Army Soldier GD (Rohtak Amb) 2020 Official Paper. (Previous Year Paper)

Army GD Agniveer • 2020 • 50 questions • 60 minutes • Answer key and solutions

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GENERAL KNOWLEDGE

Q1. Who invented the 'Computer' ?

(a) Charles Babbage
(b) Grenville
(c) Fahrenheil
(d) Enstien

Q2. 'East India Company' was formed in which year?

(a) 1500
(b) 1622
(c) 1595
(d) 1600

Q3. The first Bullet train of India was formed on which of the following route?

(a) Delhi and Mumbai
(b) Delhi and Ahmedabad
(c) Ahmedabad and Agra
(d) Ahmedabad and Mumbai

Q4. Where is 'National Museum of India' located?

(a) Chennai
(b) Bangalore
(c) Patna
(d) Delhi

Q5. How many countries are members of 'SAARC'?

(a) 6
(b) 3
(c) 8
(d) 5

Q6. 'One people, one state, one leader' was the policy of _____?

(a) Lenin
(b) Stalin
(c) Hitler
(d) Mussolini

Q7. Kalahari desert is located in which country?

(a) South Africa
(b) Chile
(c) India

(d) Saudi Arabia

Q8. Which among the following is the capital of Chattisgarh?

(a) Bilaspur
(b) Bengaluru
(c) Hyderabad
(d) Raipur

Q9. Which is the largest populated state of India?

(a) Madhya Pradesh
(b) Uttar Pradesh
(c) Maharashtra
(d) Rajasthan

Q10. The tenure of Vice President is of how many years?

(a) 2 years
(b) 8 years
(c) 4 years
(d) 5 years

Q11. In which state is Akshardham Temple located?

(a) Andhra Pradesh
(b) Gujarat
(c) Tamil Nadu
(d) Haryana

Q12. What is the name of largest irrigation canal in India?

(a) Sirhand canal
(b) Yamuna canal
(c) Upper Bharai Dobb canal
(d) Indira Gandhi canal

Q13. 'Mohun Bagan' is a team of which sport?

(a) Cricket
(b) Basketball
(c) Football
(d) Hockey

Q14. The deepest ocean of the world is _____.

(a) Arctic ocean
(b) Indian ocean
(c) Pacific ocean
(d) Allantic ocean

Q15. Who was the Father of 'The Russian Revolution?

(a) George washingon
(b) Max Muller
(c) Lenin
(d) Adolf hitler

GENERAL SCIENCE

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Q16. What is the unit of Resistance?

(a) Coulomb
(b) Ampere
(c) Ohm
(d) Watt

Q17. Which of the following is not an electronic device?

(a) Radio
(b) Computer
(c) Television
(d) Bulb

Q18. Which of the following gases is filled in soft drinks?

(a) N2
(b) O2
(c) H2
(d) CO2

Q19. 32° Fahrenheit equals to _____.

(a) 48°C
(b) 100°C
(c) 0°C
(d) 24°C

Q20. The unit of measuring Astronomical Distance is _____.

(a) Kilometer
(b) Meter
(c) Light year
(d) Nautical Mile

Q21. What is the chemical formula of common salt?

(a) H2O
(b) NaCl
(c) KCCl
(d) Ca

Q22. What is the percentage of oxygen in Air?

(a) 78%
(b) 21%
(c) 31%
(d) 46%

Q23. Deficiency of Vitamin C in the body causes which diseases?

(a) Goiter
(b) Night blindess
(c) Pellagra
(d) Scurvy

Q24. Main constituent of Natural gas is _____.

(a) Methane
(b) Ethane
(c) Propane
(d) Butane

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Q25. The eyes of a patient suffering from jaundice turns to which colour?

(a) Blue
(b) Red
(c) Yellow
(d) Orange

Q26. The loudness of sound is measured in _____.

(a) Joule
(b) Meter / second
(c) Decibel
(d) Hours

Q27. Which metal was used first by man on earth?

(a) Iron
(b) Gold
(c) Aluminium
(d) Copper

Q28. When blue litmus paper is kept in acetic acid, the blue litmus paper turns to which colour?

(a) Red
(b) Yellow
(c) Light Green
(d) Violet

Q29. Speed of sound in air at 0 degree centigrade is _____.

(a) 325 mtr/sec
(b) 350 mtr/sec
(c) 332 mtr/sec
(d) 211 mtr/sec

Q30. The heating element in an electric heater is made of which metal?

(a) Copper
(b) Silver
(c) Lead
(d) Nichrome

MATHEMATICS

Q31. What will be the mean of first 5 positive odd integers?

(a) 4
(b) 3
(c) 2
(d) 5

Q32. A sum of money becomes Rs. 900 in 4 years at 5% per annum on Simple interest.What is the sum?

(a) Rs. 550
(b) Rs. 560
(c) Rs.750
(d) Rs.500

Q33. If Raj bought an umbrella for Rs. 100 and sold it for a profit of Rs.10 then find the selling price of umbrella?

(a) Rs. 110
(b) Rs. 100
(c) Rs. 90
(d) Rs. 115

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Q34. What is the remainder when 495 is divided by 6?

(a) 2
(b) 3
(c) 4
(d) 1

Q35. Which of the following is a perfect square?

(a) 730
(b) 1520
(c) 1681
(d) 1935

Q36. Solve: 25% of 100 = ?

(a) 30
(b) 25
(c) 35
(d) 20

Q37. Salary of a man was Rs. 20,000. The same was increased by 14%. Find the new salary?

(a) 24800
(b) 25600
(c) 22800
(d) 21600

Q38. If 5 is added to twice of a number it becomes 6, then the number is?

(a) 0.5
(b) 0.25
(c) 5
(d) 50

Q39. Convert 35 meter/sec into km/h?

(a) 130
(b) 140
(c) 135
(d) 126

Q40. If 20 people can do a work in 20 days then in how many days the same work can be completed by 40 people?

(a) 40
(b) 10
(c) 30
(d) 25

Q41. From the given options complete the series: 7, 14, 28, 56, (_).

(a) 115
(b) 100
(c) 112
(d) 110

Q42. What will be the sum of the greatest and smallest numbers of four digits?

(a) 11111
(b) 8999
(c) 11110
(d) 10999

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Q43. HCF of two numbers is 11 and their LCM is 693. If one number is 77, find the other number?

(a) 92
(b) 94
(c) 89
(d) 99

Q44. How many rectangular plots of dimensions 40 m by 60 m can be made from a rectangular field of dimensions 120 m by 180 m?

(a) 9
(b) 1
(c) 8
(d) 2

Q45. If perpendicular of a right angled triangle is 5 cm and its area of 20 cm² then length of base is?

(a) 08 cm
(b) 05 cm
(c) 40 cm
(d) 20 cm

LOGICAL REASONING

Q46. From the given options, find the next term in the series: ABC, EFG, IJK, MNO, (___)

(a) TUV
(b) QRS
(c) PQR
(d) WXYZ

Q47. In a certain code AYS is written as BAT then how BYS will be written?

(a) CAT
(b) CBT
(c) AAT
(d) MAT

Q48. From the options, find the missing number in the series:

[1, 4, 9, 16, 25, 36, _, 64, 81, 100]

(a) 50
(b) 07
(c) 49
(d) 70

Q49. Vijay walks 5 km towards South, then he walks 3 km turning to right, again he turns to his right and walk 5 km. How far is he now from the starting point?

(a) 6 km
(b) 5 km
(c) 3 km
(d) 8 km

Q50. If in a certain code 1 5 7 8 9 is written as X T Z A L and 2 3 4 6 as N P S U then how will 2 3 5 4 9 written in the same code?

(a) NBTSL
(b) MPTUL
(c) PNTSL
(d) NPTSL

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ANSWER KEY

1	a	2	d	3	d	4	d	5	c	6	c	7	a	8	d	9	b	10	d
11	b	12	d	13	c	14	c	15	c	16	c	17	d	18	d	19	c	20	c
21	b	22	b	23	d	24	a	25	c	26	c	27	d	28	a	29	c	30	d
31	d	32	c	33	a	34	b	35	c	36	b	37	c	38	a	39	d	40	b
41	c	42	d	43	d	44	a	45	a	46	b	47	a	48	c	49	c	50	d

SOLUTIONS

Q1. Answer: (a) Charles Babbage

The correct answer is Charles Babbage.

