

1. 10 वर्ष पहले, किसी पिता की आयु अपने पुत्र की आयु से $3\frac{1}{2}$ गुणा अधिक थी और अब से 10 वर्ष के बाद, पिता की आयु अपने पुत्र की आयु से $2\frac{1}{4}$ गुणा अधिक होगी। वर्तमान में पिता और पुत्र की कुल आयु का योग कितना है?

- A. 120 वर्ष
- B. 115 वर्ष
- C. 110 वर्ष
- D. 100 वर्ष

Answer ||| C

Solution |||

Suppose the present age of father is F and son is S.

ATQ-

10 years ago,

$$F - 10 = \frac{6}{2} (S - 10)$$

$$2F - 20 = 6S - 60$$

$$-20 + 60 = 6S - 2F$$

$$6S - 2F = 40 \quad \text{--- (eq.i)}$$

10 years from now,

$$F + 10 = \frac{9}{4} (S + 10)$$

$$4F + 40 = 9S + 90$$

$$4F - 9S = 90 - 40$$

$$4F - 9S = 50 \quad \text{--- (eq.ii)}$$

On solving both the equations-

We get, S = 30 & F = 80

Sum of their present ages - 80 + 30 = 110 years

Hence, option (c) is correct.

2. एक ही पासे की दो भिन्न स्थितियों को दर्शाया गया है। यदि संख्या 6 निचले फलक पर है तो ऊपरी फलक पर कौन-सी संख्या होगी?



- A. 4
- B. 1
- C. 2

D. 3

Answer ||| D

Solution |||

Moving in the clockwise direction,

Cube 1- 3 1 5

Cube 2- 3 4 2

Clearly, 6 will be opposite to 3

Hence, option (D) is correct.

3. उस समुच्चय का चयन कीजिए जिसमें संख्याएँ उसी तरह आपस में संबंधित हैं जिस प्रकार संख्याएँ नीचे दिए गए समुच्चय में आपस में संबंधित हैं ।

(10, 18, 38)

A. (4, 12, 22)

B. (14, 12, 8)

C. (12, 22, 46)

D. (18, 6, 14)

Answer ||| C

Solution |||

$$10 \times 2 - 2 = 20 - 2 = 18$$

$$18 \times 2 + 2 = 36 + 2 = 38$$

Similarly, the option(c) is related to above number set in this manner.

$$12 \times 2 - 2 = 24 - 2 = 22$$

$$22 \times 2 + 2 = 44 + 2 = 46$$

Hence, the correct option is (c) - (12, 22, 46)

4. निम्नलिखित चार संख्याओं में से तीन संख्याएँ किसी प्रकार एकसमान हैं और एक संख्या असमान है । उस असमान संख्या का चयन कीजिए ।

A. 12

B. 14

C. 30

D. 56

Answer ||| B

Solution |||

All except 14 are the multiple of only one prime number.

Hence, (b) is correct response.

5. जिस प्रकार 'क्रिया' का संबंध 'प्रतिक्रिया' से है उसी प्रकार 'उकसाना' _____ से संबंधित है।

- A. दूरदृष्टि
- B. प्रतिपुष्टि
- C. अनुक्रिया
- D. स्वागत

Answer ||| C

Solution |||

Deed - reaction

Response - inciting

Hence, option (C) is correct

6. उस विकल्प का चयन कीजिए जो तीसरे अक्षर-समूह से उसी प्रकार संबंधित है जिस प्रकार दूसरा अक्षर-समूह पहले अक्षर समूह से संबंधित है।

BECD : YVXW :: DGEF : ?

- A. WUTV
- B. WTVU
- C. VRTS
- D. XUWV

Answer ||| B

Solution |||

The first and second set of letters are the pairs of the opposite letter.

BECD : YVXW

Similarly,

DGEF : WTVU

Hence, option (b) is correct.

7. दिए गए विकल्पों में से उस शब्द युग्म का चयन कीजिए जिसके दोनों शब्द आपस में उसी प्रकार संबंधित हैं जिस प्रकार नीचे लिखे गए शब्द युग्म के शब्द आपस में संबंधित हैं।

ऊष्मा : सूर्य

- A. घर : छत
- B. विटामिन : फल
- C. वातावरण : आर्द्रता

D. सवारी : कार

Answer ||| B

Solution |||

Sun is the source of heat.

Likewise, fruit is the source of vitamin.

Therefore, the correct response is option (b)

8. यदि BACK को 11312 के रूप में और CAKE को 51113 के रूप में कूटबद्ध किया जाता है | तो MADE को किस रूप में कूटबद्ध किया जाएगा?

A. 13145

B. 54113

C. 51413

D. 31145

Answer ||| B

Solution |||

The code is given after reversing the letter of the word.

The reverse order of back is kcab

Place value of k - 11

Place value of c - 3

Place value of a - 1

Place value of b- 2

Kcab- 11312

Similarly, the reverse order of MADE is EDAM and it will be coded as 54113

Hence, option (b) is correct

9. नीचे दिए गए समीकरण को सही करने के लिए किन दो चिन्हों को आपस में बदला जाना चाहिए

$$18 + 6 - 6 \div 3 \times 3 = 6$$

A. + और ÷

B. + और ×

C. - और ÷

D. + और -

Answer ||| A

Solution |||

According to the question,

If we interchange the + and ÷ sign the above equation become correct.

$$18 \div 6 - 6 + 3 \times 3 \text{ (applying BODMAS)}$$

$$= 3 - 6 + 9 \Rightarrow 12 - 6 \Rightarrow 6$$

So, the correct answer is option (a)

10. निम्नलिखित चार शब्दों में से तीन शब्द किसी प्रकार से एक समान हैं और एक शब्द असमान है। असमान शब्द का चयन कीजिए।

- A. प्रवृत्ति
- B. धीरज
- C. स्थिरता
- D. दृढ़ता

Answer ||| A

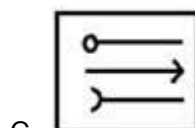
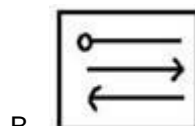
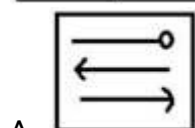
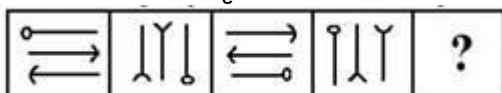
Solution |||

Tendency relates to the ability of a person to do something.

While endurance, stability and persistence means the state of being stable.

Hence, the odd word is (a) tendency.

11. निम्नलिखित आकृति श्रृंखला में आने वाली अगली आकृति का चयन कीजिए।



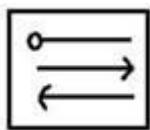
Answer ||| B

Solution |||

The figure first moves in anti-clockwise direction and then its mirror image shown in the next figure with the outward arrows.

In next figure the pattern is same but arrow sign changes to inward.

Therefore, according to the above pattern-



Option (b) is the correct sequence.

12. नीचे दी गई श्रृंखला में प्रश्न चिन्ह (?) के स्थान पर कौन-सी संख्या आएगी?

2, 5, 11, 23, 44, ?

A. 77

B. 63

C. 51

D. 66

Answer ||| A

Solution |||

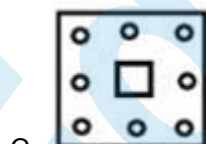
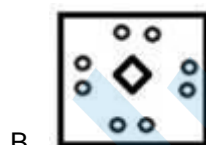
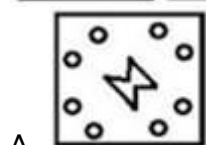
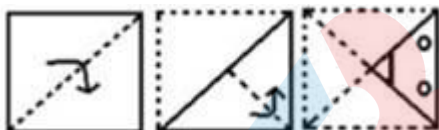
2 5 11 23 44 ? -- 77

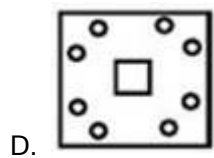
+3 +6 +12 +21 +33

+3 +6 +9 +12

Hence, the correct option is (a).

13. एक कागज को मोड़ा गया और नीचे दर्शाए गए अनुसार काटा गया है। इसे खोलने पर यह कैसा दिखाई देगा?





Answer ||| D

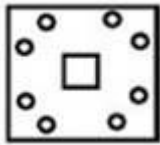
Solution |||

The paper will open in 2 steps:-

Step-1

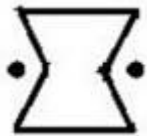


Step-2



Hence, the correct option is (d)

14. उस विकल्प का चयन कीजिए जिसमें दी गई आकृति छिपी हुई है।



A.



B.



C.



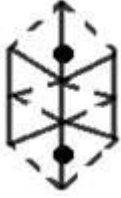
D.



