by folding the given sheet. In the cube so formed, what would be the symbol of the opposite side of the '#' symbol?**

A   +

B   %

C   &

D $
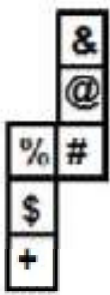
Solution

Here the coloured lines indicate the opposite faces as;
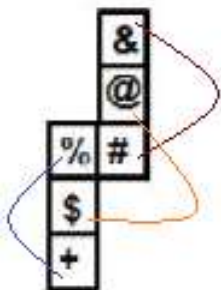
Thus, '&' is on the opposite side of '#'.

Hence, option C is the correct answer.

77. **Select the option figure that is embedded in the given (rotation is NOT allowed).**
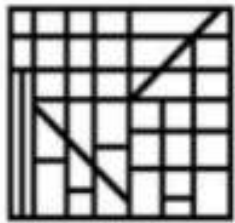
A
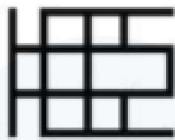
B

C
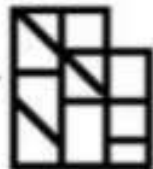
D
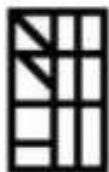
Solution

The figure given in option (A) is perfectly embedded in the given figure as shown below:
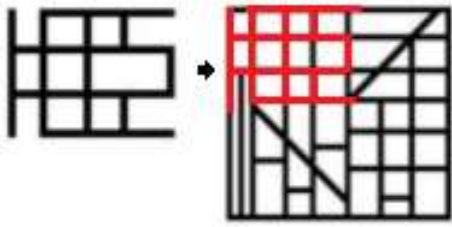
Hence, option A is the correct answer.

78. Select the correct mirror image of the given combination when the mirror is placed at 'PQ' as shown.

$$M y 7 O Q F j \Big|_{Q}^{P}$$

A ¡ꟼϘΟᒣ𝛾M

B Wλꓘϭϭꓱ¡

C ¡ꟼϘΟᒣ𝛾M

D WλꓘΟϭꓱ¡

Solution

The correct mirror image of the given combination is in option (A) as shown below:

$$M y 7 O Q F j \Big|_{Q}^{P} ¡ꟼϘΟᒣ𝛾M$$

Hence, option A is the correct answer.

79. **How many triangles are there in the given figure?**

A   **11**

B   13

C   10

D   12

Solution

After we label the given diagram;
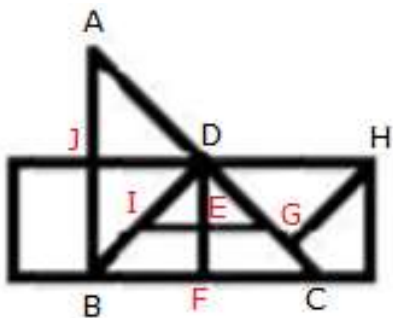
We get the triangles thus formed; AJD, BJD, ADB, DBC, DBF, DCF, DIG, DIE, DEG, DGH, ABC.

Thus, there are total 11 triangles.

Hence, option A is the correct answer.

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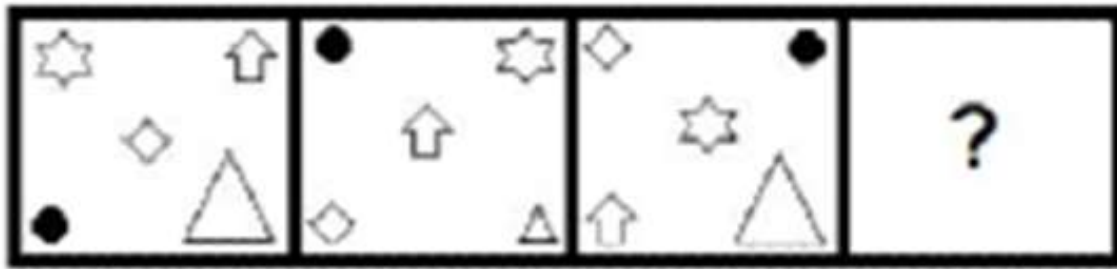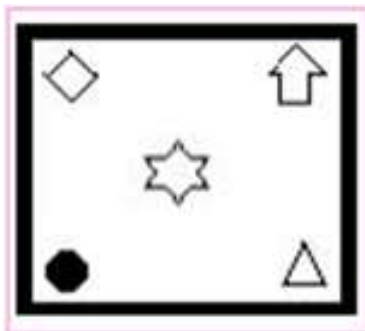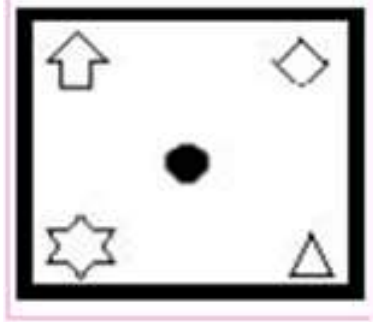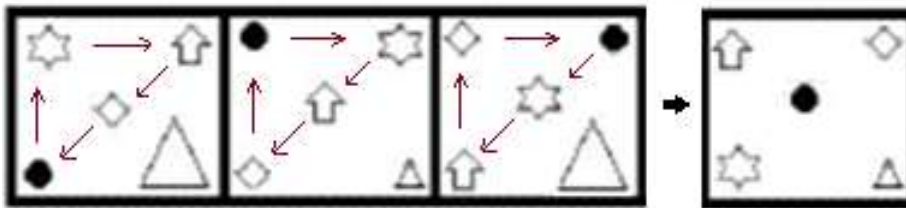

