

6544 , SOLUTION, SSC CGL

Ques 1. ANS (C) Solution:

The only meaningful word is from option c.

1,5,2,4,6,3 = SEARCH

Ques 2. ANS (A) Solution:

Option (a): ÷, +, =, X, -

253 ÷ 23 + 66 = 30 X 5 - 73

11 + 66 = 150 - 73

77 = 77

LHS is equal to RHS.

Ques 3. ANS (C) Solution:

After interchanging X and ÷, 3 and 9 we get 9.5 and 13.22. Hence, 'c' is the correct option.

I. 7 X 6 ÷ 3 + 9 - 4

II. 9 ÷ 2 + 8 - 7 X 3

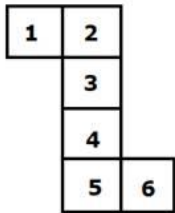
Interchanging X and ÷, 3 and 9

I. 7 ÷ 6 X 9 + 3 - 4 = 9.5

II. 3 X 2 + 8 - 7 ÷ 9 = 13.22

Ques 4. ANS (B) Solution:

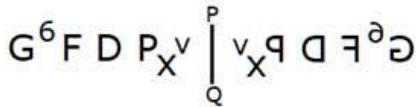
In this format,



Face having number 1 lies opposite to the face having number 6.
Face having number 2 lies opposite to the face having number 4.
Face having number 3 lies opposite to the face having number 5.
Thus, the face having \$ lies opposite to the face having P; the face having % lies opposite to the face having 1 and the face having & lies opposite to the face having +.

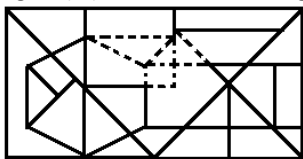
Ques 5. ANS (C) Solution:

Figure III is the correct mirror image of the given combination.

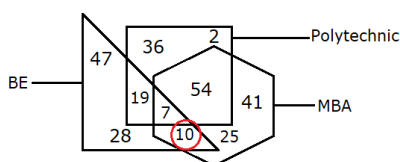


Ques 6. ANS (D) Solution:

Figure (IV) is embedded in the given figure -



Ques 7. ANS (A) Solution:



The number of persons who completed both BE and MBA but not polytechnic = 10

Ques 8. ANS (D) Solution:

Shape of the shaded arrow is the same in all figures except the figure (I).

Ques 9. ANS (D) Solution:

SYDNEY == UAFPGA (next letters in alphabetical order with a gap of one letter) == FZUKTZ (opposite letters)

A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

Similarly, ANKARA == CPMCTC == XKNXGX

Ques 10. ANS (A) Solution:

By verifying using 1ST option 14 03 77 69

M E A T

Ques 11. ANS (D) Solution:

B- reverse letter = Y

Y-4 = U

U- reverse letter = F

D- reverse letter = W

W-4 = S

S- reverse letter = H

Z- reverse letter = A

A-4 = W

W- reverse letter = D

U- reverse letter = F

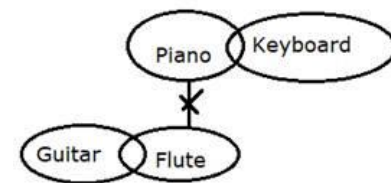
F-4 = B

B- reverse letter = Y

Alternate Solution:

The first two letters and last two letters are reverse letters of each other except option d.

Ques 12. ANS (B) Solution:



Some Guitar are not Piano: The Guitar which are Flute are not Piano. So, conclusion I is true.

Some Keyboard are Guitar: There is no definite relation between Keyboard and Guitar. So, conclusion II is false.

Ques 13. ANS (B) Solution:

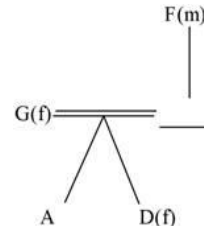
It is given that,

S	A	F	E	T	Y	U	S	E
8	3	7	4	0	2	1	8	4

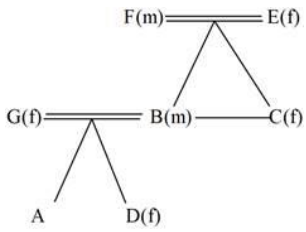
Here, a particular number is associated with a particular letter. Hence, FUSE -- 7184

Ques 14. ANS (B) Solution:

F is the father-in-law of G who is the mother of A. D is the sister of A.



B is the brother of C who is the only daughter of E.



So, C is the aunt of D.

Ques 15. ANS (B) Solution:

The correct order of words according to the English dictionary is, Fickleness, Fiction, Fictitious, Friction, Friendly, and Friskily.

Ques 16. ANS (D) Solution:

All except Crown are ornaments used on the parts of an arm and Crown is a head ornament.

Ques 17. ANS (C) Solution:

6	9	3	2
5	3	10	4
41	7	43	14

6	9	3	2
5	3	10	4
(6 X 5)+(6+5) = 30 + 11 = 41	(9 X 3)+(9+3) = 27 + 12 = 39	(3 X 10)+(3+10) = 30 + 13 = 43	(2 X 4)+(2+4) = 8 + 6 = 14

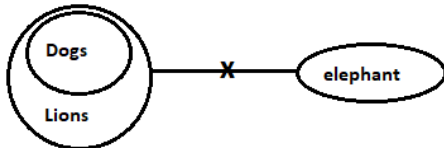
The missing number in the following table will be 39.