Answer ||| D

Solution |||

On observing the options we can see that the figure given under option (D) is indeed embedded in the original figure. It has been represented below,



Option (d) is the correct answer.

15. निम्नलिखित शब्दों को एक तार्किक एवं अर्थपूर्ण क्रम में व्यवस्थित कीजिए ।

- 1) दवा
 - 2) रोग की पहचान
 - 3) परामर्श
 - 4) बीमारी
 - 5) स्वास्थ्य लाभ
 - 6) डॉक्टर
- A. 4, 6, 3, 2, 1, 5
B. 2, 6, 4, 1, 3, 5
C. 4, 6, 2, 3, 1, 5
D. 4, 6, 1, 3, 2, 5

Answer ||| C

Solution |||

We know that disease occurs first and then we go to the doctor. Thus the correct order is -

4. Disease
6. Doctor
2. Disease identification
3. Consultation
1. Medicine
5. Health benefits

Hence, the answer is (c)

16. उस अक्षर संयोजन का चयन कीजिए जिसे नीचे दी गई अक्षर श्रृंखला के रिक्त स्थानों पर क्रमानुसार रखने से दी गई श्रृंखला पूर्ण हो जाए ।

ac_d_b_cbdd_a_bddb

- A. bdbca
B. bdcab

- C. cbdbc
- D. bdabc

Answer ||| D

Solution |||

The sequence of series is acbddd.

acbddbacbddbacbddb

So, the correct option is (d)

17. निम्नलिखित चार-अक्षर समूहों में से तीन अक्षर-समूह किसी प्रकार से एक समान हैं और एक असमान है। असमान अक्षर-समूह का चयन कीजिए।

- A. TWUV
- B. HNLJ
- C. MSOQ
- D. DGEF

Answer ||| B

Solution |||

All except HNLJ has one vowel.

So the odd letter group is option (b)

18. नीचे दो कथन दिए गए हैं और उसके बाद निष्कर्ष, I, II और III दिए गए हैं। कथन को सत्य मानते हुए, चाहे वह सामान्यतः ज्ञात तथ्यों से भिन्न प्रतीत होते हों, आपको या निर्णय करना है कि दिए गए कथनों से कौन-सा निष्कर्ष तर्कसंगत रूप से निकलता है।

कथन :

कुछ कारें वाहन हैं।

कोई भी वाहन चार पहिया नहीं है।

निष्कर्ष :

I. कोई भी कार, चार पहिया नहीं है।

II. सभी चार पहिया, कारें हैं।

III. कुछ वाहन, कारें हैं।

A. केवल निष्कर्ष I निकलता है।

B. केवल निष्कर्ष I और II निकलता है।

C. सभी निष्कर्ष निकलते हैं।

D. केवल निष्कर्ष III निकलता है।

Answer ||| D

Solution |||



Conclusion:

I. There are no cars that are four wheeler. - (false) as there is no relation between them.

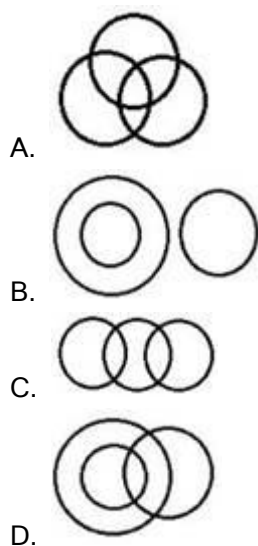
II. All four wheelers are cars. - (false) it is a possibility case.

III. Some vehicles are cars. - (true) it is clearly shown In the diagram.

Hence, option (d) is correct.

19. वह आरेख चुनिए जो नीचे दिए गए वर्गों के बीच के संबंध का सही निरूपण करता है।

माता-पिता, अमीर व्यक्ति, किसान



Answer ||| A

Solution |||



Some parents are rich people and vice-versa.

Some rich people are farmers and vice-versa.

Some farmers are both parents and rich people.

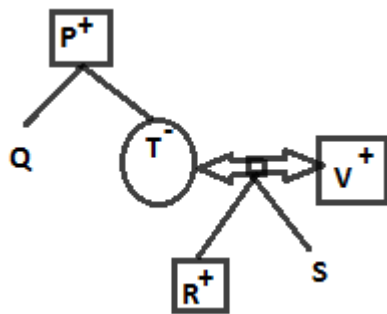
Hence, option (a) is correct.

20. P, Q के पिता हैं और R के दादा हैं | R, S का भाई है | S की माता T, का विवाह V से हुआ है | T, Q की बहन है | V का P से क्या संबंध है?

- A. पुत्र
- B. भतीजा
- C. साला
- D. दामाद

Answer ||| D

Solution |||



From the diagram, it is clear that V is son-in-law of P.

Hence, the correct option is (D)

21. किसी कूट भाषा में, TEMPLE को DKOLDS लिखा जाता है | उसी कूट भाषा में WORSHIP को क्या लिखा जाएगा?

- A. OHGRQNV
- B. OGHQRVN
- C. QJITSPX
- D. VNQGHOR

Answer ||| A

Solution |||

First, the letter of word written in reverse order and then each alphabet moves 1 step backward

I.e. ELPMET- DKOLDA

Similarly,

PIHSROW- OHGRQNV

Hence, option (a) is the correct response.

22. उस समुच्चय का चयन कीजिए जिसमें संख्याएँ उसी तरह आपस में संबंधित हैं जिस प्रकार संख्याएँ नीचे दिए गए समुच्चय में आपस में संबंधित हैं |

(7, 13, 21)

- A. (12, 18, 25)
- B. (17, 22, 30)
- C. (9, 16, 25)
- D. (2, 8, 16)

Answer ||| D

Solution |||

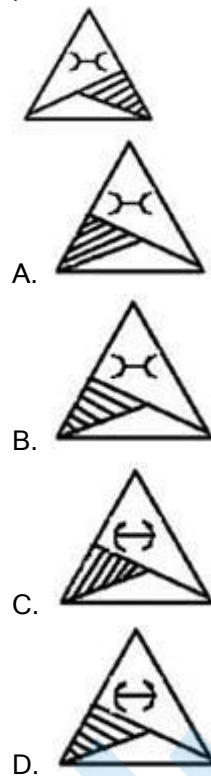
$$7 \xrightarrow{+6} 13 \xrightarrow{+8} 21$$

Likewise,

$$2 \xrightarrow{+6} 8 \xrightarrow{+8} 16$$

Hence, the correct answer is option (d)

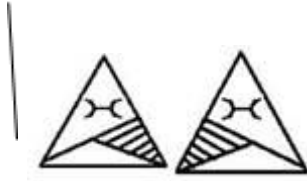
23. यदि नीचे दी गई आकृति के दाएं और दर्पण रखा जाए तो बनने वाले सही दर्पण प्रतिबिंब का चयन कीजिए।



Answer ||| B

Solution |||

In a plane mirror, a mirror image is a reflected duplication of an object that appears almost identical, but it is reversed in the direction perpendicular to the mirror surface. As an optical effect it results from reflection of substances such as a mirror or water.



Hence, the correct answer is (b)

24. उस संख्या युग्म का चयन कीजिए जिसमें दोनों संख्याएँ आपस में उसी प्रकार संबंधित हैं जिस प्रकार दोनों संख्याएँ नीचे दिए गए संख्या युग्म में आपस में संबंधित हैं।

4 : 32

A. 10 : 160

B. 8 : 248

C. 6 : 108

D. 5 : 62

Answer ||| C

Solution |||

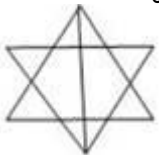
$$4^2 \times \frac{4}{2} = 32$$

Similarly,

$$6^2 \times \frac{6}{2} = 108$$

Hence, (c) is correct.

25. दी गई आकृति में कितने त्रिभुज हैं?



A. 18

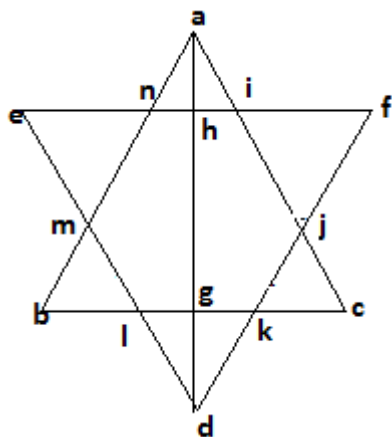
B. 16

C. 14

D. 20

Answer ||| B

Solution |||



In the above figure, the triangles formed are as follows- abc, def, mne, bml, kdl, ckj, fji, ani, ahi, anh, dkg, gdi, dhe, dhf, abg, agc.

Total no. of triangles are 16.