Key Points

• Charles Babbage

• He was an English polymath, is often thought of as the man who invented computers. Hence, Option 1 is correct.

• From 1822 until he died in 1871, he designed 3 computers, but never actually constructed any of them, due to lack of funding.

• In 1822 Babbage started working on a Difference Engine its purpose was to compute polynomial functions.

• If completed it would have had some 25,000 parts, weighed 13,600 kg (15 short tons), and been 2.4 m (8 ft) tall.

• Between 1847–1849 Babbage created drawings for the Difference Engine No. 2, a second computer.

• Finally, In 1991, the British Science museum constructed the design from Babbage's original plans. Amazingly, it worked! It took 6 years to build, weighs 4535.92kg (five short tons), measures 2.1 m, 3.4 m, 0.5 m (6'11 × 11'2 × 1'8), and has 8,000 parts.

Additional Information

• George Grenville was a British Whig statesman who rose to the position of Prime Minister of Great Britain. Grenville was born into an influential political family and first entered Parliament in 1741 as an MP for Buckingham.

• The Fahrenheit temperature scale is used in the United States; the Celsius, or centigrade, scale is employed in most other countries and for scientific purposes worldwide.

• The conversion formula for a temperature that is expressed on the Celsius (°C) scale to its Fahrenheit (°F) representation is °F = (^9/5 × °C) + 32.

• Albert Einstein was a German-born theoretical physicist, widely acknowledged to be one of the greatest physicists of all time.

• Einstein is known for developing the theory of relativity, but he also made important contributions to the development of the theory of quantum mechanics.

Q2. Answer: (d) 1600

The correct answer is 1600.

Key Points

• The East India Company

• It was founded during the rule of Queen Elizabeth I and grew into a dominating global player with its own army, with huge influence and power.

• In 1600, a group of London merchants led by Sir Thomas Smythe petitioned Queen Elizabeth I to grant them a royal charter to trade with the countries of the eastern hemisphere. And so, the 'Honourable Company of Merchants of London Trading with the East Indies' – or East India Company, as it came to be known – was founded. Few could have predicted the seismic shifts in the dynamics of global trade that would follow, nor that 258 years later, the company would pass control of the subcontinent to the British crown.

• At the same time as Elizabeth I was signing the East India Company (EIC) into existence in 1600, her counterpart in India – the Mughal emperor Akbar – was ruling over an empire of 750,000 square miles, stretching from northern Afghanistan in the northwest, to central India's Deccan plateau in the south and the Assamese highlands in the northeast.

• In 1603, Queen Elizabeth-I had died. Around the same time, in India also Mughal Emperor Akbar had demised (1605) and his place was taken by Jahangir. Hence, Option 4 is correct.

Additional Information

• The new monarch James-I sent William Hawkins to the Court of Jahangir as official diplomatic representative of King to India.

• Hawkins arrived at Surat in 1608 in a ship named Hector. But this ship was captured by the Portuguese.

• Portuguese told him that all ports belong to the King of Portugal and none ought to come here without his license. However, somehow Hawkins was let go. He reached Agra in April 1609. He was received with all Indian hospitality and warmth by Emperor

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Jahangir.

• Hawkins was able to garner close relations with Jahangir, who fondly called him English Khan.

• He was able to persuade the emperor to grant a commission for an English Factory at Surat but that permission was withdrawn under the pressure of the Portuguese Viceroy.

• Hawkins tried to reverse the decision, but the Portuguese influence over the King was impregnable. He returned in disgust in 1611 and died soon.

• In 1611, Captain Middleton was able to get permission to start a factory in Surat from the local Mughal governors. But he needed to fight a battle with the Portuguese.

• Under him, the British defeated the Portuguese in 1611 in the Battle of Bombay. However, royal permission was still needed to make the factory sustainable. In 1615, Sir Tomas Roe came to India and lived as a resident of Agra in the Court of Jahangir till 1619.

Q3. Answer: (d) Ahmedabad and Mumbai

The correct answer is Ahmedabad and Mumbai.

Key Points

• The first Bullet train of India

• In September 2017, Prime Minister Narendra Modi and his Japanese counterpart Shinzo Abe laid the foundation stone of the ambitious bullet train project connecting Mumbai with Ahmadabad.

• The Shinkansen high-speed trains of Japan are colloquially called bullet trains for their appearance and speed.

• It is a term generally used to describe a high-speed train of speeds above 250 kmph.

• India's first bullet train will run in the Mumbai and Ahmedabad high-speed rail corridor, whose construction began in September 2017. Hence, Option 4 is correct.

• It is a 508 km long high-speed rail corridor building with the help of Japan.

• The train will run at a speed of 320kmph and is expected to be completed by 2022.

Additional Information

• Shinkansen Technology:

• Shinkansen means new trunk lines in literal terms, which refers to the high-speed rail network in Japan.

• The train attains a high speed without having to compromise on comfort and safety, through the use of this technology.

• Unlike conventional rail lines, Shinkansen routes are strictly off-limits to any other kind of traffic.

• This network makes use of viaducts and tunnels to go through the obstacles, rather than going around them, thereby saving time spent on covering the distance.

• Due to the lighter vehicles used, chances of damage to the tracks are minimal. These trains offer fast acceleration & deceleration and are electric multiple units.

Route Map of the Bullet Train:

Q4. Answer: (d) Delhi

The correct answer is Delhi.

Key Points

• National Museum of India:

• The National Museum, New Delhi as we see it today in the majestic building on the corner of Janpath and Maulana Azad Road is the prime museum in the country. Hence, Option 4 is correct.

• The blueprint for establishing the National Museum in Delhi had been prepared by the Maurice Gwyer Committee set up by the Government of India in 1946.

• On the auspicious day of the 15th August 1949, the National Museum was formally inaugurated by the Governor-General of India, Shri R.C. Rajagopalachari, and it was announced that till a permanent building for housing the National Museum was constructed, the Museum would continue to function in the Rashtrapati Bhawan.

• It continued to be looked after well by the Director-General of Archaeology until the Ministry of Education, the Government of India declared it a separate institution to grow in its collections that were sought painstakingly.

• It received several gifts but artifacts were collected mainly through its Art Purchase Committee.

• In the meanwhile, the foundation of the present building was laid by Pt. J.L. Nehru, Prime Minister of India, on the 12th May 1955, and the new building where works of art were displayed elegantly on scientific lines, was handed over to Museum authorities in June 1960.

• The Museum was formally thrown open to the public on December 18, 1960. And it is now within the administrative control and fully financed by the Department of Culture, Ministry of Human Resource Development, Government of India.

Image of the Museum:

Additional Information

• Chennai:

• Located on the Bay of Bengal in eastern India, is the capital of the state of Tamil Nadu.

• The city is home to Fort St. George, built in 1644 and now a museum showcasing the city's roots as a British military garrison and East India Company trading outpost, when it was called Madras.

• Religious sites include Kapaleeshwarar Temple, adorned with carved and painted gods, and St. Mary's, a 17th-century Anglican church.

• Bengaluru:

• Also called Bangalore is the capital of India's southern Karnataka state.

• The center of India's high-tech industry, the city is also known for its parks and nightlife.

• By Cubbon Park, Vidhana Soudha is a Neo-Dravidian legislative building.

• Former royal residences include 19th-century Bangalore Palace, modeled after England's Windsor Castle, and Tipu Sultan's Summer Palace, an 18th-century teak structure.

• Patna:

• It is an ancient city that sprawls along the south bank of the Ganges River in Bihar, northeast India.

• The state capital, it's home to Bihar Museum, a contemporary landmark exhibiting bronze sculptures and old coins from the region.

• Nearby, Indo-Saracenic–style Patna Museum displays a casket believed to contain the Buddha's ashes. Close to the river, the Golghar is a domed colonial granary overlooking the city.

• Delhi:

• India's capital territory is a massive metropolitan area in the country's north.

• In Old Delhi, a neighborhood dating to the 1600s, stands the imposing Mughal-era Red Fort, a symbol of India, and the sprawling Jama Masjid mosque, whose courtyard accommodates 25,000 people.

• Nearby is Chandni Chowk, a vibrant bazaar filled with food carts, sweets shops, and spice stalls.