A
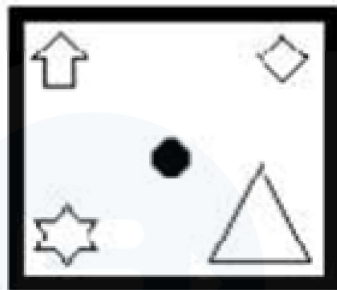
B
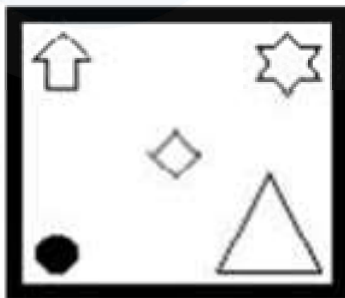
C

D

Solution

Logic: the following elements are moving as per the orientation shown below also, the triangle on the bottom right corner becomes larger and then smaller in size in subsequent step;

Hence, option D is the correct answer.

81. **In a certain code language, 'PERMIT' is written as 'VVLNOG'. How will 'INERTIA' be written in that language.**

A) OHYXZCU

B) XOYHCZU

C) **OMYIZRU**

D) XYOHBCU

Solution

The pattern is as follows: for odd place = +6, -6, +6...so on

For even place = sum = 27

P	E	R	M	I	T
16	5	18	13	9	20
16+6 =22	5+22 = 27	18−6 =12	13+14 = 27	9+6 =15	20+7 =27
V	V	L	N	O	G

Similarly,

I	N	E	R	T	I	A
9	14	31	18	20	9	27
9+6 = 15	14+13 = 27	31-6 = 25	18+9 = 27	20+6 = 26	9+18 = 27	27-6 = 21
O	M	Y	I	Z	R	U

Thus, INERTIA is written as OMYIZRU

Hence, option C is the correct answer

82. **P, L, T, B, N and D are six members of a business family. N is the son of B, who is not the mother of N. L is the brother of B . D and B are the married couple. T is the daughter of D, who is sister of P. How is N related to T?**

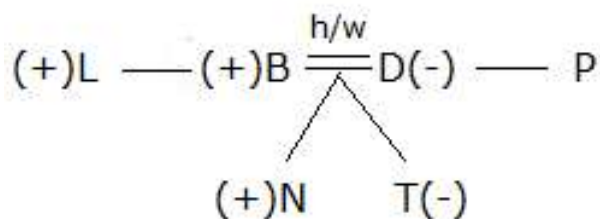**A**   Sister

B   Mother

C   Father

D   **Brother**

Solution

As per the given information;

$$(+)L \longrightarrow (+)B \overset{h/w}{=\!=\!=} D(-) \longrightarrow P$$
$$(+)N \qquad T(-)$$

Clearly, N is the brother of T.

Hence, option D is the correct answer.

83. **Four words have been given, out of which three are alike in some manner and one is different. Select the word that is different.**

A Memory

B **Weight**

C Intelligence

D Aptitude

Solution

Here the word 'weight' is different from the rest three. The meaning of Memory, Intelligence and Aptitude is the ability to understand, think and learn.

Hence, option B is the correct answer.

84. **Select the number from the given options that can replace the question mark (?) in the following series.**
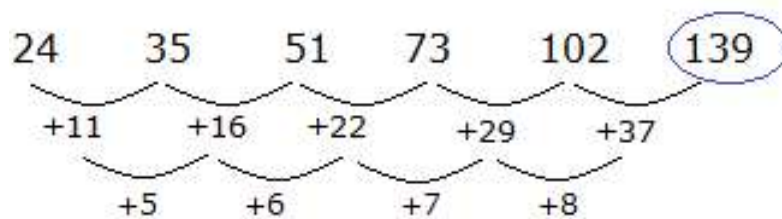
24, 35, 51, 73, 102, ?