Hence, option (b) is correct.

26. भगवान गौतम बुद्ध के जीवन काल के दौरान सातवीं और छठी शताब्दी ईसा पूर्व में कितनी महान शक्तियाँ (महाजनपद) अस्तित्व में थीं?

- A. 11
- B. 13
- C. 17
- D. 16

Answer ||| D

Solution |||

* During the time of 6-7th century B.C there were **total 16 janpads** were existing throughout the country.

* These were Kasi, Kosala, Anga, Magadha, Vajji, Malla, Chedi, Vatsa, Kuru, Panchala, Machcha, Surasena, Assaka, Avanti, Gandhara and Kamboja.

* In the Buddhist traditions these kingdoms came to be known as 'Mahajanapadas'

27. भारत के संविधान का निम्नलिखित में से कौन-सा अनुच्छेद समान नागरिक संहिता से संबंधित है?

- A. अनुच्छेद 44
- B. अनुच्छेद 46
- C. अनुच्छेद 45
- D. अनुच्छेद 43

Answer ||| A

Solution |||

* **Article 44 deals with Uniform Civil Code.**

- * It is mentioned under Directive Principles of state Policy. It is not justiciable.
- * A44 says that The State shall endeavour to secure for the citizens a uniform civil code throughout the territory of India.

28. दुनिया की पहली महिला प्रधानमंत्री का नाम बताएं |

- A. इंदिरा गांधी
- B. सिरिमावो बंडरनायके
- C. गोल्डा मेर
- D. एलिजाबेथ डॉमिटियन (Elisabeth Domitien)

Answer ||| B

Solution |||

- * **Sirima Ratwatte Dias Bandaranaike** was a Sri Lankan states woman.
- * She became the world's first non-hereditary female head of government in modern history.
- * She was elected Prime Minister of Sri Lanka in 1960. She served three terms: 1960-1965, 1970-1977 and 1994-2000.

29. भारत सरकार द्वारा स्थापित किस पैनल ने चीनी उद्योग पर से पूर्ण नियंत्रण हटाने का सुझाव दिया है?

- A. श्री कृष्णा पैनल
- B. रंग राजन पैनल
- C. रामसेवक पैनल
- D. राधेश्याम पैनल

Answer ||| B

Solution |||

- * **The committee, led by C. Rangarajan**, Chairman of the Prime Minister's Economic Advisory Council, pitches for a stable trade policy and a moderate duty on imports and exports, but wants outright ban or quantitative restrictions done away with.
- * These recommendations are in line with the industry's demand for easing controls.

30. विशेष ओलंपिक विश्व खेल 2019 का उद्घाटन कहाँ किया गया था?

- A. आबू धाबी
- B. स्वीडन
- C. जर्मनी
- D. ऑस्ट्रिया

Answer ||| A

Solution |||

* The inauguration of Special Olympics World Games 2019 was held in **Abu Dhabi, United Arab Emirates from March 14-21, 2019.**

* The Indian team comprising 284 athletes clinched 85 gold, 154 silver and 129 bronze medals at the Special Olympics World Summer Games.

31. यह सिक्किम के लिम्बू समुदाय का पारंपरिक वाद्य यंत्र है ।

- A. चुत्के
- B. नौमाती
- C. छयाप-ब्रुंग
- D. ज्यूरूम सिली

Answer ||| C

Solution |||

* **Chyabrung** is the appropriate option for this question.

* Limbus has many folk musical instruments and used in their own life cycle rituals, occasions, like -"Ke" or "Chyabrung", "Negra", "Penjekom", "Murchunga", "Chethya", "Miklakom", "Binayo" etc.

* Today their traditional music and musical instruments has been on the verge of extinction from our society.

32. मार्च 2019 में, सोशल मीडिया प्लेटफॉर्म और इंटरनेट एंड मोबाइल एसोसिएशन ऑफ इंडिया (आईएमएआई) ने आम चुनाव 2019 के लिए भारत के निर्वाचन आयोग को _____ पेश की ।

- A. स्वैच्छिक आचार संहिता
- B. एहतियाती संहिता
- C. किए जाने वाले कार्य की सूची
- D. मतदान सूची केंद्र

Answer ||| A

Solution |||

* The social media intermediary members of the Internet and Mobile Association of India (IAMA) have recently adopted a **voluntary code of ethics** for the upcoming general elections.

* Under the Code, participants have voluntarily undertaken to establish a high-priority communication channel with the nodal officers designated by the ECI.

33. उस दर्रे का नाम बताएं जिसे उत्तराखंड में तीर्थयात्रियों द्वारा कैलाश-मानसरोवर यात्रा के लिए प्रयोग किया जाता है ।

- A. पेंसी ला
- B. खरदुंग ला
- C. बनिहाल दर्रा
- D. लिपु लेख

Answer ||| D

Solution |||

- * **Lipulekh pass is used for pilgrimage of Kailash Mansarovar.**
- * Lipulekh is a Himalayan pass on the border between Uttarakhand, India and Tibet, China. The southern side of the pass is controlled by India but claimed by Nepal.
- * It is near their tripoint with Chinese trading town of Taklakot in Tibet.

34. निम्नलिखित में से कौन-सा रूप बकमिन्सटरफुल्लेरिन (buckminsterfullerene) का एक अपरूप है?

- A. फास्फोरस
- B. लोहा
- C. कार्बन
- D. बोरॉन

Answer ||| C

Solution |||

- * **Buckminster Fullerene is an allotrope of carbon.**
- * It comprises of C-50, C-60 carbon atoms.
- * It contains pentagonal and hexagonal carbon cycles arranged in a football shaped.
- * It is a radical scavenger and also has vital applications in nano technology.

35. निम्नलिखित में से कौन-सा ऐल्डिहाइड है?

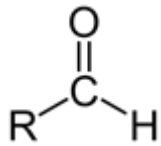
- A. प्रोपाइन
- B. प्रोपेनोन
- C. प्रोपेनल
- D. प्रोपेनॉल

Answer ||| C

Solution |||

- * **Propenal is an aldehyde.**
- * The name of aldehyde groups is generally ends with 'al'.
- * An aldehyde is a compound containing a functional group with the structure -CHO , consisting of a carbonyl center (a carbon double-bonded to oxygen) with the carbon atom

also bonded to hydrogen and to an R group, which is any generic alkyl or side chain. Such as



36. उस ग्रन्थि का नाम बताएं जो अन्य अंतःस्रावी ग्रन्थियों के कार्य को नियंत्रित करती है।

- A. अग्रशय
- B. अधिवृक्क ग्रन्थि
- C. रीनल ग्रन्थि
- D. पिट्यूटरी ग्रन्थि

Answer ||| D

Solution |||

* **Pituitary gland is also known as Master gland** because it controls functioning of other glands.

* Pituitary gland is about the size of a pea and is situated in a bony hollow, just behind the bridge of your nose.

* It is attached to the base of your brain by a thin stalk.

37. निम्नलिखित में से कौन-सा राजशाही राज्यों में से एक नहीं है जोकि सातवीं और छठी सदी के शुरू में ईसा पूर्व भारत में मौजूद है?

- A. मगध
- B. वैशाली
- C. अवन्ती
- D. कोशल

Answer ||| B

Solution |||

* **Vaishali was not among the 16 janpadas** present during 7th century B.C.

* During the time of 6-7th century B.C there were total 16 janpads were existing throughout the country.

* These were Kasi, Kosala, Anga, Magadha, Vajji, Malla, Chedi, Vatsa, Kuru, Panchala, Machcha, Surasena, Assaka, Avanti, Gandhara and Kamboja.

38. सार्क (दक्षिण एशियाई क्षेत्रीय सहयोग संगठन) की पहली महिला महासचिव कौन थी?

- A. एंटिनियो गुटेरेस
- B. यिर्मयाह न्यामने किंग्सले

- C. मेडेलाइन अलब्राइट
D. फटिमठ धियाना सईद

Answer ||| D

Solution |||

- * The former Maldivian Attorney-General, **Fathimath Dhiyana Saeed, was First female secretary general of SAARC.**
- * SAARC is a regional Asian group founded in 1985 which has 7 members.

39. निम्नलिखित में से कौन इंटरनेट का अग्रदूत था?

- A. APNET
B. ANET
C. ARPANET
D. PANET

Answer ||| C

Solution |||

- * **ARPANET was the network that became the basis for the Internet. Based on a concept first published in 1967.**
- * ARPANET was developed under the direction of the U.S. Advanced Research Projects Agency (ARPA).
- * In 1969, the idea became a modest reality with the interconnection of four university computers.

40. रणजी ट्रॉफी फाइनल 2017 किस टीम ने जीता?