Q5. Answer: (c) 8

The correct answer is 8.

Key Points

• The South Asian Association for Regional Cooperation (SAARC)

• It was established with the signing of the SAARC Charter in Dhaka on 8 December 1985.

• The idea of regional cooperation in South Asia was first raised in November 1980.

• After consultations, the foreign secretaries of the seven founding countries—Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka—met for the first time in Colombo in April 1981.

• Afghanistan became the newest member of SAARC at the 14th annual summit in 2007.

• The Headquarters and Secretariat of the Association are in Kathmandu, Nepal.

• SAARC comprises eight member states:

• Afghanistan

• Bangladesh

• Bhutan

• India

• Maldives

• Nepal

• Pakistan

• Sri Lanka

• Hence, Option 3 is correct.

• There are currently nine Observers to SAARC, namely: (i) Australia; (ii) China; (iii) the European Union; (iv) Iran; (v) Japan; (vi) the Republic of Korea; (vii) Mauritius; (viii) Myanmar; and (ix) the United States of America.

Q6. Answer: (c) Hitler

The correct answer is Hitler.

Key Points

• Adolf Hitler

• He was a German politician, the 'leader of the Nazi Party' and 'Chancellor of Germany' from 1933-1945, and 'leader of Nazi Germany' from 1934-1945.

• As a tyrant of the German Reich, he started World War II in Europe with the conquest of Poland in September in the year 1939 and was a dominant figure of the Jewish Holocaust.

• Hitler gained 'popularity and support' by attacking the 'Treaty of Versailles and promoting anti-Semitism' (discrimination against the Jews), 'Pan-Germanism' (unifying Germans in a single State), and 'anti-communism with enigmatic oratory' and 'Nazi propaganda'.

• He often condemned communism and 'global capitalism' as part of the 'Jewish conspiracy.

• One people, One state, One leader was the policy of Adolf Hitler. Hence, Option 3 is correct.

• Adolf Hitler was the leader of the Nazi Party and the Führer of Germany. Under his leadership, Germany's invasion of Poland in 1939 led to the outbreak of World War II.

• By 1941 Nazi forces had occupied much of Europe.

• Mein Kampf (My Struggle) was written by Adolf Hitler.

• Adolf Hitler assumed the title of Der Führer.

Additional Information

• Joseph Stalin

• He was the secretary-general of the Communist Party of the Soviet Union.

• Benito Mussolini

• He was a dictator from Italy. He was a politician and journalist who founded and led the National Fascist Party in Italy.

• Benito Mussolini was an Italian political leader who later became the fascist dictator of Italy from 1925 to 1945.

• He assumed the title of II Duke.

• Vladimir Lenin

• He served as the first and founding head of government of Soviet Russia from 1917 to 1924 and of the Soviet Union from 1922 to 1924.

• He had one of the biggest influences on the international communist movement.

Q7. Answer: (a) South Africa

The correct answer is South Africa.

Key Points

• The Kalahari Desert

• It is a large semi-arid sandy savanna in Southern Africa extending for 900,000 square kilometers, covering much of Botswana, parts of Namibia, and regions of South Africa. Hence, Option 1 is correct.

• The Sahara is a desert located on the African continent.

• It is the largest hot desert in the world and the third-largest desert overall after Antarctica and the Arctic region.

• The Atacama Desert is a desert plateau in South America covering a 1,000-km (600-mi) strip of land on the Pacific coast, west of the Andes mountains.

• The Kalahari Desert is part of one giant sand basin that stretches from the Orange River in Angola to Namibia in the west, Zimbabwe in the east, and South Africa.

• The landscape in this largely unexplored territory provides a marked contrast from the south and east of the country.

• Black-maned Kalahari lions are a highlight of the desert; found in the Kgalagadi Transfrontier Park in the southwestern corner of the country, they may be resting in the dry river beds or under the shade of the sparse trees.

• The environment here for the lions is more competitive than more luscious parts of Southern Africa, with fewer herbivores on offer to predators due to the restricted rainfall, meaning that only the strongest of these huge black-maned beasts prevail.

Additional Information

• The Atacama Desert

• It is a desert plateau in South America covering a 1,600 km strip of land on the Pacific coast, west of the Andes Mountains.

• The Atacama Desert is a cool, arid region in northern Chile, 600 to 700 miles (1,000 to 1,100 km) long from north to south.

• Its limits are not exactly determined, but it lies mainly between the south bend of the Loa River and the mountains separating the Salado-Copiapó drainage basins.

• To the north, the desert continues to the border of Peru.

• The Thar Desert

• It is also known as the Great Indian Desert, is a large, arid region in the northwestern part of the Indian subcontinent that covers an area of 200,000 km² (77,000 sq mi) and forms a natural boundary between India and Pakistan.

• It is the world's 17th-largest desert and the world's 9th-largest hot subtropical desert.

• About 85% of the Thar Desert is located within India, and the remaining 15% is in Pakistan.

• The Thar Desert forms about 4.56% of the total geographic area of India.

• More than 60% of the desert lies in the Indian state of Rajasthan, and it extends into Gujarat, Punjab, and Haryana, and the Pakistani province of Sindh.

• Within Pakistan's Punjab province, the Thar continues as the Cholistan Desert.

• The desert comprises a very dry part, the Marusthali region in the west, and a semidesert region in the east with fewer dunes and slightly more precipitation.

• The Arabian Desert

• It is a vast desert wilderness in Western Asia.

• It stretches from Yemen to the Persian Gulf and Oman to Jordan and Iraq.

• It occupies most of the Arabian Peninsula, with an area of 2,330,000 square kilometers (900,000 sq mi).

• It is the fifth-largest desert in the world and the largest in Asia. At its center is Ar-Rub al-Khali (The Empty Quarter), one of the largest continuous bodies of sand in the world.

Image of all the deserts in the world:

Q8. Answer: (d) Raipur

The correct answer is Raipur.

Key Points

• This is a state of east-central India.

• Its capital is Raipur.

• Area 52,199 square miles (135,194 square km).

• Population (2011) 25,540,196.

• Chhattisgarh carved out of Madhya Pradesh came into being on 1 November 2000 as the 26^(th) State of the Union.

• It fulfills the long-cherished demand of the people. In ancient times the region was known as Dakshin-Kausal.

• This finds mention in Ramayana and Mahabharata also. Between the sixth and twelfth centuries Sarabhpurias, Panduavanshi, Somvanshi, Kalchuri, and Nagvanshi rulers dominated this region. Kalchuris ruled in Chhattisgarh from 980 to 1791 AD. With the advent of the British in 1845, Raipur gained prominence instead of capital Ratanpur.

• In 1904 Sambalpur was transferred to Odisha and the states of Sarguja were transferred from Bengal to Chhattisgarh.

• Chhattisgarh is bounded by southern Jharkhand and Odisha in the east, Madhya Pradesh and Maharashtra in the west, Uttar Pradesh and western Jharkhand in the north, and Andhra Pradesh in the south. Areawise Chhattisgarh is the ninth-largest State and population-wise it is the seventeenth state of the nation.

Additional Information

• Bilaspur

• It is also known as The City of Festivals, is a city located in Bilaspur District in the Indian state of Chhattisgarh.

• Bilaspur is the Administrative Headquarters of the Bilaspur District and Bilaspur Division. The Chhattisgarh High Court, located at Bodri, District Bilaspur has privileged it with the title Nyayadhani (Law Capital) of the State.

• It is also an important city for the Indian Railways, as it is the headquarters for South East Central Railway Zone (SECR) and the Bilaspur Railway Division. Bilaspur is the 3rd cleanest and the 4th longest railway station in India.

• Bilaspur is also the headquarters of South Eastern Coalfields Limited.

• Bengaluru

• It is the capital of India's southern Karnataka state.

• The center of India's high-tech industry, the city is also known for its parks and nightlife.

• By Cubbon Park, Vidhana Soudha is a Neo-Dravidian legislative building.

• Former royal residences include 19th-century Bangalore Palace, modeled after England’s Windsor Castle, and Tipu Sultan’s Summer Palace, an 18th-century teak structure.

• Hyderabad

• It is the capital of southern India's Telangana state.

• A major center for the technology industry, it's home to many upscale restaurants and shops.