Ques 18. ANS (D) Solution:

B(2)	R (18)	H (8)
Z(26)	U (21)	D (4)
26 - 2 = 24 (X)	21 + 3 = 24 (X)	30 - 4 = 26 (Z)
V(22)	A (1 or 27)	V (22)
T (20)	D (4 or 30)	R (18)
R (18)	G (7 or 33)	N (14)

"XXZ" will replace the question mark (?) in the following series.

Ques 19. ANS (C) Solution:



i. No dog is an elephant ---- Follow

ii. No lion is a dog ---- Does not follow

iii. Some elephants are dogs --- Does not follow

So, only conclusion I follows.

Ques 20. ANS (C) Solution:

E + F: F is the sister of E

F(f) ——— E

F - H: H is the father of F

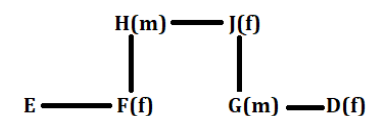
H + J: J is the sister of H

H(m) ——— J(f)

F(f) ——— E

J G: G is the son of J

G + D: D is the sister of G



So, D is the niece of H.

Ques 21. ANS (A) Solution:

(2)² = 4

One prime number is in between 2 and 5 i.e. 3.

(5)² = 25

One prime number is in between 5 and 11 i.e. 7.

(11)² = 121

One prime number is in between 11 and 17 i.e. 13.

(17)² = 289

One prime number is in between 17 and 23 i.e. 19.

(23)² = 529

One prime number is in between 23 and 31 i.e. 29.

(31)² = 961

So, option (a) will be correct.

Ques 22. ANS (D) Solution:

69 = (4)³ + 5

(11)³ + 5 = 1331 + 5 = 1336

So, '1336' is related to the third number in the same way as the second number is related to the first number.

Ques 23. ANS (A) Solution:

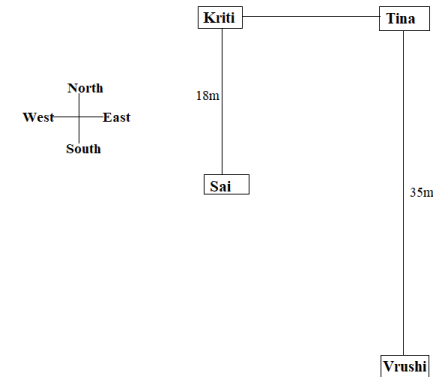
(56 + 4) ÷ 2 = 60 ÷ 2 = 30

(78 + 4) ÷ 2 = 82 ÷ 2 = 41

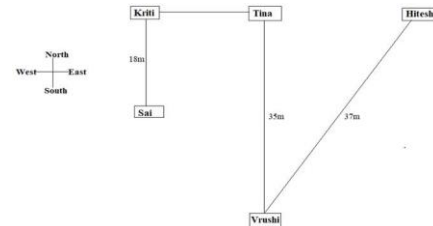
So, option (a) is correct.

Ques 24. ANS (B) Solution:

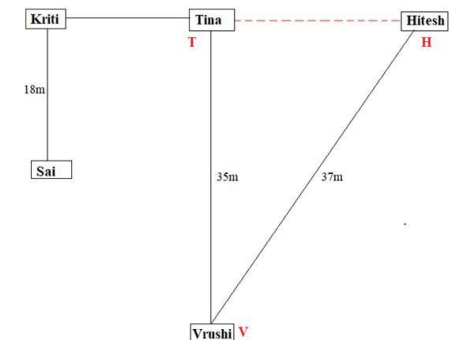
Sai stands 18m to the south of Kriti. Tina stands 14m to the east of Kriti. Tina stands 35m to the north of Vrushi.



Hitesh stands 37m to the northeast of Vrushi.



The distance between Hitesh and Tina-



By Pythagoras theorem -

HV² = TV² + TH²

37² = 35² + TH²

1369 = 1225 + TH²

TH =

TH = 144

TH = 12m

Thus, the distance between Tina and Hitesh is 12m.

Ques 25. ANS (D) Solution:

Here, the letters in the word are arranged in alphabetical order.

M	A	C	H	I	N	E	S	A	C	K	I	N	G
A	C	E	H	I	M	N	A	C	G	I	K	N	S

Ques 26. ANS (A) Solution:

The average depth of the Pacific Ocean is about 3,688 meters (12,100 feet). The deepest part of the ocean is called the Challenger Deep and is located beneath the western Pacific Ocean in the southern end of the Mariana Trench, which runs several hundred kilometers southwest of the U.S. territorial island of Guam. Challenger Deep is approximately 10,935 meters (35,876 feet) deep. It is named after the HMS Challenger, whose crew first sounded the depths of the trench in 1875.

Ques 27. ANS (B) Solution:

Associated with Bengali folk music of Bauls, the spiritual minstrels and poets of Sufi genre, the Khomok (two strings) or Gubguba (one string) is an Iktara-like instrument made out of dried gourd and with a thin rubber drum attached at the bottom. The instrument is used in almost all Bengali music genres now.

Ques 28. ANS (A) Solution:

Mariana Trench is a deep-sea trench in the floor of the western North Pacific Ocean, the deepest such trench known on Earth, located mostly east as well as south of the Mariana Islands.