- A. विदर्भ
B. पंजाब
C. मुंबई
D. दिल्ली

Answer ||| A

Solution |||

- * Vidarbha won the Ranji Trophy final 2017.
- * **The final took place between Vidarbha and Saurashtra, starting on 3 February 2019.** Vidarbha defeated Saurashtra by 78 runs in the final, to become the sixth team in the tournament's history to retain their title.

41. निम्नलिखित में से कौन सा बायोस्फीयर रिजर्व भारत सरकार द्वारा पहले स्थापित किया गया था?

- A. सुंदरवन बायोसिफ्यर रिजर्व
- B. मन्नार बायोसिफ्यर रिजर्व की खाड़ी
- C. नंदा देवी बायोसिफ्यर रिजर्व
- D. नीलगिरी बायोसिफ्यर रिजर्व

Answer ||| D

Solution |||

The given biosphere Researves are formed in following years-

- * Nilgiri Biosphere Reserve - 1986
- * Sunderbans - 1989
- * Nanda Devi National Park & Biosphere Reserve- 1988
- * Gulf of Mannar - 1989

42. निम्न में से उस राज्य का नाम बताइए जो चन्द्रगुप्त प्रथम को लिच्छवियों से दहेज में मिला था ।

- A. पाटलिपुत्र
- B. प्रयाग
- C. साकेत
- D. उज्जैन

Answer ||| A

Solution |||

• चंद्रगुप्त I को पाटलीपुत्र लिच्छवि से दहेज में मिला।

* गुप्त लिच्छवी संबंध को विशेष प्रकार के सोने के सिक्कों के माध्यम से भी प्रचारित किया जाता था जिनपर चंद्रगुप्त प्रथम और उनकी पत्नी लिच्छवी के नाम और आकृतियाँ होती थी और लिच्छवियों के साथ शेर पर उलटी दिशा में बैठी हुई देवी की आकृति होती थीं।

43. चालुक्य वंश का संस्थापक कौन था?

- A. पुलकसेन प्रथम
- B. कीर्तिवर्मन
- C. नरसिंहवर्मन
- D. मंगलसा

Answer ||| A

Solution |||

* **The Chalukya dynasty was established by Pulakeshin I in 543.**

* Pulakeshin I took Vatapi (modern Badami in Bagalkot district, Karnataka) under his control and made it his capital.

* Pulakeshin I and his descendants are referred to as "Chalukyas of Badami"

44. निम्नलिखित में से कौन से सार्वजनिक क्षेत्र के उपक्रम को फरवरी 2013 में महारत्न का दर्जा दिया गया था?

- A. ओएनजीसी
- B. बीएचईएल
- C. सीआईएल
- D. ओआई एल

Answer ||| B

Solution |||

* The government in 2013 has granted Maharatna status to **Bharat Heavy Electricals Ltd (BHEL) and Gas Authority of India Ltd (GAIL)**.

* One of the eligibility criteria to be given the coveted status is that the company should have an average annual turnover over Rs 25,000 crore during the last three years.

45. भारत में प्रोजेक्ट टाइगर किस वर्ष में शुरू किया गया था?

- A. 1982
- B. 1992
- C. 1979
- D. 1973

Answer ||| D

Solution |||

* **Project Tiger was first initiated in the year April 1, 1973**, by GOI and is still going on.

* During the tiger census of 2006, a new methodology was used extrapolating site-specific densities of tigers, their co-predators and prey derived from [camera trap](#) and sign surveys using [GIS](#).

* The government has set up a Tiger Protection Force to combat [poachers](#) and funded relocation of villagers to minimize human-tiger conflicts.

46. _____ सामूहिक लोक नृत्य है, जो सिक्किम के लोगों के संरक्षक देवता, कंचनजंगा के सम्मान में किया जाता है।

- A. जो-मल-लोक
- B. टेंडोन लो रम फाट
- C. चू-फाट
- D. किचूम-चू-बोमसा

Answer ||| C

Solution |||

* **Chu faat is a community dance performed in Sikkim.**

* The dance is performed in honour of Mt. Kanchanjanga, the guardian diety of Sikkim people.

* The dancers carrying butter lamps and bamboo leaves perform ritualistic dance in community

47. निम्नलिखित में से किसमें फल की बहुत तेज सुगंध आती है?

- A. मेथनॉल
- B. ईथाइल ऐसीटेट
- C. मिथाइल क्लोराइड
- D. मेथानोइक अम्ल

Answer ||| B

Solution |||

* **Ethyl acetate is the organic compound with the formula $CH_3COOCH_2CH_3$, simplified to $C_4H_8O_2$.**

* This colorless liquid has a characteristic sweet smell and is used in glues, nail polish removers, decaffeinating tea and coffee.

48. "इंटरनेशनल एयरट्रांसपोर्ट एसोसिएशन (आईएटीए) में शामिल होने वाले पहले भारतीय बजट वाहक का नाम क्या है?

- A. इंडिगो
- B. स्पाइसजेट
- C. गो एयर
- D. जेट एयरवेज

Answer ||| B

Solution |||

* **SpiceJet has joined [global airlines](#)' grouping [IATA](#) as a member**, becoming the first Indian low-cost carrier to get the membership.

* The [International Air Transport Association](#) (IATA) represents more than 290 airlines, including Air India, Jet Airways and Vistara.

* The membership would help SpiceJet, which has ambitious expansion plans, to have codeshares and agreements with other carriers

49. भारतीय संविधान में अवशिष्ट शक्तियों (residual powers) का विचार _____ संविधान से लिया गया है।

- A. दक्षिण अफ्रीका
- B. अमेरिका
- C. कनाडा
- D. जापान

Answer ||| C

Solution |||

* Indian constitution taken following from Canada:

1. Federation with a strong Centre
2. Vesting of residuary powers in the Centre
3. Appointment of state governors by the Centre
4. Advisory jurisdiction of the Supreme Court

50. "मार्च 2019 में निम्न में से किस राज्य ने मेंटिनेंस ऑफ हाउसहोल्ड रजिस्टर्स बिल पारित किया?"

- A. ओडिशा
- B. असम
- C. मिजोरम
- D. पश्चिम बंगाल

Answer ||| C

Solution |||

* **Mizoram assembly unanimously passed Mizoram Maintenance of Household Register Bill, 2019.**

* It aims to create registers containing the names, details and photographs of every resident of the state, on a household basis, in an effort to detect illegal foreigners staying and "eating away" benefits of development schemes.

51. $\left(\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta} \right)^2 + 1, \theta \neq 45^\circ,$ बराबर है :

- A. $\sec^2 \theta$
- B. $2 \tan^2 \theta$
- C. $\operatorname{cosec}^2 \theta$
- D. $\cot^2 \theta$

Answer ||| A

Solution |||

$$\left(\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta} \right)^2 + 1$$

$$\begin{aligned}
 &= \frac{\sin^2 \theta (1 - 2 \sin^2 \theta)^2}{\cos^2 \theta (2 \cos^2 \theta - 1)^2} + 1 \\
 &= \frac{\tan^2 \theta (\cos 2\theta)^2}{(\cos 2\theta)^2} + 1 \\
 &= \tan^2 \theta + 1 \\
 &= \sec^2 \theta
 \end{aligned}$$

52. राजू की आय उसके व्यय से 20% अधिक है। यदि उसकी आय में 60% और उसके व्यय में 70% की वृद्धि होती है, तो उसकी बचत कितने प्रतिशत बढ़ेगी/कम होगी?

- A. 2% कम होगी
- B. 10% कम होगी
- C. 10% बढ़ेगी
- D. 2% बढ़ेगी

Answer ||| C

Solution |||

Let Raju's expenditure = Rs 100

Then, his income = Rs. 120

Saving = Rs. 20

New income = $120 \times \frac{160}{100} = \text{Rs. } 192$

New expenditure = Rs. 170

New saving = $192 - 170 = \text{Rs. } 22$

% increase in saving = $\frac{22-20}{20} \times 100 = 10\%$

53. A, B और C की दक्षताओं का अनुपात 4 : 5 : 3 है। एक साथ काम करने पर वे तीनों उस काम को 25 दिनों में पूरा कर लेते हैं। A और C दोनों मिलकर 35% काम को कितने दिनों में पूरा करेंगे?

- A. 18 दिनों में
- B. 15 दिनों में
- C. 12 दिनों में
- D. 10 दिनों में

Answer ||| B

Solution |||

Ratio of efficiencies, A:B:C = 4:5:

$(A + B + C) : (A + C) = 12 : 7$

$$\frac{M_1 \times D_1}{W_1} = \frac{M_2 \times D_2}{W_2}$$

$$\frac{12 \times 25}{1} = \frac{7 \times D_2}{\frac{35}{100}}$$

$$D_2 = \frac{12 \times 25 \times \frac{35}{100}}{7} = 15$$

54. रेनू ने एक वस्तु ₹ 1,240 में खरीदी और उसे 25% घाटे पर बेच दिया। उस राशि से उसने एक और वस्तु खरीदी और उसे 40% लाभ पर बेच दिया। रेनू को, कुल मिलाकर, कितने प्रतिशत लाभ हुआ?