• Its historic sites include Golconda Fort, a former diamond-trading center that was once the Qutb Shahi dynastic capital.

• The Charminar, a 16th-century mosque whose arches support towering minarets, is an old city landmark near the long-standing Laad Bazaar.

Q9. Answer: (b) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• Indian states with the highest population

• According to the numbers, Uttar Pradesh is the most populous state and Sikkim is the least populous state in India. Hence, Option 2 is correct.

• With a union of 28 states and 8 union territories, India is the second most populated country in the world, after China. As per the consensus of India 2011, the population of India is 1,210,193,422.

State	Population	Area	Population Density
Uttar Pradesh	199,812,341	240,928 km²	828/km²
Maharashta	112,372,972	307,713 km²	365/km²
Bihar	103,804,637	94,163 km²	1,102/km²
West Bengal	91,347,736	88,752 km²	1,029/km²
Madhya Pradesh	72,597,565	308,245 km²	236/km²

Additional Information

• Madhya Pradesh

• It is a large state in central India, retains landmarks from eras throughout Indian history. Begun in the 10th century, it's Hindu and Jain temples at Khajuraho are renowned for their carvings of erotic scenes, most prominently Kandariya Mahadeva, a temple with more than 800 sculptures.

• The eastern Bandhavgarh and Kanha national parks, noted Bengal tiger sanctuaries, offer guided safaris.

• Capital: Bhopal (Executive Branch)

• Population: 7.33 crores (2012)

• Chief Minister: Shivraj Singh Chouhan

• Uttar Pradesh

• It is a state in northern India. With over 200 million inhabitants, it is the most populous state in India as well as the most populous country subdivision in the world.

• Governor: Anandiben Patel

• Population: 20.42 crores (2012)

• Capital: Lucknow

• Chief minister: Yogi Adityanath

• Maharashtra

• It is a state in the western peninsular region of India occupying a substantial portion of the Deccan Plateau.

• Maharashtra is the second-most populous state in India as well as the third-most populous country subdivision in the world.

• Population: 11.42 crores (2012)

• Capital: Mumbai

• Governor: Bhagat Singh Koshyari

• Chief minister: Eknath Shinde

• Rajasthan

• It is a state in northern India.

• The state covers an area of 342,239 square kilometers or 10.4 percent of the total geographical area of India.

• It is the largest Indian state by area and the seventh-largest by population.

• Area: 342,239 km²

• Governor: Kalraj Mishra

• Population: 6.89 crores (2012)

• Capital: Jaipur

Q10. Answer: (d) 5 years

The correct answer is 5 years.

Key Points

• Vice-President

• Part V of the Constitution of India under Chapter I (Executive) also discusses the office of the Vice-President of India. The Vice-President of India is the second-highest constitutional office in the country.

• Article 63: The Vice-President of India

• There shall be a Vice-President of India.

• Article 64: The Vice-President is to be an ex-officio Chairman of the Council of States.

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• Article 65: The Vice-President to act as President or to discharge his functions during casual vacancies in the office, or during the absence of President.

• Article 66: Election of Vice-President

• Article 67: Term of office of Vice-President

• The Vice-President shall hold office for a term of five years from the date on which he enters upon his office. Hence, Option 4 is correct.

• Article 68: Time of holding the election to fill a vacancy in the office of Vice-

• Article 69: Oath or affirmation by the Vice-President

• Article 70: Discharge of President's functions in other contingencies

• Article 71: Matters relating to, or connected with, the election of a President or Vice-President

Additional Information

• S. Radhakrishnan was the first V.P of India and he held the post twice from 1952-1957 and then from 1957-1962. Md. Hamid Ansari has replicated that i.e. from 2007-2012 and 2012- continuing.

• Shri Krishan Kant was the only V.P to have died in office.

• The V.P.s who went on to become the Presidents – Dr. S. Radhakrishnan, Zakir Hussain, V.V. Giri, R. Venkataraman, S.D. Sharma, K.R. Narayanan.

• Because of the limited powers and functions, the V.P of India is also at times termed as HIS SUPERFLUOUS HIGHNESS.

All vice president of India to date:

Q11. Answer: (b) Gujarat

The correct answer is Gujarat.

Key Points

• Swaminarayan Akshardham:

• It is located in Gandhinagar, Gujarat, India is a large Hindu temple complex inspired by Yogiji Maharaj (1892-1971) the fourth spiritual successor of Swaminarayan, and created by Pramukh Swami Maharaj (1921-2016), the fifth spiritual successor of Swaminarayan according to the denomination of Swaminarayan Hinduism.

• Located in the capital of Gujarat, the complex was built over 13 years and is a tribute to Swaminarayan and his life and teachings. Hence, Option 2 is correct.

• At the center of the 23-acre complex is the Akshardham mandir, which is built from 6,000 metric tons of pink sandstone from Rajasthan.

• The complex's name refers to the divine abode of Swaminarayan in the BAPS philosophy; followers of Swaminarayan believe that the jiva or soul goes to Akshardham after attaining moksha, or liberation. BAPS followers worship Swaminarayan as God almighty.

• Inspired by HH Yogiji Maharaj (1892-1971 CE)

• Created by His Holiness Pramukh Swami Maharaj (1921-2016 CE).

• Constructed by Bochasanwasi Shri Akshar Purushottam Swaminarayan Sanstha (BAPS).

• 8,000,000+ volunteer hours from 4000+ volunteers around the world went into making the complex

• The mandir was built from intricately carved sandstone.

Confusion Points

• Akshardham' means the divine abode of God. It is hailed as an eternal place of devotion, purity, and peace.

• Swaminarayan Akshardham at New Delhi is a Mandir – an abode of God, a Hindu house of worship, and a spiritual and cultural campus dedicated to devotion, learning, and harmony.

• Timeless Hindu spiritual messages, vibrant devotional traditions, and ancient architecture all are echoed in its art and architecture.

• The mandir is a humble tribute to Bhagwan Swaminarayan (1781- 1830), the avatars, devas, and great sages of Hinduism.

• The traditionally-styled complex was inaugurated on 6 November 2005 with the blessings of HH Pramukh Swami Maharaj and through the devoted efforts of skilled artisans and volunteers.

• Opened 6th November 2005

• Constructed by Bochasanwasi Shri Akshar Purushottam Swaminarayan Sanstha (BAPS)

• Inspired by HH Yogiji Maharaj (1892-1971 CE)

• Created by His Holiness Pramukh Swami Maharaj

• More than 300,000,000 volunteer hours went into making the complex

• Over 8,000 volunteers from across the world participated in building it

• Mandir built from intricately carved sandstone and marble

• Exhibitions on Hinduism, including Bhagwan Swaminarayan's life and teachings such as prayer, compassion, and non-violence.

• Open gardens, water bodies, and a step-well-styled courtyard.

Image of the Akshardham Temple:

Q12. Answer: (d) Indira Gandhi canal

The correct answer is the Indira Gandhi canal.

Key Points

• A canal:

• It is a man-made waterway that enables the movement of boats and ships from one body of water to another.

• Canals are also used for irrigation and other human uses to convey water.

• Canals can be divided into two categories, waterways used for navigation or transport, and water ducts used for irrigation and consumption of drinking water and other general uses.

• The canal is also known as navigation when it parallels the river and separates part of its waters and drainage basin and leverages its resources by constructing dams and locks to raise and lengthen its slow water levels while remaining in its valley.

• Indira Gandhi canal:

• This Canal is India's longest canal and the world's biggest irrigation project. Hence, Option 4 is correct.

• Indira Gandhi Canal is 649 km long and consists of Rajasthan feeder canal and Rajasthan main canal and runs 167 km in Punjab and Haryana and 492 km in Rajasthan.

• It is a huge canal in northwestern India that carries water from the Harike Barrage on the Sutlej River to the Thar Desert of Rajasthan.

• Upper Bari Doab canal :

• Originates at Madhopur, near Pathankot.

• t was the first canal to be excavated for irrigation purposes in Punjab; at that time, however, it was simply known as the Bari Doab Canal system.

• The prefix Upper was only added when a second canal was dug, known as the Lower Bari Doab Canal. .Emperor Shah Jahan dug this 130-mile-long canal to carry water from the River Ravi to his garden in Lahore.