Java Trench, also called Sunda Double Trench, deep submarine depression in the eastern Indian Ocean that extends some 2,000 miles (3,200 km) in a northwest-southeast arc along the southwestern and southern Indonesian archipelago.

The Puerto Rico Trench is the deepest part of the Atlantic Ocean and the Caribbean Sea.

The Middle America Trench is a major subduction zone, an oceanic trench in the eastern Pacific Ocean off the coast of Central America. It can be divided into a northern section called the Acapulco Trench and a southern section called the Guatemala Trench.

Source: ATLAS

Ques 29. ANS (A) Solution:

In the reign of Alauddin Khilji (1296 - 1316 A.D.), the Amils were the government agents of the State. They were responsible for collecting the revenue and for this they took the help of local chiefs - the muqaddams and khuts. Land revenue was collected in kind, and the collected food grains were transported to the towns. The policy of direct collection of land revenue by the State, based on measurement, could only succeed if the Amils and other local officials were honest. Although Alauddin had given these elements sufficient salaries to enable them to live in comfort, he insisted that their accounts should be audited strictly. For small defaults, they would be beaten and sent to prison.

Ques 30. ANS (D) Solution:

SI Derived Units:-

SI Unit	Quantity
Becquerel	Radioactivity
Kilogram meter per second	Momentum
Newton metre	Torque
Weber	Magnetic flux

Ques 31. ANS (B) Solution:

The official language of the Satavahanas was Prakrit. All inscriptions were composed in this language and written in the Brahmi script, as was the case in Ashokan times. Some Satavahana kings may have composed Prakrit books. One Prakrit text called Gathasaprasati is attributed to a Satavahana king called Hala.

Ques 32. ANS (B) Solution:

Chakrapani discovered mercury sulphide. The credit for inventing soap also goes to him. He used mustard oil and some alkalies as ingredients for making soap. Indians began making soaps in the 18th century CE. Oil of Eranda and seeds of Mahua plant and calcium carbonate were used for making soap.

Ques 33. ANS (C) Solution:

Tamil writer Perumal Murugan's novel 'Pookkuzhi', translated as Pyre in English by Anirudh Vasudevan, has made it to the International Booker Prize 2023 longlist, becoming the first Tamil

novel to be nominated for the Bookers. The list was announced on March 14.

Ques 34. ANS (C) Solution:

Succession is a series of progressive changes in the composition of an ecological community over time.

In primary succession, newly exposed or newly formed rock is colonized by living things for the first time.

In secondary succession, an area previously occupied by living things is disturbed - disrupted - then recolonized following the disturbance.

Ques 35. ANS (C) Solution:

The XBB 1.16 variant was first found in January 2023 in India when two samples tested positive for the variant while in February a total of 59 samples were found.

A total of 76 samples of COVID-19's XBB.1.16 variant have been found which might be behind the recent rise of cases in India, according to INSACOG data.

The variant has been found across Karnataka (30), Maharashtra (29), Puducherry (7) Delhi (5), Telangana (2), Gujarat (1), Himachal Pradesh (1) and Odisha (1), the Indian SARS-CoV-2 Genomics Consortium (INSACOG) data showed.

Ques 36. ANS (D) Solution:

Falling of river water over a vertical step in the river bed is called a waterfall.

Plunge pool is a hollow feature at the base of a waterfall which is formed by cavitation. Alluvial fan is a deposition of sediment occurs at which the river enters a plain or the foot-hills. As the river enters the plain it twists and turns forming large bends known as Meanders.

Due to continuous erosion and deposition along the sides of the meander, the ends of the meander loop come closer and closer. In due course of time the meander loop cuts off from the river and forms a cut-off lake, also called an Ox-bow lake.

Ques 37. ANS (B) Solution:

Atomic mass of Helium is: 4 a.m.u

Electronic configuration: $1s^2$

It is a colourless, odourless, tasteless, non-toxic, 'inert' gas

Boiling point: -268.9°C , Melting point: -272.2°C

Ques 38. ANS (A) Solution:

The Shamlaji Melo, also called the Kartik Purnima fair is an annual festival held in Gujarat in the month of November and lasts for about two weeks. The Shamlaji Temple is a renowned Vaishnav Shrine and the deity housed here is known by various names included Gadadhar (bearer of the mace) and Shaksi Gopal. The temple is of great archaeological significance as it was built in the 11th century.

Devotees belonging to various castes and communities including the Garasias and Bhils through this festival.

Ques 39. ANS (D) Solution:

Benzoic acid is a commonly used antimicrobial preservative in food and beverages, especially in carbonated beverages, as it presents its strongest antibacterial activity at pH 2.5 - 4.0. Benzoic acid has inhibitory effects on the proliferation of bacteria and yeasts, a major cause of food spoilage. Although the addition of benzoic acid can extend the shelf life of drinks and prevent nutritional losses, excessive intake of benzoic acid may cause diarrhea, abdominal pain, and other symptoms and even interfere with the intermediate metabolic processes of the body.

Ques 40. ANS (C) Solution:

Statement I is correct: The grasslands are tree less because of scanty rainfall, long drought and severe winter.

The temperate grasslands are transitional regions. They are usually located between forests and deserts. Their major locations include the pampas of South America, the velds of Africa, the plains of North America and the steppes of Eurasia.