- A. 12
B. 5
C. $6\frac{2}{3}$
D. 15

Answer ||| B

Solution |||

$$\text{CP of another item} = 1240 \times \frac{75}{100} = \text{Rs. } 930$$

$$\text{New selling price} = 930 \times \frac{140}{100} = \text{Rs. } 1302$$

$$\text{Profit \%} = \frac{1302 - 1240}{1240} \times 100 = \frac{620}{124} = 5$$

55. तालिका में विभिन्न प्रकार की कारों के उत्पादन को (हजारों में) दर्शाया गया है।

वर्ष/ कारें	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	48	48	55

वर्ष 2015 में A प्रकार और 2013 में C प्रकार की कारों का कुल उत्पादन, पाँच वर्षों में D प्रकार की कारों के कुल उत्पादन का लगभग कितने प्रतिशत है?

- A. 42.4
B. 42.8
C. 43.5
D. 40.2

Answer ||| C

Solution |||

Total production of A type cars in year 2015 and C type cars in 2013 = $48 + 52 = 100$

Total production of D type cars in five years = $50 + 42 + 45 + 46 + 47 = 230$

Required percent = $\frac{100}{230} \times 100 = \frac{1000}{23} \approx 43.5 \%$

56.तालिका में विभिन्न प्रकार की कारों के उत्पादन को (हजारों में) दर्शाया गया है।

वर्ष/ कारें	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	48	48	55

वर्ष 2013 में C तथा E प्रकार की कारों के कुल उत्पादन का वर्ष 2014 और 2016 में D तथा 2017 में E प्रकार की कारों के कुल उत्पादन से अनुपात क्या है?

- A. 8 : 13
- B. 8 : 11
- C. 13 : 32
- D. 5 : 8

Answer ||| A

Solution |||

Total production of C and E type cars in the year 2013 = $52 + 36 = 88$

Total production of D in 2014 and 2016 and E in 2017 = $42 + 46 + 55 = 143$

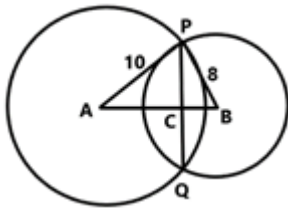
Required ratio = $88:143 = 8:13$

57.10 cm और 8 cm त्रिज्या वाले डों वृत्त, P और Q बिन्दुओं पर एक-दूसरे को काटते हैं। $PQ = 12$ cm है और वृत्त के केंद्रों के बीच x cm की दूरी है, तो x का मान है (दशमलव के एक स्थान तक सही):

- A. 14.8
- B. 12.8
- C. 13.9
- D. 13.3

Answer ||| D

Solution |||



AB = x cm and PQ = 12 cm. AB always bisects PQ. Therefore PC=CQ=6

$$AC = \sqrt{10^2 - 6^2} = \sqrt{100 - 36} = 8$$

$$BC = \sqrt{8^2 - 6^2} = \sqrt{64 - 36} = \sqrt{28} = 5.29$$

$$x = AB = AC + BC = 8 + 5.29 = 13.29 \approx 13.3 \text{ cm}$$

58. किसी वस्तु का अंकित मूल्य ` 315 है | उसे ` 288 में बेचा जाता है | यदि इससे 4% हानि होती है, तो वस्तु को लागत से कितने प्रतिशत अधिक अंकित किया गया था?

A. $6\frac{1}{2}$

B. 5

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

D. 8

Answer ||| B

Solution |||

$$\text{Cost price of item} = 288 \times \frac{100}{96} = 300$$

$$\text{Marked price} = 315$$

$$\text{Required percent} = \frac{315-300}{300} \times 100 = 5\%$$

59. किसी निश्चित गति से 15 km की दूरी तय करने में B की तुलना में A को 30 मिनट ज्यादा समय लगता है | किंतु, यदि A अपनी गति को दोगुना कर दे तो वह उसी दूरी को B की तुलना में एक घंटा कम समय में तय कर लेता है | B की गति (km/h में) क्या है?

A. 5

B. 6

C. $6\frac{1}{2}$

D. $5\frac{1}{2}$

Answer ||| B

Solution |||

Let A's speed = a km/h, B's speed = b km/h, then

$$15 \left(\frac{1}{a} - \frac{1}{b} \right) = \frac{30}{60}$$

$$\frac{1}{a} - \frac{1}{b} = \frac{1}{30} \dots \dots (i)$$

$$15 \left(\frac{1}{b} - \frac{1}{2a} \right) = 1$$

$$-\frac{1}{2a} + \frac{1}{b} = \frac{1}{15} \dots \dots (ii)$$

Adding (i) and (ii), we get

$$\frac{1}{2a} = \frac{3}{30} = \frac{1}{10}$$

$$a = 5$$

$$\frac{1}{b} = \frac{1}{a} - \frac{1}{30} = \frac{1}{5} - \frac{1}{30} = \frac{1}{6}$$

$$b = 6$$

60. एक कक्षा में कुछ विद्यार्थियों का औसत भार 68.5 kg है | यदि 72.2 kg, 70.8 kg, 70.3 kg, 66.7 kg भार वाले चार नए विद्यार्थी कक्षा में दाखिला लेते हैं तो सभी विद्यार्थियों का औसत भार 300 g बढ़ जाता है | शुरू में, कक्षा में कितने विद्यार्थी थे?

- A. 11
- B. 26
- C. 21
- D. 16

Answer ||| D

Solution |||

Let x student were there in the class initially. Then sum of the weights of x students in class = $68.5x$. According to question

$$68.5x + 72.2 + 70.8 + 70.3 + 66.7 = (x + 4) \left(68.5 + \frac{300}{1000} \right)$$

$$68.5x + 280 = (x + 4) \times 68.8$$

$$68.5x + 280 = 68.8x + 275.2$$

$$0.3x = 4.8$$

$$x = 16$$

61. यदि $16x^2 + 9y^2 + 4z^2 = 24(x - y + z) - 61$ है, तो $(xy + 2z)$ का मान होगा:

- A. 1
- B. 2

C. 5

D. 3

Answer ||| C

Solution |||

$$16x^2 + 9y^2 + 4z^2 = 24(x - y + z) - 61$$

$$16x^2 - 24x + 9 + 9y^2 + 24y + 16 + 4z^2 - 24z + 36 = 9 + 16 + 36 - 61$$

$$(4x - 3)^2 + (3y + 4)^2 + (2z - 6)^2 = 0$$

$$\text{iff } 4x - 3 = 0 \Rightarrow x = \frac{3}{4}$$

$$3y + 4 = 0 \Rightarrow y = -\frac{4}{3}$$

$$2z - 6 = 0 \Rightarrow z = 3$$

$$xy + 2z = \frac{3}{4} \times -\frac{4}{3} + 2 \times 3 = -1 + 6 = 5$$

62. यदि 23, 39, 32 और 56 में से, प्रत्येक से x को घटाया जाता है तो इस क्रम में प्राप्त संख्याएँ समानुपात में हैं। $(x + 4)$ और $(3x + 1)$ के बीच माध्यानुपाती (mean proportional) क्या होगा?