• Yamuna canal:

• Satluj Yamuna Link Canal or SYL, as it is popularly called, is a 214 kilometer (133 mi) long canal under construction in India to connect the rivers Sutlej and Yamuna.

• The plan did, however, face challenges and was referred to the Supreme Court of India.

• River water sharing between the states of Punjab and Haryana is established.

• Sirhind canal:

• The Sirhind Canal is a large irrigation canal in Punjab state, India that carries water from the Sutlej River.

• It is one of the Indus river system's oldest and largest irrigation works and was inaugurated in 1882 CE.

• The canal, which was built between 1958 and 1961, is 149.53 km long in the Punjab districts of Ferozepur, Muktsar, and Faridkot.

• To be agriculturally viable, Rajasthan requires extensive irrigation.

• The state receives a great deal of water from the Punjab Rivers, from the Western Yamuna Canal in Haryana and the Agra Canal in Uttar Pradesh, and from the Gujarat and Madhya Pradesh projects of Sabarmati and Narmada Sagar.

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Q13. Answer: (c) Football

The correct answer is Football.

Key Points

• Mohun Bagan

• Athletic Club is an Indian I-League football club based in Kolkata, West Bengal. Hence, Option 3 is correct.

• Bhupendra Nath Basu, with the help of the Mitra Family, and the Sen Family founded Mohun Bagan under the name Mohun Bagan Sporting Club on 15 August 1889.

• The club is said to have played their first-ever game at the Mohun Bagan Villa against Eden Hindu hostel. Mohun Bagan won its first trophy in 1904 when they won Coochbehar Cup and then the club won it again in 1905.

• In 1906, Mohun Bagan got more success when the club grabbed the Trades Cup, Gladstone Cup, and Coochbehar Cup all in the same year.

• Then in 1907 Mohun Bagan again won the Trades Cup and then they completed the triple by winning it again in 1908.

• Mohun Bagan then created history by becoming the first Indian club to win the IFA Shield when they won it in 1911 against East Yorkshire Regiment.

• In 1998 Mohun Bagan won the triple by winning the IFA Shield, Federation Cup, and the National Football League for the first time.

• In 2007 Mohun Bagan won the Indian Super Cup by defeating Dempo S. C. The Salt Lake Stadium hosts the home games of Mohun Bagan in the I-League.

• Mohun Bagan currently has one of the biggest fan bases in India along with club rival East Bengal, with whom it contests the Kolkata derby.

• Some of the club's noteworthy players include Sourav Chakraborty, Anil Kumar, Snehasish Chakraborty, Manish Bhargav, Chinadorai Sabeeth, Mehrajuddin Wadoo, etc.

Additional Information

• Cricket is a bat-and-ball game played between two teams of eleven players on a field at the center of which is a 22-yard pitch with a wicket at each end, each comprising two bails balanced on three stumps.

• Basketball is a team sport in which two teams, most commonly of five players each, opposing one another on a rectangular court, compete with the primary objective of shooting a basketball through the defender's hoop while preventing the opposing team from shooting through their own hoop.

• Association football, more commonly known as simply football or soccer, is a team sport played with a spherical ball between two teams of 11 players. It is played by approximately 250 million players in over 200 countries and dependencies, making it the world's most popular sport.

• Field hockey is a widely played team sport of the hockey family. The game can be played on grass, watered turf, artificial turf, or synthetic field, as well as an indoor boarded surface. Each team plays with ten field players and a goalkeeper.

ATK Mohun Bagan Logo:

Q14. Answer: (c) Pacific ocean

The correct answer is the Pacific Ocean.

Key Points

• A body of water that composes much of the earth's hydrosphere is called an ocean.

• One of the major conventional divisions of the World Ocean on Earth is the ocean.

• Arranging the oceans in descending order of area is as follows: The Pacific, Atlantic, Indian, Southern Antarctic, and Arctic Oceans.

• With an average depth of 14,020 ft or 4,820 m, the deepest ocean in the world is the Pacific Ocean.

• The Pacific Ocean has the deepest point in the world other than being the overall deepest ocean in the world. Hence, Option 3 is correct.

• The Mariana Trench is the deepest point on the planet and it is at nearly 35,797 ft or 11,000 m deep.

• The Pacific Ocean also holds the record of being the largest ocean by surface area covering approximately 165,250,000 sq km or 63,800,000 square miles of the total surface area, i.e. comprising a total of 46 percent of earth’s water surfaces.

• If all of the earth’s land is combined then too the area will be larger than the earth’s land.

• Northern Pacific and the Southern Pacific are the two portions of the Pacific Ocean.

• The equator is responsible for dividing the Pacific Ocean into two portions. Australia and Asia are separated from the Americas by this ocean.

• It stretches in the north from the Arctic region to the Antarctic in the south.

• Many seas lie along the western margin of the Pacific.

• These include the East Sea, East China, Philippine Sea, Sulu Sea, Tasman Sea, and the South China Sea.

• The Strait of Malacca and Torres Strait interconnect to the west the Pacific and the Indian Ocean. The Drake Passage and the Strait of Magellan join the Pacific Ocean and the Atlantic Ocean on the east.

Additional Information

• The Arctic Ocean is the smallest and shallowest of the world's five major oceans. It spans an area of approximately 14,060,000 km² and is also known as the coldest of all the oceans.

• The Indian Ocean is the third-largest of the world's oceanic divisions, covering 70,560,000 km² or 19.8% of the water on Earth's surface. It is bounded by Asia to the north, Africa to the west, and Australia to the east. To the south it is bounded by the Southern Ocean or Antarctica, depending on the definition in use.

• The Atlantic Ocean is the second-largest of the world's oceans, with an area of about 106,460,000 km². It covers approximately 20 percent of Earth's surface and about 29 percent of its water surface area. It is known to separate the Old World from the New World in the European perception of the World.

All the oceans in the world:

Q15. Answer: (c) Lenin

The correct answer is Lenin.

Key Points

• Russian Revolution

• Vladimir Lenin, also called Vladimir Ilich Lenin, original name Vladimir Ilich Ulyanov founder of the Russian Communist Party (Bolsheviks), inspirer, and leader of the Bolshevik Revolution (1917), and the architect, builder, and first head (1917–24) of the Soviet state. Hence, Option 3 is correct.

• He was the founder of the organization known as Comintern (Communist International) and the posthumous source of Leninism, the doctrine codified and conjoined with Karl Marx's works by Lenin's successors to form Marxism-Leninism, which became the Communist worldview.

• The Russian Revolution of 1917 was one of the most significant events of the twentieth century that ended centuries of monarchy in Russia and brought forth the first constitutionally communist state in the world.

• The Russian Revolution was made in October 1917.

• It is also known as the Bolshevik Revolution. It was a proletarian-socialist revolution, inspired by the ideals of communism the Russian Revolution aimed at the creation of a socialist society in Russia.

• Leadership to this revolution was provided by the Russian Social Democratic Labour Party, particularly the Bolsheviks.

• The peasantry also played a significant role. In fact, the Russian Revolution was brought about by the working people of Russia, because they were the most oppressed and therefore most interested in a total transformation of the social and political system which exploited them.

Additional Information

• George Washington was an American political leader, military general, statesman, and Founding Father of the United States, who served as the first president of the United States from 1789 to 1797.

• Friedrich Max Müller was a German-born philologist and Orientalist, who lived and studied in Britain for most of his life. He was one of the founders of the western academic disciplines of Indian studies and religious studies. Müller wrote both scholarly and popular works on the subject of Indology.

• Vladimir Ilyich Ulyanov, better known by his alias Lenin, was a Russian revolutionary, politician, and political theorist. He served as the first and founding head of government of Soviet Russia from 1917 to 1924 and of the Soviet Union from 1922 to 1924.

• Adolf Hitler was an Austrian-born German politician who was the dictator of Germany from 1933 to 1945. He rose to power as the leader of the Nazi Party, becoming Chancellor in 1933 and then assuming the title of Führer und Reichskanzler in 1934.

Q16. Answer: (c) Ohm

The correct answer is Ohm.

Key Points

• Resistance

• It is a term that students come across often when they study electric currents. While electric current has two factors namely conductance and resistance we will have a quick look at the latter here on this page. Talking about resistance, it is basically defined as the obstruction that a substance causes to the flow of electric current.