The grass is the dominant vegetation in these regions. All wildlife, in one way or the other, depends on this grass for survival.

However, the temperate grasslands only receive rainfall averaging 10 to 30 inches per year, making its wildlife less diverse than in the

wetter savannah regions. Drought and fires are a norm in these grasslands, and only the fittest wild animals get to survive. In the temperate grasslands, there is usually a greater abundance of grazers as compared to predators.

Statement II is incorrect: They are extensively spread in Northern hemisphere due to its continentality. The most important grasslands are Prairies, Pustaz(Hungary), Steppes and Manchuria(China)

Statement III is correct: The natural conditions suit animal farming. Subsequently, cattle, sheep, pigs and horses were introduced, and they proved very successful. With the development of refrigerated ships in the late nineteenth century, the temperate grasslands became major pastoral regions, exporting large quantities of beef, mutton, wool, Milk, butter, cheese and other dairy products are also important in some parts of the North American grasslands. The development was particularly spectacular in the southern hemisphere.

Source: NCERT

Ques 41. ANS (C) Solution:

Statement I is correct. This 86th amendment added the fundamental duty that every citizen, who is a parent or guardian, should provide the opportunities for education to his child at the ward between the ages of six to fourteen years.

Statement II is correct. The term 'secular' was added to the Preamble of the Indian Constitution by the 42nd Constitutional Amendment Act of 1976.

Source: Indian Polity, Laxmikanth.

Ques 42. ANS (B) Solution:

The governor of a state shall, after every five years, constitute a finance commission to review the financial position of the panchayats. The state legislature may provide for the composition of the commission, the required qualifications of its members and the manner of their selection. The governor shall place the recommendations of the commission along with the action taken report before the state legislature.

Ques 43. ANS (A) Solution:

The policy rate (i.e: Repo rate in case of India) is the key lending rate of the central bank in a country. It is a monetary policy instrument under the control of the Central Bank -Reserve Bank of India (RBI) - to regulate the availability, cost and use of money and credit.

Statement I is correct: Dear money refers to money that is hard to obtain because of abnormally high interest rates. Dear money is often referred to as tight money because it occurs in periods when central banks are tightening monetary policy. While, cheap money is the opposite of Dear money.

Statement II is incorrect: A change in the policy rate alters all other short term interest rates in the economy, thereby influencing the level of economic growth and inflation. A low interest rate regime is considered conducive to growth while it generally fuels inflation. In case of dear money, interest rates are high which helps in controlling inflation, but can be hampering growth due to non-availability of finance.

Source: Arthapedia

Ques 44. ANS (B) Solution:

Khongjom Parva is a ballad singing tradition that has been existing over the past one hundred and twenty two years in Manipur. It emerged just after the Anglo-Manipuri War of 1891. The ballad started in praise of the great heroes of the War who sacrificed their lives for Manipur. The founder of this singing style was one Dhobi Leinou who witnessed the war, as he led the British force. His singing style has ever since been known as Khongjom Parva, which later on has extensively constituted among others the stories, parts or full, of the Ramayana, the Mahabharata, the heroic exploits of Manipuri kings, the legends of Moirang and more especially the Manipuri folk epic, Khamba-Thoibi.

Ques 45. ANS (B) Solution:

A coil with an iron core is called an electromagnet. The iron core increases the coil's magnetic field strength. A simple electromagnet is made by coiling wire around an iron nail. Iron is

easily magnetised and demagnetised. Steel is more difficult to magnetise and is not easily demagnetised.

An iron core makes a temporary electromagnet. It loses its magnetism as soon as the switch is opened and the current is switched off. A steel core makes a more permanent magnet. It does not lose its magnetism quickly when the current is switched off.

Electromagnets with iron cores are used:

- in scrap yards to lift magnetic materials such as iron and steel;
- to separate magnetic materials such as iron and steel from non-magnetic materials;
- in electric bells;
- in relay switches and door locks that can be controlled remotely;
- to hold open fire doors-the electromagnet switches off when a fire alarm is sounded and the doors close.

Ques 46. ANS (A) Solution:

Shahid Bhagat Singh was a revolutionary freedom fighter. He founded a socialist youth organisation called the Naujawan Bharat sabha with himself as its founding secretary in 1926. This was formed as an open wing of the revolutionaries to carry out political work among the students, the peasants and the workers.

Ques 47. ANS (B) Solution:

Zygote formation stage is a brief part during the fertilization process of a sperm cell by an egg cell in the embryonic development of humans and other animals.

The zygote is endowed with genes from both the parents and carries 2 sets of chromosomes from each. The zygote contains developmental information set encoded in the genes of chromosomes.

Ques 48. ANS (B) Solution:

Vasumitra was a Buddhist Monk - related to Kanishka. He presided over the 4th Buddhist council.

Vishvabhu - also associated with Buddhism-part of Manushi Buddha- related to Mahayana form of Buddhism.

Lakulisha- He gave the doctrine of the Pashupatas. He was a Shaivite reformist and revivalist saint who was later deified as the twenty-eighth and the last incarnation of Lord Shiva.

Ques 49. ANS (C) Solution:

Ustad Amir Khan (1912-1974) was the founder of the Indore gharana. He was born into a family of musicians in Indore. His father was a sarangi and veena player at the court of the Holkars. His grandfather was a singer at the court of Mughal Emperor Bahadur Shah Zafar.