A. 10

B. 15

C. 14

D. 12

Answer ||| D

Solution |||

$$\frac{23 - x}{39 - x} = \frac{32 - x}{56 - x}$$

$$23 \times 56 - 79x + x^2 = 39 \times 32 - 71x + x^2$$

$$8x = 23 \times 56 - 39 \times 32$$

$$x = 23 \times 7 - 39 \times 4$$

$$x = 161 - 156 = 5$$

Mean proportion

$$= \sqrt{(x + 4)(3x + 1)}$$

$$= \sqrt{9 \times 16} = 12$$

63. यदि $[8(x + y)^3 - 27(x - y)^3] \div (5y - x) = Ax^2 + Bxy + Cy^2$ है, तो $(A + B + C)$ का मान होगा:

A. 26

B. 19

C. 13

D. 16

Answer ||| D

Solution |||

$$\frac{[8(x+y)^3 - 27(x-y)^3] \div (5y-x) = Ax^2 + Bxy + Cy^2}{[2(x+y) - 3(x-y)][4(x+y)^2 + 6(x+y)(x-y) + 9(x-y)^2]}$$

$$\frac{5y-x}{(5y-x)[4x^2 + 8xy + 4y^2 + 6x^2 - 6y^2 + 9x^2 - 18xy + 9y^2]}$$

$$\frac{5y-x}{19x^2 - 10xy + 7y^2} = Ax^2 + Bxy + Cy^2$$

$$A = 19, B = -10, C = 7$$

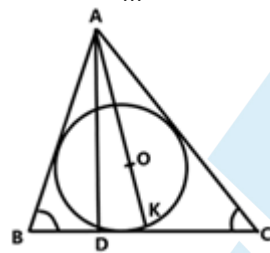
$$A + B + C = 19 - 10 + 7 = 16$$

64. एक त्रिभुज ABC के अंतर्गत एक वृत्त, जिसका केंद्र O है बनाया गया है | AO को बढ़ाने पर वह वृत्त को K पर मिलता है और AD ⊥ BC है | यदि ∠B = 80° और ∠C = 64° है, तो ∠DAK की माप है:

- A. 10°
- B. 12°
- C. 20°
- D. 16°

Answer ||| D

Solution |||



$$\angle BAC = 180^\circ - (80^\circ + 64^\circ) = 180^\circ - 144^\circ = 36^\circ$$

Since, circle is inscribed within a triangle, AK passing through the center must be angle bisector of $\angle A$. Therefore,

$$\angle BAK = \angle CAK = \frac{1}{2} \times 36^\circ = 18^\circ$$

Now,

$$\angle BAD = \angle ADC - \angle ABD = 90^\circ - 80^\circ = 10^\circ$$

Therefore,

$$\angle DAK = \angle BAK - \angle BAD = 18^\circ - 10^\circ = 8^\circ$$

$$\angle DAK = \frac{80^\circ - 64^\circ}{2} = 8^\circ$$

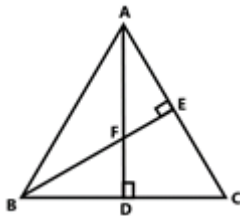
Shortcut:

65. $\triangle ABC$ में $AD \perp BC$ और $BE \perp AC$ है | AD और BE एक-दूसरे को F पर काटते हैं | यदि $BF = AC$ है, तो $\angle ABC$ की माप क्या होगी?

- A. 60°
- B. 45°
- C. 50°
- D. 70°

Answer ||| B

Solution |||



$$\triangle AEF \sim \triangle BDF \text{ [By AA]}$$

$$\Rightarrow \angle DBF = \angle EAF$$

Again,

$$\angle DBF = \angle EAF$$

$$\angle BDF = \angle ADC$$

$$\triangle BDF \sim \triangle ADC \text{ [by AA]}$$

$$\frac{BD}{AD} = \frac{DF}{DC} = \frac{BF}{AC}$$

$$\therefore BF = AC$$

$$\Rightarrow BD = AD, DF = DC$$

$$\Rightarrow \angle ABD = \angle BAD = 45^\circ$$

66. $\triangle ABC$, $\triangle DEF$ के समरूप है | $\triangle ABC$ का क्षेत्रफल 100 cm^2 है और $\triangle DEF$ का क्षेत्रफल 49 cm^2 है | यदि $\triangle ABC$ का शीर्षलंब (altitude) 5 cm है, तो $\triangle DEF$ का संगत शीर्षलंब (corresponding altitude) होगा:

- A. 4.5 cm
- B. 6 cm
- C. 7 cm
- D. 3.5 cm

Answer ||| D

Solution |||

Corresponding altitude of $\triangle DEF$

$$\frac{100}{49} = \frac{5^2}{x^2}$$

$$x = 5 \times \frac{7}{10} = 3.5$$

67.तालिका में विभिन्न प्रकार की कारों के उत्पादन को (हजारों में) दर्शाया गया है ।

वर्ष/ कारें	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	48	48	55

वर्ष 2013, 2014, 2015 और 2017 में B प्रकार की कारों का कुल उत्पादन, वर्ष 2017 में सभी प्रकार की कारों के कुल उत्पादन से कितने प्रतिशत कम है? (दशमलव के एक स्थान तक सही)

- A. 15.8
- B. 17.6
- C. 18.2
- D. 18.4

Answer ||| B

Solution |||

Total production of B type of cars in 2013, 2014, 2015 and 2017

$$= 39 + 45 + 54 + 72$$

$$= 210 \text{ Production of all types of cars in 2017}$$

$$= 36 + 72 + 45 + 47 + 55$$

$$= 255 \text{ Required percent} = \frac{255-210}{255} \times 100 = 17.64$$

68.तालिका में विभिन्न प्रकार की कारों के उत्पादन को (हजारों में) दर्शाया गया है ।

वर्ष/ कारें	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	48	48	55

यदि B प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को वृत्त आरेख (पाई चार्ट) के द्वारा दर्शाया जाता है तो 2016 में कारों के उत्पादन को दर्शाने वाले आंकड़े का त्रिज्यखंड (सेक्टर) का केंद्रीय कोण होगा:

- A. 72°
- B. 60°
- C. 96°
- D. 80°

Answer ||| D

Solution |||

$$\text{Required angle} = \frac{60}{39+45+54+60+72} \times 360^\circ = 80^\circ$$

69. यदि $0^\circ < \theta < 90^\circ$ और $\cos^2 \theta = 3(\cot^2 \theta - \cos^2 \theta)$ है, तो $\left(\frac{1}{2} \sec \theta + \sin \theta\right)^{-1}$ का मान होगा:

- A. $2(\sqrt{3}-1)$
- B. $\sqrt{3}+1$
- C. $\sqrt{3}+2$
- D. $2(2-\sqrt{3})$

Answer ||| D

Solution |||

$$\cos^2 \theta = 3(\cot^2 \theta - \cos^2 \theta)$$

$$4 \cos^2 \theta = \frac{3 \cos^2 \theta}{\sin^2 \theta}$$

$$\cos^2 \theta (4 \sin^2 \theta - 3) = 0$$

$$\sin \theta = \frac{\sqrt{3}}{2} \Rightarrow \theta = 60^\circ$$

$$\left(\frac{1}{2} \sec \theta + \sin \theta\right)^{-1} = \left(\frac{1}{2} \sec 60^\circ + \sin 60^\circ\right)^{-1}$$

$$= \left(\frac{1}{2} \times 2 + \frac{\sqrt{3}}{2}\right)^{-1} = \left(\frac{2+\sqrt{3}}{2}\right)^{-1} = \frac{2}{2+\sqrt{3}}$$

$$= 2(2-\sqrt{3})$$

70. यदि $\cos \theta = 2p(1+p^2)$ है, तो $\tan \theta$ बराबर है:

A. $\frac{p^2}{1+p^2}$

B. $\frac{1-p^2}{1+p^2}$

C. $\frac{2p}{1-p^2}$

D. $\frac{1-p^2}{2p}$

Answer ||| D

Solution |||

$$\cos \theta = \frac{2p}{(1+p^2)}$$

$$\sin^2 \theta = 1 - \frac{4p^2}{1+p^4+2p^2}$$

$$\sin^2 \theta = \frac{1+p^4+2p^2-4p^2}{1+p^4+2p^2}$$

$$\sin \theta = \sqrt{\frac{(1-p^2)^2}{(1+p^2)^2}} = \frac{1-p^2}{1+p^2}$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{1-p^2}{1+p^2} \times \frac{1+p^2}{2p} = \frac{1-p^2}{2p}$$

71. $5 \div 5$ का $5 \times 2 + 2 \div 2$ का $2 \times 5 - (5 - 2) \div 6 \times 2$ का मान है:

A. $\frac{9}{5}$

B. 19

C. $\frac{23}{2}$

D. $\frac{19}{10}$

Answer ||| D

Solution |||

$$5 \div 5 \text{ of } 5 \times 2 + 2 \div 2 \text{ of } 2 \times 5 - (5 - 2) \div 6 \times 2$$

$$= 5 \div (5 \times 5) \times 2 + 2 \div (2 \times 2) \times 5 - (5 - 2) \div 6 \times 2$$

$$= \frac{5}{25} \times 2 + \frac{2}{4} \times 5 - \frac{3}{6} \times 2$$

$$\begin{aligned}
 &= \frac{2}{5} + \frac{5}{2} - 1 \\
 &= \frac{4 + 25 - 10}{10} \\
 &= \frac{19}{10}
 \end{aligned}$$

72. यदि आठ अंकों की संख्या 789x531y, संख्या 72 से विभाज्य है, तो $(5x - 3y)$ का मान होगा:

- A. 0
- B. -1
- C. 1
- D. 2

Answer ||| B

Solution |||

Since the given number is divisible by 72, it must be divisible by 4, 8 and 9. Since, it is divisible by 4, last two digit must be divisible by 4. So, possible values of y are 2, 6. Since the number is divisible by 8 also, last three digits must be divisible by 8. Since 312 is divisible by 8, only possible value of y is 2. Now, the number is divisible by 9, therefore sum of the digit must be divisible by 9.

$$\begin{aligned}
 &7 + 8 + 9 + x + 5 + 3 + 1 + y \\
 &= 33 + x + 2 \\
 &= 35 + x
 \end{aligned}$$

for x = 1, this sum is divisible by 9.

$$5x - 3y = 5 \times 1 - 3 \times 2 = 5 - 6 = -1$$

73. 10% प्रति वर्ष की चक्रवृद्धि ब्याज दर से किसी निश्चित राशि पर $2\frac{1}{2}$ वर्षों में ब्याज ₹ 1,623 है, जब ब्याज वार्षिक संयोजित है। राशि क्या है?