• Resistance is represented by the letter R and has the dimension length squared mass per time cubed electric current squared.

• The SI unit of resistance is the ohm, which is defined as a volt per ampere. Hence, Option 3 is correct.

• The name has been kept in remembrance of German physicist George Simon Ohm. The unit is sometimes written out as a word or symbolized by the uppercase Greek letter omega. Ohm has the following formula;

• $\Omega = V/A = 1/S = W/(A^2) = (V^2)/W = s/F = (J\cdot s)/(C^2) = (kg\cdot m^2)/(s\cdot C^2) = J/(s\cdot A^2) = (kg\cdot m^2)/(s^3\cdot A^2)$

• in which the following units also appear: ampere (A), Siemens (S), volt (V), watt (W), second (s), meter (m), joule (J), farad (F), kilogram (kg), and Coulomb (C).

• There is something called specific resistance or resistivity which is measured by the unit ohm-meter or ohm-m.

Additional Information

• The coulomb is the International System of Units unit of electric charge.

• Under the 2019 redefinition of the SI base units, which took effect on 20 May 2019, the coulomb is exactly 1/ elementary charges.

• The same number of electrons has the same magnitude but opposite sign of charge, that is, a charge of −1 C.

• The ampere, often shortened to amp, is the base unit of electric current in the International System of Units.

• It is named after André-Marie Ampère, a French mathematician and physicist, considered the father of electromagnetism.

• A watt is a unit of power or radiant flux. In the International System of Units, it is defined as a derived unit of 1 kg?m²?s^-³ or, equivalently, 1 joule per second. It is used to quantify the rate of energy transfer.

• The watt is named after James Watt, an 18th-century Scottish inventor.

Q17. Answer: (d) Bulb

The correct answer is Bulb.

Key Points

• Electronic Device

• The device which controls the flow of electrons is called an electronic device.

• These devices are the principal building squares of electronic circuits.

• Hardware has different branches incorporate, computerized gadgets, simple hardware, miniature hardware, nanoelectronics, optoelectronics, coordinated circuit, and semiconductor gadget.

• Gadgets are characterized as gadgets run by electric force or the field of concentrating such things.

• An illustration of gadgets is radios, PCs, and TVs. Electronic hardware, frameworks, and so on.

• The bulb is not an electronic device because it does not have any current controlling semiconductor device. Hence, Option 4 is correct.

• An electric bulb is an electric device that consists of a glass casing, a filament through which the current passes, contact wires, and a base.

• The filament is made up of tungsten and the bulb is filled with argon gas. All other options have some semiconductor devices like transistors, diodes, etc.

Additional Information

• Radio is the technology of signaling and communicating using radio waves. Radio waves are electromagnetic waves of frequency between 30 hertz and 300 gigahertz.

• A computer is a machine that can be programmed to carry out sequences of arithmetic or logical operations automatically. Modern computers can perform generic sets of operations known as programs. These programs enable computers to perform a wide range of tasks.

• Television (TV), sometimes shortened to tele or telly, is a telecommunication medium used for transmitting moving images in monochrome (black and white), or color, and in two or three dimensions and sound. The term can refer to a television set, a television show, or the medium of television transmission.

• An incandescent light bulb, incandescent lamp, or incandescent light globe is an electric light with a wire filament heated until it glows. The filament is enclosed in a glass bulb with a vacuum or inert gas to protect the filament from oxidation.

Q18. Answer: (d) CO2

The correct answer is CO2.

Key Points

• As we know that when we open a bottle of soft drink the effervescence comes out. This is due to the gas present in soft drinks.

• Some gases are soluble in liquid because these are chemically similar. If we increase the temperature of any solution or any substance that will increase the temperature of any solution or any substance that will cause an increase in mobility of particles and the particles are now more active.

• Carbon dioxide is dissolved in soft drinks. Hence, Option 4 is correct.

• The greater the solubility of carbon dioxide in a solvent is due to the chemical similarity between the solvent and the carbon dioxide gas.

• There are some factors by which we can increase the solubility of gas- Effect of pressure- according to Henry's law, the mass of the gas dissolved in a given volume of the liquid at constant temperature is directly proportional to the pressure of the gas present in the liquid.

• As we increase the pressure the solubility of the gas increases in the liquid - Effect of temperature- The solubility of gas increases with a decrease in temperature.

• The dissolution of gas in a liquid is exothermic.

• So, according to Le Chatelier's principle, if we decrease the temperature equilibrium shifts toward the right.

• There are some applications of Henry's law. - The scuba divers always carry cylinders filled with air diluted with helium to avoid bends. When air enters the lungs, the partial pressure of oxygen is high. Thus, oxygen is released from oxyhemoglobin which is utilized for the function of the cell.

Additional Information

• Nitrogen (N2)

• It is a colorless, odorless, and tasteless gas that makes up 78.09% (by volume) of the air we breathe.

• It is nonflammable and will not support combustion. Nitrogen gas is slightly lighter than air and slightly soluble in water.

• It is commonly thought of and used as an inert gas, but it is not truly inert.

• Oxygen

• It is the chemical element with the symbol O and atomic number 8.

• It is a member of the chalcogen group in the periodic table, a highly reactive nonmetal, and an oxidizing agent that readily forms oxides with most elements as well as with other compounds.

• Hydrogen

• It is the chemical element with the symbol H and atomic number 1.

• With a standard atomic weight of 1.008, hydrogen is the lightest element in the periodic table.

• Hydrogen is the most abundant chemical substance in the universe, constituting roughly 75% of all baryonic mass.

• Carbon dioxide

• It is an acidic colorless gas with a density about 53% higher than that of dry air.

• Carbon dioxide molecules consist of a carbon atom covalently double bonded to two oxygen atoms. It occurs naturally in Earth's atmosphere as a trace gas.

Q19. Answer: (c) 0°C

The correct answer is 0°C.

Key Points

• Celsius scale

• The Celsius scale is nowadays set in such a way that Zero degrees C is the temperature at which ice melts.

• At the other end of the scale, 100 degrees Celsius is the boiling point of water.

• In this scale, a lower fixed point (ice point) is designated as 0° and the upper fixed point (steam point) is designated as 100°.

• The temperature measured on this scale was all in degrees Celsius (°C).

• Formula (32°F - 32) × 5/9 = 0°C.

• 32 degrees Fahrenheit is equal to 0 degrees Celsius. Hence, Option 3 is correct.

Additional Information

• Fahrenheit scale

• The change in temperature of 1°F corresponds to a change of less than 1°C on the Celsius scale.

• On the Fahrenheit scale, water freezes at 32 degrees and boils at 212 degrees. The boiling and freezing point are therefore 180 degrees apart.

• Normal body temperature is considered to be 98.6 °F (in real life it fluctuates around this value).

• Absolute zero is defined as -459.67°F.

• Kelvin scale

• We also know the Kelvin temperature scale as the thermodynamic scale.

• On the Kelvin scale, the boiling point of the water is considered to be 373.15 K and its freezing point is 273.15 K.

• Whereas it was assumed that at 0 K there is no relative motion of particles,

• The change in temperature of 1° K corresponds to a change of less than 1°C on the Celsius scale.

Important Points

• Conversion Formulas

• Celsius

• °C = (°F - 32) × 5/9

• °C = K - 273.15

• Fahrenheit

• °F = (°C × 9/5) + 32

• °F = ((K - 273.15) x 9/5) + 32

• Kelvin

• K = °C + 273.15

• K = ((°F - 32) × 5/9) + 273.15

Q20. Answer: (c) Light year

The great answer is Light Year.

Key Points

• The unit of measuring Astronomical Distance

• The magnitudes in which the units of a quantity are expressed are based more on the convenience of the user rather than the actual base unit.

• For example, if the length of a small tennis ball is to be measured, we measure it in terms of centimeters or 1/100th of a meter.

• Conversely, if the distance between two cities is to be measured, we measure it in terms of kilometers or 1000 times that of the meter.

• Depending on the magnitude of the powers of the basic unit, there are two kinds of units:

• Microscopic and Macroscopic.

• Microscopic units are in powers less than 1/10. Examples are centi-, milli-, micro-and nano Macroscopic units are in powers above 10 like kilo, mega, Giga, Tera, etc.