He was initially trained by his father in sarangi. However his interest in singing led to him being trained in the merukhand technique (the use of permutations of any given group of swars). He soon developed his own style of gayaki (vocal style). The Indore gharana that he founded is known for its blend of the dhrupad with the khayal. Amir Khan is known for his three-octave range voice.

Ques 50. ANS (C) Solution:

Block mountains: When the earth's crust cracks, faulting takes place. Faulting is caused by tension or compression, forces which lengthen or shorten the earth's crust, causing a section of it to subside or to rise above the surrounding level. Earth movements generate tensional forces that tend to pull the crust apart, and faults developed. If the block enclosed by the fault remains as it is or rises, and the land on either side subsides, the upstanding block becomes the hoist or block mountain. The faulted edges are very steep, with scarp slopes and the summit is almost level, e.g. the Hunsruck Mountains, the Vosges and Black Forest of the Rhineland.

Tension may also cause the central portion to be let down between two adjacent fault blocks forming a graben or rift valley, which will have steep walls. The East African Rift Valley system is 3,000 miles long, stretching from East Africa through the Red Sea to Syria. Compression forces set up by earth movements may produce a thrust or reverse fault and shorten the crust. A block may be raised or lowered in relation to surrounding areas.

In general, largescale block mountains and rift valleys are due to tension rather than compression. The faults may occur in series and be further complicated by tilting and other irregularities.

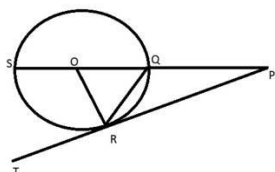
Ques 51. ANS (D) Solution:

माध्यमिक बेरोजगारों की संख्या :

वर्ष 1976 → 3300 - 1800 = 1500

वर्ष 1977 → 4000 - 2200 = 1800

Ques 52. ANS (B) Solution:



Given $\angle QRP = 28^\circ$

We know that $\angle ORP = 90^\circ$

So, $\angle ORQ = 90 - 28 = 62^\circ$

$OQ = OR = \text{radius}$

So, $\angle ORQ = \angle OQR = 62^\circ$

Therefore,

$\angle RQP = 180 - \angle OQR = 180 - 62 = 118^\circ$

In ΔQPR ,

$\angle QPR = 180 - (\angle RQP + \angle QRP) = 180 - 146 = 34^\circ$

$\angle QPR = \angle SPR = 34^\circ$

Ques 53. ANS (B) Solution:

Let $(1/a) = u$ and $(1/b) = v$

So,

$6u + 5v = 4$(1)

$10v - 9u = 1$(2)

By multiplying equation (1) by 2 and subtracting equation (2) from (1)

$u = (1/3)$ and substituting in equation (1) we get

$5v = (2)$

$v = (2/5)$

$1/a = (1/3)$

$a = 3$

$1/b = 2/5$

$b = 5/2 = 2.5$

Product = $3 \times 2.5 = 7.5$

Ques 54. ANS (A) Solution:

Selling price of 48 articles = Rs. 2160

Cost price of 48 articles = $2160 \times (100/90) = \text{Rs. } 2400$

Cost price of 1 article = $2400/48 = \text{Rs. } 50$

New selling price of 1 article = $50 \times (112/100) = 56$

In Rs. 56 she can sell = 1 article

In Rs. 1 she can sell = $(1/56)$ article

In Rs. 2016 she can sell = $(1/56) \times 2016 = 36$ articles

Ques 55. ANS (B) Solution:

Let sum be Rs. P

Amount in 13 years = Rs. 2P

Simple interest = $2P - P = \text{Rs. } P$

Rate% = $(\text{Simple interest} \times 100) / (P \times \text{time})$

Rate% = $(P \times 100) / (P \times 13)$

Rate% = $100/13 = 7.69\%$

Ques 56. ANS (D) Solution:

Total revenue of the company in 2014 from the sale of all the four products = $80 + 92 + 96 + 92 = 360$ crores

Total revenue from the sale of product C in 2014 to 2017 = $96 + 88 + 93 + 103 = 380$ crores

Required ratio = $360 : 380 = 18 : 19$

Ques 57. ANS (D) Solution:

= 32×15

= 480

Half of 480 = $480/2 = 240$

Positive factors of 240 are:

1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 16, 20, 24, 30, 40, 48, 60, 80, 120, 240

Hence, there are 20 positive factors of 240.

Ques 58. ANS (D) Solution:

$\sin C = 12/13$ (Given)

$\cos C = 5/13$ (Since, $\sin^2 C + \cos^2 C = 1$)

$\sin D = 15/17$ (Given)

$\cos D = 8/17$ (Since, $\sin^2 D + \cos^2 D = 1$)

$\sin(C - D) = \sin C \cdot \cos D - \cos C \cdot \sin D$

= $12/13 \times 8/17 - 5/13 \times 15/17$

= $(96 - 75) / (13 \times 17) = 21/221$

Ques 59. ANS (C) Solution:

we know that

$(x+y)^2 = (x-y)^2 + 4xy$

= $(2)^2 + 4 \times 1$

= $4 + 4$

= 8

Ques 60. ANS (D) Solution:

If number is divisible by 210, then it is also divisible by the prime factors of 210.