- A. ₹ 5,000
- B. ₹ 6,000
- C. ₹ 7,200
- D. ₹ 6,500

Answer ||| B

Solution |||

Amount in two year for the sum P

$$A = P \left(1 + \frac{10}{100} \right)^2$$

$$A = P \times \frac{121}{100} \text{ CI in two years} = A - P = \frac{121}{100}P - P = \frac{21}{100}P$$

Now, simple interest for $\frac{1}{2}$ year at 10%

$$P \times \frac{121}{100} \times 10 \times \frac{1}{2}$$

$$= \frac{121}{2000}P$$

$$\frac{21}{100}P + \frac{121}{2000}P = 1623$$

$$\frac{P(420 + 121)}{2000} = 1623$$

$$P = \frac{1623}{541} \times 2000$$

$$P = 3 \times 2000$$

$$P = 6000$$

74. यदि $x + y + z = 19$, $xy + yz + zx = 114$ है, तो $\sqrt{x^3 + y^3 + z^3 - 3xyz}$ का मान होगा :

A. 17

B. 13

C. 19

D. 21

Answer ||| C

Solution |||

$$x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$$

$$= 19[(x + y + z)^2 - 2(xy + yz + zx) - (xy + yz + zx)]$$

$$= 19[19^2 - 3 \times 114]$$

$$= 19[361 - 342]$$

$$= 19 \times 19 = 361$$

$$\sqrt{x^3 + y^3 + z^3 - 3xyz} = \sqrt{361} = 19$$

75. एक $10 \text{ m} \times 8 \text{ m} \times 6 \text{ m}$ माप वाले आयताकार टैंक जिसके ऊपर एक मीटर के व्यास का वृत्ताकार छेद हो, ऐसे टैंक को बनाने के लिए लोहे की कितनी चादर (m^2 में) की आवश्यकता होगी? (दशमलव के एक स्थान तक)

A. 370.4

B. 371.6

C. 372.9

D. 370.8

Answer ||| C

Solution |||

Required area of sheets

= Total surface area of the tank - area of the hole

$$= 2(10 \times 8 + 8 \times 6 + 10 \times 6) - \pi \left(\frac{1}{2}\right)^2$$

$$= 2(80 + 48 + 60) - 3.14 \times \frac{1}{4}$$

$$= 2 \times 188 - 0.785$$

$$= 376 - 0.785$$

$$= 375.215$$

76.

|||Common||| **Direction:** Select the correct passive form of the given sentence. |||End|||

Do not park your car in front of my house.

- A. My house should not be parked in front of your car.
- B. Your car need not be parked in front of my house.
- C. Your car could not be parked in front of my house.
- D. Your car should not be parked in front of my house.

Answer ||| D

Solution ||| The following rules should be considered while changing active form to passive voice:

- The places of subject and object will be interchanged in the sentence.
- Only 3rd form of the verb or Past Participle will be used as a main verb in the Passive Voice.

Therefore, **option D** correctly provides the passive form of the given sentence.

77.

|||Common||| **Direction:** Select the word which means the same as the group of words given. |||End|||

A person, animal or plant belonging originally to a place

- A. Occupant
- B. Alien
- C. Native
- D. Resident

Answer ||| C

Solution ||| The meanings of the given words are as follows:

Occupant: a person who resides or is present in a house, vehicle, seat, etc., at a given time.

Alien: belonging to a foreign country.

Native: a person born in a specified place or associated with a place by birth, whether subsequently resident there or not.

Resident: a person who lives somewhere permanently or on a long-term basis.

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

78.

|||Common||| **Direction:** Select the antonym of the given word. |||End|||

ESCALATE

- A. Raise
- B. Enlarge
- C. Reduce
- D. Heighten

Answer ||| C

Solution ||| The meanings of the given words are:

Escalate: increase rapidly.

Raise: lift or move to a higher position or level.

Enlarge: make or become larger or more extensive.

Reduce: make smaller or less in amount, degree, or size.

Heighten: make or become more intense.

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

79.

|||Common||| **Direction:** Select the antonym of the given word. |||End|||

TENDER

- A. Rough
- B. Warm
- C. Gentle
- D. soft

Answer ||| A

Solution ||| The meanings of the given words are:

Tender: showing gentleness, kindness, and affection.

Rough: having an uneven or irregular surface; not smooth or level.

Warm: of or at a fairly or comfortably high temperature.

Gentle: having or showing a mild, kind, or tender temperament or character.

Soft: easy to mould, cut, compress, or fold; not hard or firm to the touch.

Therefore, **option A** is the correct answer.

80.

|||Common||| **Direction:** Select the most appropriate word to fill in the blank. |||End|||

The State Government argued that it could not _____ the increase in the teachers' salaries as awarded by the court.

- A. spare
- B. get
- C. stand
- D. afford

Answer ||| D

Solution ||| The sentence implies that the State Government could not bear the increase in the teachers' salaries as awarded by the court.

'**Afford**' meaning 'have enough money to pay for' perfectly fits in the blank.

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

81.

|||Common||| **Direction:** Given below are four jumbled sentences. Select the option that gives their correct order. |||End|||

- A) That sort of pollution, which is also widespread in other south east Asian nations, regularly kills wildlife like whales and turtles that ingest the waste.
- B) Environmental groups have tagged the Philippines as one of the world's biggest ocean polluters due to its reliance on single-use plastic.
- C) In Thailand also, a whale died last year after swallowing more than 80 plastic bags.
- D) In the latest case, a whale with 40 kilos of plastic trash in its stomach died on Saturday in southern Philippines where it was stranded a day earlier.

- A. ABCD
- B. BADC
- C. DABC
- D. BCAD

Answer ||| B

Solution ||| The sentence B should be the first sentence because it introduces the theme of the passage i.e. 'tagging of Philippines as one of the world's biggest ocean polluters'.

Sentence A perfectly follows the sentence B as it takes the idea further of what is the

pollution created by plastic as mentioned in the first sentence. DC forms a mandatory pair because both the sentences talk about the death of whales due to swallowing of plastic. Hence, the rearranged order is BADC and the correct answer is **option B**.

82.

|||Common||| **Direction:** Select the most appropriate word to fill in the blank. |||End|||
Scientists at Cambridge University are _____ how plants can give us sustainable energy.

- A. scrutinizing
- B. investigating
- C. inspecting
- D. looking

Answer ||| B

Solution ||| The sentence implies that the scientists at Cambridge University are carrying out the research to find how plants can give us sustainable energy.

'Investigating' meaning 'carry out research or study into (a subject or problem, typically one in a scientific or academic field)' perfectly fits in the blank.

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

83.

|||Common||| **Direction:** Select the most appropriate word to fill in the blank. |||End|||
Select the wrongly spelt word. A. Comparison

- B. Communication
- C. Competition
- D. Comparable

Answer ||| C

Solution ||| Option C has the incorrectly spelt word. Its correct spelling is 'competition' and it means 'the activity or condition of striving to gain or win something by defeating or establishing superiority over'.

84.

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

|||End|||

I look for a better job for the last two months, but nothing is in sight.

- A. have looked for a better job
- B. looked for a better job

- C. have been looking for a better job
- D. No improvement

Answer ||| C

Solution ||| The sentence shows a continuous activity by the speaker which started in past and it still continues. So, in this situation, present perfect continuous tense is required to form a grammatically correct sentence. The present perfect continuous (also called present perfect progressive) is a verb tense which is used to show that an action started in the past and has continued up to the present moment. The present perfect continuous usually emphasizes duration, or the amount of time that an action has been taking place. Hence, **option C** is the correct answer.

85.

|||Common||| **Direction:** Select the correct active form of the given sentence. |||End|||

The main gate of the building was being guarded by gun-totting guards.