• However, for extremely large powers such as astronomical distances which have very high powers of kilometers, two special units of length are derived. They are: Parsec and Light Year

• Parsec is used to measure distances outside the solar systems. One parsec is equal to 31 trillion kilometers.

• Another astronomical unit mentioned here is the light year.

• The light-year is a unit of length used to express astronomical distances and is equivalent to about 9.46 trillion kilometers or 5.88 trillion miles. As defined by the International Astronomical Union, a light-year is a distance that light travels in a vacuum in one Julian year. Hence, Option 3 is correct.

• It is defined as the distance traveled by light in the time interval of 1 year.

• 1 light-year = 9.46 trillion kilometres = 9.46*10^5m. Hence, the unit parsec is greater than a light-year.

Additional Information

• The kilometer, spelled kilometer in American English, is a unit of length in the metric system, equal to one thousand meters.

• The meter or meter is the base unit of length in the International System of Units. The SI unit symbol is m. The meter is currently defined as the length of the path traveled by light in a vacuum in 1/299 792 458 of a second.

• A nautical mile is a unit of length used in air, marine, and space navigation, and for the definition of territorial waters. Historically, it was defined as the meridian arc length corresponding to one minute of latitude. Today the international nautical mile is defined as exactly 1852 meters.

• A nautical mile is based on the circumference of the earth and is equal to one minute of latitude. It is slightly more than a statute (land measured) mile (1 nautical mile = 1.1508 statute miles)

Q21. Answer: (b) NaCl

The correct answer is NaCl.

Key Points

• Common Salt

• Sodium chloride, commonly known as salt, is an ionic compound with the chemical formula NaCl, representing a 1:1 ratio of sodium and chloride ions. With molar masses of 22.99 and 35.45 g/mol respectively, 100 g of NaCl contains 39.34 g Na and 60.66 g Cl.

• It is formed by the chemical reaction between hydrochloric acid and sodium hydroxide.

• NaOH + HCl → NaCl + H2O

• Formula: NaCl

• Molar mass: 58.44 g/mol

• IUPAC ID: Sodium chloride

• Melting point: 801 °C

• Density: 2.16 g/cm³

• Boiling point: 1,465 °C

• Soluble in: Water, Ammonia, Ethanol, Glycerol, Methanol, Formic acid, Propylene glycol, Formamide

Additional Information

• H2O

• The chemical formula of water is H2O. It is also called dihydrogen monoxide.

• The 2 is the subscript for H symbolizes the presence of 2 Hydrogen atoms.

• Thus, we can say that there is hydrogen bonding in water.

• Therefore, water contains two hydrogen atoms and one oxygen.

• KCl

• Potassium chloride is a metal halide salt composed of potassium and chlorine.

• It is odorless and has a white or colorless vitreous crystal appearance.

• The solid dissolves readily in water, and its solutions have a salt-like taste.

• Potassium chloride can be obtained from ancient dried lake deposits.

• Formula: KCl

• Molar mass: 74.5513 g/mol

• Melting point: 770 °C
• Boiling point: 1,420 °C
• Soluble in: Water, Glycerol
• Ca
• Calcium is a chemical element with the symbol Ca and atomic number 20.
• As an alkaline earth metal, calcium is a reactive metal that forms a dark oxide-nitride layer when exposed to air.
• Its physical and chemical properties are most similar to its heavier homologs strontium and barium.
• Symbol: Ca
• Atomic mass: 40.078 u
• Atomic number: 20
• Electron configuration: [Ar] $4s^2$
• Atomic radius: empirical: 197 pm
• Period: period 4

Q22. Answer: (b) 21%

The correct answer is 21%.

Key Points

• Gases in the atmosphere
• The most abundant naturally occurring gas is Nitrogen (N2), which makes up about 78% of air.
• Oxygen (O2) is the second most abundant gas at about 21%. The inert gas Argon (Ar) is the third most abundant gas at 0.93%.
• There are also trace amounts of carbon dioxide (CO2), neon (Ne), helium (He), methane (CH4), krypton (Kr), hydrogen (H2), nitrous oxide (NO), xenon (Xe), ozone (O3), iodine (I2), carbon monoxide (CO), and ammonia (NH3) in the atmosphere.
• Oxygen makes up 21% of the atmosphere. It is highly reactive and forms compounds with numerous other chemicals and is necessary for respiration in living things. Hence, Option 2 is correct.
• Oxygen is a colorless, odorless, tasteless gas composed of the simple diatomic molecule O2.
• Oxygen is produced during photosynthesis, the process whereby plants turn carbon dioxide and water into carbohydrates.
• Along with air, it holds many tiny dust particles called aerosols. Air carrying a large amount of these particles is termed air pollution and forms soot in the atmosphere.
• The major source of oxygen in the atmosphere is trees, tiny ocean plants called phytoplankton, and some bacteria.
• Oxygen is present in two forms oxygen O2 and ozone O3.

Additional Information

• Phytoplankton lives under the water where they use sunlight and carbon dioxide to make food and release oxygen as a by-product.
• Oxygen is present in two forms- oxygen O2 and ozone O3.
• Ozone is the upper layer of the atmosphere that protects us from the harmful radiation of the sun.
• Aloe vera is a plant that releases oxygen at night and that purifies the air also, removing toxins like aldehyde and benzene.
• Half of the oxygen in the atmosphere is coming from the phytoplankton photosynthesis and another half by the photosynthesis on land by the tree.
• Trees like fig, eucalyptus, locust, Chinese elms, catalpa are thought to produce a high amount of oxygen.

Q23. Answer: (d) Scurvy

The correct answer is Scurvy.

Key Points

• Scurvy
• A condition caused by a severe lack of vitamin C in the diet.
• Vitamin C is found in citrus fruits and vegetables. Scurvy results from a deficiency of vitamin C in the diet.
• Symptoms may not occur for a few months after a person's dietary intake of vitamin C drops too low. Bruising, bleeding gums, weakness, fatigue and rash are among scurvy symptoms.
• Treatment involves taking vitamin C supplements and eating citrus fruits, potatoes, broccoli, and strawberries.
• Vitamin C is a water-soluble vitamin that plays a vital role in restoring, producing, regenerating, and maintenance of tissues, bones, blood vessels, and skin.
• Symptoms
• Anemia

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• Headache

• Bleeding gums

• Tooth decay or loss of tooth

• Small red spots on the skin

• Foods that contain vitamin C

• All citrus fruits are rich in vitamin C, e.g. Indian gooseberry, oranges, grapes, lemons, etc.

• Vegetables such as bell peppers, broccoli, cabbage, carrots, green peas, tomatoes, and fruits including strawberries, blackberries, guava, kiwi fruit, papaya, pineapples, and mangoes.

Additional Information

• Goiter and Iodine Deficiency Disorders: Goiter is an abnormal enlargement of the thyroid gland and the most common cause of goiters worldwide is a lack of iodine in the diet. Hashimoto's thyroiditis: Also known as chronic lymphocytic thyroiditis.

• Colour blindness can be simply defined as trouble in seeing or identifying colors like blue, green, and red. There are some rare cases where a person cannot see and identify any colors at all.

• A person with this syndrome also finds difficulties in differentiating the colors with shades. This syndrome is also called a color vision problem or color vision deficiency.

• Colour blindness was discovered by an English chemist named John Dalton in the year 1798.

• During the discovery, he was also suffering from color blindness. He wrote his first article about color blindness, which was based on his own experience. Colour blindness is also called Daltonism, which is named after its discoverer – John Dalton.

• Pellagra is a systemic disease that results from severe vitamin B3 (Niacin) deficiency.

• Mild deficiency may go unnoticed, but a diet chronically low or without Niacin may result in the 4 D's: diarrhea, dermatitis, dementia, and possibly even death. Usually, diarrhea will occur before the other D's.

Q24. Answer: (a) Methane

The correct answer is Methane.

Key Points

• Natural gas

• It is a fossil fuel. Like other fossil fuels such as coal and oil, natural gas forms from the plants, animals, and microorganisms that lived millions of years ago.

• There are several different theories to explain how fossil fuels are formed.

• The most prevalent theory is that they form underground, under intense conditions.

• As plants, animals, and microorganisms decompose, they are gradually covered by layers of soil, sediment, and sometimes rock. Over millions of years, the organic matter is compressed. As the organic matter moves deeper into Earth’s crust, it encounters higher and higher temperatures.