$210 = 2 \times 3 \times 5 \times 7$

As we know that, if the sum of digits of a number is divisible by 3, then the number also is divisible by 3.

Even if we rearranged the number, sum of the digits will be same in each arrangement.

So,

Number will be divisible by 3.

Ques 61. ANS (B) Solution:

Let income of B = Rs B

Income of A = Rs. 0.4B

Let expenditure of B = Rs. X

Then expenditure of A = Rs. 0.6X

Savings of A = Rs. $(0.4B - 0.6X)$

Savings of B = Rs. $(B - X)$

According to the question,

$0.4B = 0.7X$

$4B = 7X$

$B/X = 7/4$

Required ratio = $(0.4B - 0.6X) / (B - X)$

= $[(0.4 \times 7/4) - 0.6] / [(7/4) - 1]$

= $(0.7 - 0.6) / (3/4)$

= $0.1 \times 4/3$

= $4/30$

= $2/15$

= 2 : 15

Ques 62. ANS (A) Solution:

Volume of a hemisphere = $\frac{2}{3} \pi r^3$

$$\frac{2}{3} \pi r^3 = 19.404 \text{ cm}^3$$

$r = 2.1 \text{ cm}$

Diameter = $2r = 2 \times 2.1 = 4.2 \text{ cm}$

Ques 63. ANS (B) Solution:

औसत राजस्व = $\left(\frac{300 + 260 + 350 + 320 + 250 + 340 + 240 + 280}{8} \right)$ करोड़ रुपए

= $\left(\frac{2340}{8} \right)$ करोड़ रुपए = 292.5 करोड़ रुपए

अभीष्ट वर्ष

⇒ 2010, 2013, 2015, एवं 2016

Ques 64. ANS (A) Solution:

Let speed of B = m km/hr

Then speed of A = m * 1.2 = 1.2m km/hr

After meeting,

$$\frac{\text{Speed of A}}{\text{Speed of B}} = \sqrt{\frac{\text{Time taken by B to reach X}}{\text{Time taken by A to reach Y}}}$$

$$\frac{1.2m}{m} = \sqrt{\frac{2x}{5}}$$

$$\frac{6}{5} = \sqrt{\frac{2x}{5}}$$

$$\frac{36}{25} = \frac{2x}{5}$$

$$x = \frac{18}{5}$$

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

Ques 65. ANS (C) Solution:

Total capacity of tank = LCM of 12, 18, and 36 = 36 units

Efficiency of tap 1 = 36/12 = 3 units per hour

Efficiency of tap 2 = 36/18 = 2 units per hour

Efficiency of leakage = 36/36 = -1 unit per hour

Tank filled in first 1 hour = 3 + 2 - 1 = 4 units

Time taken by both taps to fill the remaining tank = (36 - 4)/5 = 6.4 hours

Total time taken = 1 + 6.4 = 7.4 hours = 7 hours 24 min.

Ques 66. ANS (B) Solution:

Since, ΔABC is an equilateral triangle, so

$AD = (\sqrt{3}/2) * \text{side of triangle}$

$4\sqrt{3} = (\sqrt{3}/2) * \text{side of triangle}$

Side of triangle = 8 cm

Perimeter of triangle = 8 + 8 + 8 = 24 cm

Ques 67. ANS (B) Solution:

Speed of boat upstream = 6/2.5 = 2.4 kmph

Speed of the boat downstream = 7.6/2 = 3.8 kmph

Speed of boat in still water = (2.4+3.8)/2 = 3.1 kmph

Ques 68. ANS (B) Solution:

Let initial number of boys = 7X

And initial number of girls = 6X

According to the question,

$$(7X + 4)/(6X - 3) = 4/3$$

$$(7X + 4)/(2X - 1) = 4$$

$$7X + 4 = 8X - 4$$

$$X = 8$$

Total number of boys and girls initially in the group = 7X + 6X = 13X

$$= 13 * 8 = 104$$

Ques 69. ANS (B) Solution:

$$4(\sin^4 30^\circ + \cos^4 30^\circ) - 3(\sin^2 45^\circ - 2\cos^2 45^\circ)$$

$$= 4\left(\frac{1}{16} + \frac{9}{16}\right) - 3\left(\frac{1}{2} - 2 \times \frac{1}{2}\right)$$

$$= 4 \times \frac{10}{16} - 3\left(\frac{1}{2} - 1\right)$$

$$= \frac{5}{2} + \frac{3}{2}$$

$$= 4$$

Ques 70. ANS (B) Solution:

In quadrilateral PQRS, $\angle P + \angle Q + \angle R + \angle S = 360^\circ$ (\therefore Sum of interior angles of a quadrilateral is 360 degrees)

$$x + (360^\circ - 130^\circ) + 40^\circ + (130^\circ/2) = 360^\circ$$

$$x + 230^\circ + 40^\circ + 65^\circ = 360^\circ$$

$$x = 25^\circ$$

Ques 71. ANS (B) Solution:

Let cost of production = Rs.100

Then selling price = 100 * 125/100 = Rs.125

New cost of production = 100 * 120/100 = Rs.120

New selling price = 125 * 110/100 = Rs.137.5

Profit% = (137.5 - 120) * 100/120

$$= 17.5 * 5/6 = 14.58 = 14.6\%$$

Ques 72. ANS (B) Solution:

$$\operatorname{cosec}(85^\circ - \theta) - \sec(5^\circ - \theta) - \tan(55^\circ - \theta) - \cot(35^\circ - \theta)$$

$$= \operatorname{cosec}(85^\circ + \theta) - \operatorname{cosec}(90 - (5 - \theta)) - \tan(55 + \theta) + \tan[90 - (35 - \theta)]$$

$$= \operatorname{cosec}(85 + \theta) - \operatorname{cosec}(85 + \theta) - \tan(55 + \theta) + \tan(55 + \theta)$$

$$= 0$$

Ques 73. ANS (C) Solution:

Let the length of each of the equal sides = X cm

Perimeter = 50 cm

$$X + X + 18 = 50$$

$$2X = 32$$

$$X = 16.$$

Ques 74. ANS (C) Solution:

length of the median is 1/2 the length of the hypotenuse. Hence, $BD = 1/2 AC = 3\text{cm}$.

Ques 75. ANS (B) Solution:

We know that

$$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$$

$$\text{if } (a + b + c) = 0$$

$$\text{Then, } a^3 + b^3 + c^3 = 3abc$$

$$\text{Hence, } (a^3 + b^3 + c^3)/3abc = 1$$

Ques 76. ANS (C) Solution:

'Astonishing' means extremely surprising or impressive; amazing.

'Credible' means able to be believed; convincing. 'Startle' means to surprise a person.

So, 'startle' is the right synonym.

Hence, option (c) is correct.

Ques 77. ANS (A) Solution:

The meaning of the word 'impudent' is 'not showing due respect for another person'. Let's look at the meanings of the given options.

Polite: having or showing behaviour that is respectful and considerate of other people.

Impertinent: not showing proper respect; rude.

Audacious: showing an impudent lack of respect.

Abashed: embarrassed, disconcerted, or ashamed.

Among the given options, 'polite' is the most appropriate antonym of the given word.

Hence, option (a) is the correct answer.

Ques 78. ANS (D) Solution:

Among the given options, the option with the words 'kept' and 'promise' is the most appropriate choice. The phrase 'keep a promise' means 'to do what you said you would do'. The latter part of the sentence confirms that he gave his watch to keep his promise.

Hence, option (d) is the correct answer.

Ques 79. ANS (B) Solution:

The question is directed to Zoya, not to the reader ('me'), and neither is it a general question. Hence options (a) and (d) are eliminated.

The verb must be changed from simple present to simple past.

('live' to 'lived'), as the reported verb ('asked') is in past tense.

When the question doesn't start with a 'wh-' word, the reporting verb is followed by an 'if' or 'whether'.

Hence, the correct sentence in indirect speech is: Mohan asked Zoya whether she lived in the hostel.

Therefore, option (b) is the correct answer.

Ques 80. ANS (C) Solution:

The given sentence is in the past perfect tense. So, the structure will change from [Object+ had+ been +v3+ by + subject] to [Subject + had + v3+ object].

Only option C follows this grammatical structure.

Ques 81. ANS (D) Solution:

Dotage - the period of life in which a person is old and weak.

Denigration - the action of unfairly criticizing someone or something.

Recluse - a person who lives alone and who maintains very little contact with other people or society.

Reprisal - an act of retaliation; an act of damage or injury against an enemy in reaction to an act of damage or injury done to you. Hence, option d) is correct.

Ques 82. ANS (A) Solution:

The sentence talks about the emergence of modern-day flexible work policies and mentions it had roots in the second-wave feminist movement. Option a) brings out the intended meaning. 'Elucidate' (which means to explain), 'ignite' and 'indulge' render the sentence meaningless. Hence, a) is the correct answer.

Ques 83. ANS (C) Solution:

In spite of the fact that women had entered the paid workforce, they still continued to contribute to childcare and housework. 'Disproportionate' (which means too much or too little) conveys that they (women) continued to do a significant amount of work (the fact that the passage later talks about these groups striving for 'changes in the structure and conditions of paid work' indicates this section of the society was not compensated according to their efforts). The other options render the sentence meaningless. 'Belligerent' means hostile and aggressive; 'deleterious' means harmful. Hence, c) is the correct answer.

Ques 84. ANS (D) Solution:

Past tense must be used in the sentence to maintain uniformity and parallelism since the passage refers to a past event, i.e., the time when the feminist movement began. According to this, 'arise' is negated because it is the base form of the verb (the base form or root form of the verb is the one without any suffixes like -s/-es, -ed or -ing). The sentence talks about the emergence of 'campaign groups' in the US and Europe. Options b) and c) render the sentence meaningless. Option d), 'cropped up' means to happen or emerge. Hence, d) is the correct answer.

Note:

Parallelism: In grammar, parallelism, also known as parallel structure or parallel construction, is a balance within one or more sentences of similar phrases or clauses that have the same grammatical structure. Given below is an example which shows a sentence in two forms (parallel in structure and lacking parallelism): Lacking parallelism: Perna likes cooking, dancing and to sing. Parallel: Perna likes cooking, dancing and singing.

Ques 85. ANS (B) Solution:

The sentence talks about a new generation of activists who strove for changes in the established structure. Among the given options, b) brings out this meaning. The other options render the sentence meaningless. 'Conned' means to make someone believe something false, usually so that that person will give you their money or possessions; 'belittled' means to make a person or an action seem as if he, she or it is not important. Hence, b) is the correct answer.