A   **139**

B   151

C   149

D   131

Solution

The pattern is as follows;

24   35   51   73   102   139

+11   +16   +22   +29   +37

+5   +6   +7   +8

Hence, option A is the correct answer.

85. **Out of the total number of players, 100/3% are in hotel X and the remaining are in hotel Y. If 20 players from hotel Y are shifted to hotel X, then the number of players in hotel X becomes 50% of the total number of players. If 20 players from hotel X are shifted to hotel Y, then the number of players in hotel X becomes what per cent of the total number of players?**

A   26.34%

B   12.75%

C   20.67%

D   **16.67%**

Solution

As per the given information;

Let total players = P

players in Hotel X = 100/3% of P = P/3

Players in Hotel Y = P - P/3 = 2P/3

A.T.Q

P/3 + 20 = 50/100 × p

=> P/3 + 20 = P/2

=> P/2 - P/3 = 20

=> P/6 = 20

=> P = 20 × 6

=> P = 120

Now, if 20 players from hotel X are shifted to hotel Y, then the number of players in hotel X becomes (P/3 - 20) = 120/3 - 20 = 40 - 20 = 20

And the number of players in hotel X becomes what percent of the total number of players.

20/120 × 100 = 16.67%

Hence, option D is the correct answer.

86. **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   14 : 210

B   18 : 342

C   **17 : 307**

D   12 : 156

Solution

The three number pairs are following the same pattern as shown below: 14 : 210 => 14 × 15 =210

18 : 342 => 18 × 19 = 342

12 : 156 => 12 × 13 = 156

But, 17 : 307 => 17 × 18 = 306 ≠ 307 Hence, option C is the correct answer.

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

All polygons are angles.

All angles are diagonals.

All cones are cubes.

All cubes are decagons.

Conclusions:

I. Some diagonals are polygons.

II. All diagonals are decagons.

III. No polygons is a cone.

IV. Some cubes are angles.

A	Both conclusions II and IV follow

B	Only conclusions I follow

C	Both conclusions I and II follow

D	**Both conclusions I and III follow**

Solution

The least possible Venn-diagram will be:
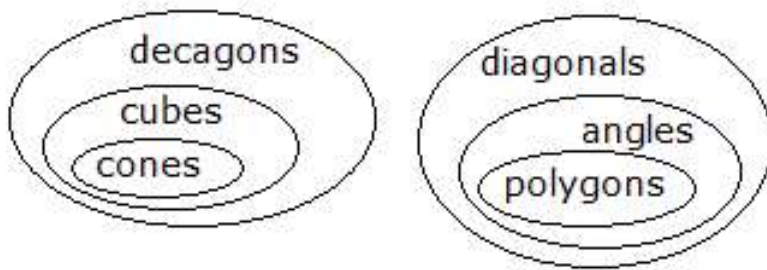
Conclusions:

I. Some diagonals are polygons – It is a definite case, hence true.

II. All diagonals are decagons – It is not a definite case, hence false.

III. No polygons is a cone - It is a definite case, hence true.

IV. Some cubes are angles - It is not a definite case, hence false.

Thus only I and III follow.

Hence, option D is the correct answer.

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

Horse : Neigh

A   Parrots : Bray

B   Pigs : Buzz

C   Hares : Boom

D   **Duck : Quack**

Solution

The sound that a horse makes is called neigh. Likewise, the sound that a duck makes is called Quack.

Hence, option D is the correct answer.

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

L *UA* Z *N* AP *L* U _ PZ

A   N, P, L, U, Z, N, A

B   N, L, P, A, N, U, Z

C   P, N, L, Z, U, A, N

D   P, L, U, Z, N, A, N

Solution

The set of letters 'LNUAPZ' is repeating. The series is: L N UA P Z/ L N U AP Z/ L N U A PZ Thus the combination of letters will be 'N, P, L, U, Z, N, A'

Hence, option A is the correct answer.

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

   PNNA, RPPE, TRRI, VTTO, ?
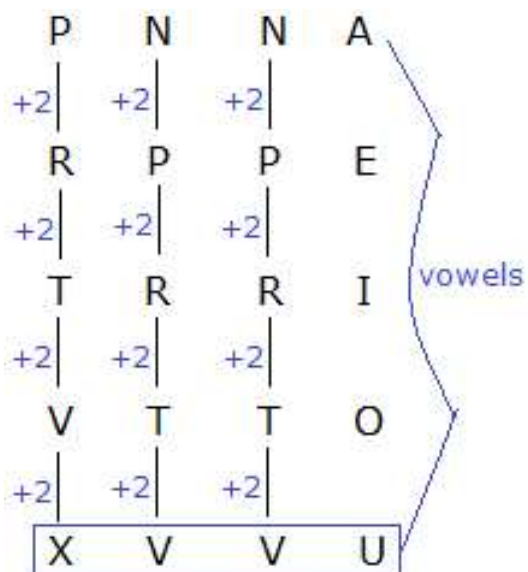
A YUUV

B XWWU

C YVVU

D **XVVU**

Solution

The pattern is as follows:

Hence, option D is the correct answer.