- A. The main gate of the building were guarding gun-totting guards.
- B. Gun-totting guards were guarding the main gate of the building.
- C. Gun-totting guards have been guarding the main gate of the building.
- D. Gun-totting guards guarded the main gate of the building.

Answer ||| B

Solution ||| The following rules should be considered while changing passive form to active voice:

- Identify the subject of the sentence - who is doing an action?
- Rewrite the sentence so the subject is performing the action.

Therefore, **option B** correctly provides the active form of the given sentence.

86.

|||Common||| **Direction:** In the sentence identify the segment which contains the grammatical error. |||End|||

Due to the Cyclone Idai vast areas of land have been flooded, roads destroyed and communications disrupting in Zimbabwe and Mosambique.

- A. vast areas of land have been flooded
- B. roads destroyed
- C. Due to the Cyclone Idai
- D. and communications disrupting

Answer ||| D

Solution ||| The fragment 'and communications disrupting' is not maintaining parallelism of the sentence. All the verbs present in the sentence must agree with each other. 'Disrupting' must be replaced with 'disrupted' to form a grammatically correct sentence. Hence, **option D** is the correct answer.

87.

|||Common||| **Direction:** Select the most appropriate meaning of the given idiom. |||End|||

Costs an arm and a leg

- A. rarely available
- B. easy to obtain
- C. nothing to lose
- D. very expensive

Answer ||| D

Solution ||| The idiom 'costs an arm and a leg' means 'be extremely expensive'.

For example: the coat had cost him an arm and a leg.

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

88.

|||Common||| **Direction:** 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.

An Italian mayor has been cleaning the streets along with his councilors after their town (###Q1###) with no manual workers, it's reported. In fact, (###Q2###) was sweeping the piazza in front of the (###Q3###) church in preparation for market day, (###Q4###) the deputy mayors father and a town councilor armed with a high-pressure hose. The town Zorfaliu's last (###Q5###) retired six months ago and nobody has been hired since then. "We can't do anything - we are blocked by bureaucracy," the mayor says.

|||End|||

Select the most appropriate option for blank No. (###Q1###)

- A. leaves
- B. was left
- C. was leaving
- D. has left

Answer ||| B

Solution ||| The blank requires a past perfect tense. The past perfect tense is used to show that something happened before another action in the past.

Hence, the correct answer is **option B** i.e. 'was left'.

89.

|||Common||| **Direction:** 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.

An Italian mayor has been cleaning the streets along with his councilors after their town (###Q1###) with no manual workers, it's reported. In fact, (###Q2###) was sweeping the piazza in front of the (###Q3###) church in preparation for market day, (###Q4###) the deputy mayors father and a town councilor armed with a high-pressure hose. The town Zerfaliu's last (###Q5###) retired six months ago and nobody has been hired since then. "We can't do anything - we are blocked by bureaucracy," the mayor says.

|||End|||

Select the most appropriate option for blank No. (###Q2###).

- A. they
- B. it
- C. she
- D. he

Answer ||| D

Solution ||| The first line suggests that the Italian mayor is a male. Therefore, we need a masculine pronoun to fill in the blank 2. Hence, **option D** i.e. 'he' is the correct answer.

90. Select the most appropriate option for blank No. (###Q3###).

- A. next
- B. near
- C. neighbour
- D. local

Answer ||| D

Solution ||| The blank requires an adjective which perfectly modifies the noun 'church'. 'Local' meaning 'relating or restricted to a particular area or one's neighbourhood'. It is the correct filler for the given blank.

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

91.

|||Common||| **Direction:** 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.

An Italian mayor has been cleaning the streets along with his councilors after their town (###Q1###) with no manual workers, it's reported. In fact, (###Q2###) was sweeping the piazza in front of the (###Q3###) church in preparation for market day, (###Q4###) the deputy mayors father and a town councilor armed with a high-pressure hose. The town Zerfaliu's last (###Q5###) retired six months ago and nobody has been hired since then. "We can't do anything - we are blocked by bureaucracy," the mayor says.

|||End|||

Select the most appropriate option for blank No. (###Q4###)

- A. as well
- B. alongside
- C. also
- D. along

Answer ||| B

Solution ||| The sentence containing the blank implies that the mayor was sweeping the piazza in cooperation with the deputy mayor's father and a town councilor armed with a high-pressure hose.

'**Alongside**' meaning 'together and in cooperation with' perfectly fits in the blank and makes **option B** the correct answer.

92. Select the most appropriate option for blank No. (###Q5###).

- A. mayor
- B. councillor
- C. worker
- D. member

Answer ||| C

Solution ||| The first sentence has the phrase 'no manual workers' which implies that the last **worker** retired six months ago. Hence, **option C** is the correct answer.

93.

|||Common||| **Direction:** Given below are four jumbled sentences. Select the option that gives their correct order. |||End|||

- A) The elephant tusks were tracked from the Democratic Republic of Congo for two months.
- B) Customs officials in Thailand say it's the biggest seizure in the country's history.

- C) Four tonnes of ivory, with a market value of \$6 million - it was an impressive haul.
D) Officials say they were being transported to Laos, from where they believed the ivory would be sold to customers across Asia.
- A. CBAD
B. ABCD
C. ACDB
D. CABD

Answer ||| A

Solution ||| The sentence C should be the first sentence as it introduces the theme of the passage i.e. 'seizing of four tonnes of ivory'. Next to the sentence C should be the sentence B as it further elaborates the seizure that is mentioned in the sentence C. AD is the mandatory pair because the sentence A tells about the tracking of elephant tusks and the sentence D further throws light on its transportation. Hence, **option A** i.e. '**CBAD**' is the correct answer.

94.

|||Common||| **Direction:** Given below are four jumbled sentences. Select the option that gives their correct order. |||End|||

Select the wrongly spelt word. A. Exemplify

- B. Example
C. Exhale
D. Exempt

Answer ||| A

Solution ||| Option A has the incorrectly spelt word. The correct spelling is 'exemplify' and it means 'be a typical example of'.

95.

|||Common||| **Direction:** Select the synonym of the given word. |||End|||

GARRULOUS

- A. Talkative
B. Concise
C. Throaty
D. Guttural

Answer ||| A

Solution ||| The meanings of the given words are:

Garrulous: excessively talkative, especially on trivial matters.

Talkative: fond of or given to talking.

Concise: giving a lot of information clearly and in a few words; brief but comprehensive.

Throaty: (of a voice or other sound) deep and husky.

Guttural: (of a speech sound) produced in the throat; harsh-sounding.

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

96.

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

|||End|||

If you join this job now, it proves to be good in the long run.

- A. No improvement
- B. it has proved to be good
- C. it proves good
- D. it will prove to be good

Answer ||| D

Solution ||| The sentence is an example of first conditional sentences.

The first conditional has the present simple after 'if', then the future simple in the other clause:

if + present simple, ... will + infinitive

It's used to talk about things which might happen in the future.

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

97.

|||Common||| **Direction:** In the sentence identify the segment which contains the grammatical error. |||End|||

She got two quick promotions in order that she has good communication skills.

- A. two quick promotions
- B. in order that
- C. she has good communication skills
- D. She got

Answer ||| B

Solution ||| 'In order' means 'according to a particular sequence'. However, the sentence requires a conjunction which means 'for the reason that; since'.

'Because' is the perfect replacement of 'in order that' to make the sentence grammatically and contextually correct.

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

98.

|||Common||| **Direction:** Select the most appropriate meaning of the given idiom. |||End|||

Get out of hand

- A. get upset
- B. give up something
- C. get out of control
- D. to complete a task

Answer ||| C

Solution ||| If a situation gets out of hand, it cannot be controlled any longer.

For example: Two men in the club had an argument that **got out of hand** and the police were called.

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

99.

|||Common||| **Direction:** Select the synonym of the given word. |||End|||

TILT

- A. Support
- B. Cross
- C. Straighten
- D. Slant

Answer ||| D

Solution ||| The meanings of the words are:

Tilt: move or cause to move into a sloping position.

Support: bear all or part of the weight of; hold up.

Cross: a mark, object, or figure formed by two short intersecting lines or pieces (+ or ×).

Straighten: make or become straight.

Slant: slope or lean in a particular direction; diverge or cause to diverge from the vertical or horizontal.

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

100.

|||Common||| **Direction:** Select the word which means the same as the group of words given. |||End|||

A person without a settled home or regular work who wanders from place to place and lives by begging.

- A. vagrant
- B. truant
- C. itinerant
- D. migrant

Answer ||| A

Solution ||| The meanings of the words are:

Vagrant: a person without a settled home or regular work who wanders from place to place and lives by begging.

Truant: a pupil who stays away from school without leave or explanation.

Itinerant: travelling from place to place.

Migrant: a person who moves from one place to another, especially in order to find work or better living conditions.

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