Ques 86. ANS (A) Solution:

The previous sentence talks about changes in the structure and conditions of paid work. These changes were to be in favour of women, which indicates they were not given the same status as men. The phrase 'at par with' means equal to; this phrase would have fit in the sentence if it was framed as "...participate in the economy at par with men", which is not the case in the given sentence. In the given sentence, it causes repetition. Option a) brings out the intended meaning. Options c) and d) do not fit in contextually. Hence, a) is the correct answer.

Ques 87. ANS (D) Solution:

After reading all the sentences, we can say that the passage is about the electrical telegraph. Sentence 'S' introduces us to the main subject (An electrical telegraph) of the given jumbles. So, sentence S becomes the first sentence here. SR is an obvious pair that talks about the history of the telegraph and its use. 'But' is used to introduce a contrast between two sentences. P states that there are many versions of the electrical telegraph, and Q states that the successful ones belong to two broad categories.

Therefore, PQ is a pair. So, among the given options 'SRPQ' is the correct sequence. Hence, option (d) is the correct answer.

Ques 88. ANS (A) Solution:

B can be identified as the introductory sentence as it tells us about the habit of the author to straighten her hair. C is the next sentence as it tells us that she was only familiar with straight hair. A follows as it mentions how did she feel without straightening her hair. Lastly, D concludes by saying that she let go of the pressure to maintain her hair straight, eventually.

Therefore, the correct answer is: (a) BCAD.

Ques 89. ANS (A) Solution:

The idiom 'foot in the door' means 'achieve an initial stage; succeed with a first step'. Hence, the answer is option a).

Ques 90. ANS (B) Solution:

The meaning of the idiom 'Hit the sack' is to go to bed. Among the given options, the phrase that matches the meaning of the idiom is option (b) 'Going to bed'.

Usage: The mother told her children to hit the sack.

Hence, the correct answer is option (b).

Ques 91. ANS (A) Solution:

We use the relative pronoun 'who' to refer to humans and we use 'that' to refer to inanimate objects, types of people, places, things, or animals. Since the city 'Troy' [a place] is mentioned in the sentence which is referred to using the relative pronoun, 'who' needs to be replaced by 'that' in order to rectify the error.

The correct sentence is: Troy is the city that was destroyed in a day by the intruders.

Hence, (a) is the correct answer.

Note: Relative pronouns: A relative pronoun is used to connect a clause or phrase to a noun or pronoun. The clause modifies, or describes, the noun. The most common relative pronouns are who, whom, whose, which, and that. For example: She is the girl who received the award for bravery from our Home Minister.

Ques 92. ANS (C) Solution:

The phrase highlighted in the given sentence is incorrect and needs replacement with the correct one. The word 'hampering' is a clear indication that the given sentence is in present tense because it is acting as a gerund. This means that the helping verb in the first clause of the sentence should also be in present tense. Since 'far-reaching' is an adjective and 'implications' is a noun, the adjective must precede the noun because usually adjectives modify nouns.

Hence, option (c) is correct.

Ques 93. ANS (B) Solution:

Word	Meaning
Nefarious	wicked or criminal.
Hovering	remain in one place in the air.
Stalwart	loyal, reliable, and hard-working.
Ravenous	extremely hungry.

The correct spelling is 'hovering'.

Hence, option (b) is correct.

Ques 94. ANS (D) Solution:

The sentence is grammatically correct and free of error. D is the right answer.

Ques 95. ANS (B) Solution:

The preposition 'by' will replace the preposition 'to' because - 'abide' (Verb) agrees with 'by' Abide by something (Phr. V.): to accept and act according to a law, an agreement, etc.

Hence, option (b) is the correct answer.

The correct sentence is: We all must abide by the rules made by the government.

Ques 96. ANS (B) Solution:

Reverence - Deep respect for someone or something. Cynosure - A person or thing that is the centre of attention or admiration.

Composure - The state or feeling of being calm and in control of

oneself. Reticence - The quality of being reticent; reserve. Option B is the right answer.

Ques 97. ANS (A) Solution:

The sentence is grammatically correct and free of error. A is the right answer.

Ques 98. ANS (A) Solution:

The meaning of the word 'devoid' is 'entirely lacking or free from'.

Let's look at the meanings of the given options.

Lacking: not available or in short supply.

Filled: generously supplied with.

Gigantic: of very great size or extent; huge or enormous.

Low: of less than average height from top to bottom or to the top from the ground.

Among the given options, 'lacking' is the most appropriate synonym of the given word.

Hence, option (a) is the correct answer.

Ques 99. ANS (B) Solution:

Correct spelling is mentioned in option (b)- 'habitat'.

Hence, option (b) is correct.

Ques 100. ANS (C) Solution:

'Maladroit' means '(Adj) Inefficient or inept'. Options b) and d) can be rejected as they are unrelated to the word. 'Bungling' means 'The action or fact of carrying out a task clumsily or incompetently'. Hence, option a) can also be rejected as it is the same meaning as the word. 'Outrageous' means 'Shockingly bad or excessive'. 'Cede' means 'Give up (power or territory)'. 'Adroit' means 'clever or skilful'. Hence, option c) is the correct answer.

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