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

(25, 18, 225)

A   (15, 34, 190)

B   **(24, 22, 264)**

C   (9, 16, 170)

D   (17, 15, 220)

Solution

The given set (25, 18, 225) is related as;

$\frac{25 \times 18}{2}=225$

Similar pattern is followed by set (24, 22, 264) as;

$\frac{24 \times 22}{2}=264$

Hence, option B is the correct answer.

92. In a certain code language, 'AROUND' is coded as '52182412144' and 'FIX' is coded s '63624'. How will 'PLASTIC' be coded as that language?

A **1612521920363**

B 1612261920183

C 1612522021363

D 1812521920383

Solution

The pattern is as follows: Consonants are coded as per the place value of the respective letter only.

The vowels are coded as shown below;

A	E	I	O	U
Z	V	R	L	F
26	22	18	12	6
×2	×2	×2	×2	×2
=52	=44	=36	=24	=12

Now,

A	R	O	U	N	D
52	18	24	12	14	4

Similarly, FIX is coded as 63624

93. **Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the letter-cluster that is different.**

A   CYUQ

B   TPLH

C   **NJFA**

D   FBXT

Solution

Except for letter cluster 'NJFA' in which the pattern is (-4, -4, -5) the difference between the place value of the successive letter, the rest three letter cluster follows the same pattern as (-4, -4, -4) the difference between the place value of the successive letter.

Hence, option C is the correct answer.

94. Select the correct combination of mathematical signs that can sequentially replace the * signs and balance the given equation.

42 *7* 64 *11* 6 * 4

A   ×, +, -, ÷, =

B   ×, -, +, ÷, =

C   ÷, +, -, ×, =

D   ÷, -, +, ×, =

Solution

After checking all the options we find that the signs given in option (C) will balance the equation as;

$42 \div 7 + 64 - 11 \times 6 = 4$

On solving L.H.S we get;

$= 42 \div 7 + 64 - 11 \times 6$

$= 6 + 64 - 11 \times 6$

$= 6 + 64 - 66$

$= 6 - 2 \Rightarrow 4$

= R.H.S

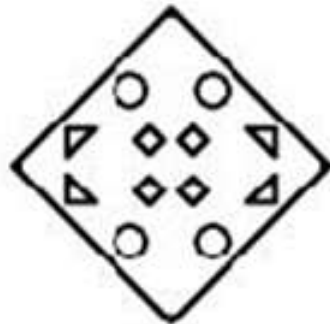Hence, option C is the correct answer.

95. 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?
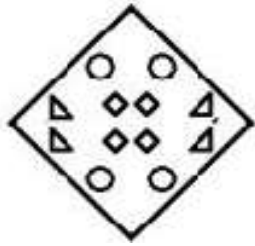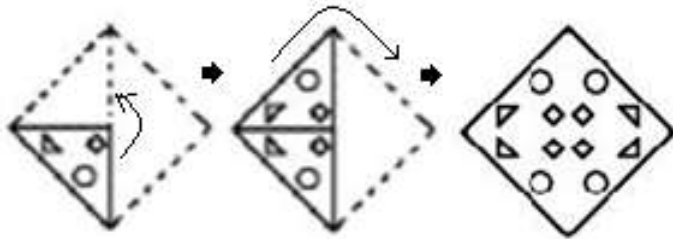

A
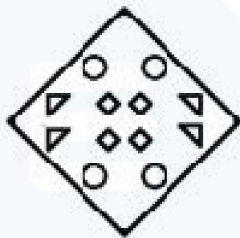
B

C

(D)

Solution

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

Hence, option B is the correct answer.

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

1. **Freeze**

2. **Freedom**

3. **Fryer**

4. **Frozen**

5. **Fraud**

6. **Fringe**

A **5, 2, 1, 6, 4, 3**

B 5, 1, 2, 6, 4, 3

C 5, 2, 1, 6, 3, 4

D 5, 6, 2, 1, 4, 3

Solution

Here the first two letters 'Fr' are fixed and rest are further arranged as per Alphabetical order as shown below:

1. (Fr)aud

2. (Fr)eedom

3. (Fr)eeze

4. (Fr)inge

5. (Fr)ozen

6. (Fr)yer

Hence, option A is the correct answer.

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