• The combination of compression and high temperature causes the carbon bonds in the organic matter to break down.

• This molecular breakdown produces thermogenic methane—natural gas. Methane, probably the most abundant organic compound on Earth, is made of carbon and hydrogen (CH4).

• The largest component of natural gas is methane, a compound with one carbon atom and four hydrogen atoms (CH). Hence, Option 1 is correct.

• Natural gas is a naturally occurring hydrocarbon gas mixture consisting primarily of methane, but commonly including varying amounts of other higher alkanes, and sometimes a small percentage of carbon dioxide, nitrogen, hydrogen sulfide, or helium.

• Gas is used as a source of energy for cooking, heating, and electricity generation. It is used as a chemical feedstock for manufacturing plastic and other commercially important organic chemicals. The gas is also useful in the production of fabrics, glass, paint, plastic, steel, etc.

Additional Information

• Methane is a gas that is found in small quantities in Earth's atmosphere. Methane is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms. Methane is a powerful greenhouse gas. Methane is flammable and is used as fuel worldwide.

• At standard temperature and pressure, ethane is a colorless, odorless gas. Like many hydrocarbons, ethane is isolated on an industrial scale from natural gas and as a petrochemical by-product of petroleum refining. Its chief use is as feedstock for ethylene production.

• Propane is a flammable hydrocarbon gas that is liquefied through pressurization and commonly used for fuel in heating, cooling, hot water, and vehicles. Propane can also be used for refrigerants, aerosol propellants, and petrochemical feedstock.

• Butane or n-butane is an alkane with the formula C4H10. Butane is a gas at room temperature and atmospheric pressure. Butane is a highly flammable, colorless, easily liquefied gas that quickly vaporizes at room temperature. The name butane comes from the roots but- and -ane.

Q25. Answer: (c) Yellow

The correct answer is Yellow.

Key Points

• Jaundice

• The red blood cells which are damaged or the cells which have completed their life cycle, migrate to the liver cells are destroyed and broken down to form bile pigments called bilirubin and biliverdin.

• When the liver cells are damaged due to hepatitis infection or injury, the bilirubin pigments increase in human blood.

• Hyperbilirubinemia is excessive bilirubin in the blood. This increase also results in the yellowing of the tissues which is referred to as jaundice. Hence, Option 3 is correct.

• It is caused by an obstruction in the bile duct, excessive hemolysis, or viral infection.

• It leads to the deposition of bilirubin in the mucous membrane, sclera, nail tissues, and skin so that the patient looks yellow.

• The colour of the urine is bright yellow.

Additional Information

• Jaundice Symptoms:

• Skin and sclerae colour changes to yellow.

• Urine colour also changes to yellow.

• Itching of the skin.

• Fever

• Abdominal pain

• Vomitings

• Weight loss

Q26. Answer: (c) Decibel

The correct answer is Decibel.

Key Points

• Sound

• It is a form of energy and the sound intensity is a measurement take we take from what we hear, Sound loudness is not necessarily the sound that enters the human ear, but it also tells of human ear sensitivity sensing the energy.

• Many people get confused because decibel may be used to describe the power or intensity of other things also.

• Actually, the decibel is not like the common unit. It is a unit based on common logarithms. It is a way of relating a ratio on a scale. That ratio may be power or loudness of sound also.

• The loudness of sound is generally measured in decibel. The short form of the decibel is written as dB. Hence, Option 3 is correct.

• One decibel is ten times the power ratio of the common logarithm.

• 1dB sound is very difficult to hear. No one can hear it if another sound is present in the background.

• It can only be heard with the help of a sine wave. Sound loudness also depends on several variables such as pitch, sound emission size, ear response, etc.

• The intensity of decibel may not remain the same in water and air.

• Decibel is not measured on a standard linear scale like other units. It is based on the order of magnitudes.

• Decibel is mostly used in electronics.

Additional Information

• A joule is a derived unit of energy in the International System of Units. It is equal to the energy transferred to an object when a force of one newton acts on that object in the direction of the force's motion through a distance of one meter.

• Meters per second is a derived unit for speed or velocity, which are measured by taking the distance traveled during some duration and dividing that length by the time. Using lengths in meters and time in seconds leads to the derived unit of meters per second.

• Hz or Hertz is a unit used for measuring frequency. It cannot be used to measure the intensity of sound.

• Watt is the unit of power.

Q27. Answer: (d) Copper

The correct answer is Copper.

Key Points

• Copper

• Copper was first used by man over 10,000 years ago. Hence, Option 4 is correct.

• A copper pendant discovered in what is now northern Iraq has been dated about 8700 B.C.

• For nearly five millennia copper was the only metal known to man, and thus had all the metal applications.

• Early copper artifacts, first decorative, then utilitarian, were undoubtedly hammered out from "native copper," pure copper found in conjunction with copper-bearing ores in a few places around the world.

• By 5000 BC, the dawn of metallurgy had arrived, as evidence exists of the smelting of simple copper oxide ores such as malachite and azurite.

• Around 3500 BC the first signs of bronze usage by the ancient Sumerians started to appear in the Tigris Euphrates valley in Western Asia.

• One theory suggests that bronze may have been discovered when copper and tin-rich rocks were used to build campfire rings.

• As the stones became heated by the fire, the metals contained in the rocks were melted and mixed. Around this time, there was increased use of many metals other than copper and lead in Mesopotamia as there is evidence that both gold and silver were exploited as native metals.

• By 3000 B.C., silver and lead were being used and the alloying of copper had begun, first with arsenic and then with tin.

• The earliest-known iron artifacts are nine small beads dated to 3200 BC, which were found in burials in Egypt. They have been identified as meteoric iron shaped by careful hammering.

• Meteoric iron, a characteristic iron-nickel alloy, was used by various ancient peoples thousands of years before the Iron Age. Such iron, being in its native metallic state, required no smelting of ores.

Additional Information

• Iron is a chemical element with the symbol Fe and atomic number 26. It is a metal that belongs to the first transition series and group 8 of the periodic table.

• It is, by mass, the most common element on Earth, right in front of oxygen, forming much of Earth's outer and inner core.

• Gold is a chemical element with the symbol Au and atomic number 79, making it one of the higher atomic number elements that occur naturally. In a pure form, it is a bright, slightly reddish yellow, dense, soft, malleable, and ductile metal. Chemically, gold is a transition metal and a group 11 element.

• Aluminum (aluminum in American and Canadian English) is a chemical element with the symbol Al and atomic number 13. Aluminum has a density lower than those of other common metals, at approximately one-third that of steel.

• It has a great affinity towards oxygen and forms a protective layer of oxide on the surface when exposed to air.

• Aluminum visually resembles silver, both in its color and in its great ability to reflect light.

• It is soft, non-magnetic, and ductile. It has one stable isotope, Al, this isotope is very common, making aluminum the twelfth most common element in the Universe.

Q28. Answer: (a) Red

The correct answer is Red.

Key Points

• Litmus paper

• The blue litmus will turn red or pink when it comes into contact with an acidic solution below pH 4.5.

• Between 4.5 and 8.3 the paper will be purple. Above 8.3 it will stay blue. Supplied in a plastic vial, about 100 paper strips/vial.

• Litmus paper is NOT used to determine the pH level of a solution. If you need to find out the pH level, the correct test paper to use is the pH paper.

• Acetic acid or Ethanoic acid is a weak acid.

• The formula for acetic acid is CH3COOH. Since acetic acid is a weak acid it will turn blue litmus paper into red color. Hence, Option 1 is correct.

• A 1.0 M solution (about the concentration of domestic vinegar) has a pH of 2.4.

Additional Information

• Litmus paper is an indicator used to detect the presence of acids or bases in a solution.

• Acids turn blue litmus into red and bases turn red litmus into blue color.

• Litmus is also available in the form of a solution.

• The litmus solution is a purple dye solution. It is extracted from a plant called Lichen.

Q29. Answer: (c) 332 mtr/sec

The correct answer is 332 mtr/sec.

Key Points

• Sound

• It surrounds us every day. It also has great importance in our daily life.

• Sound is a longitudinal wave, which is produced by the compression and rarefaction of matter.

• The speed of sound is dependent on the medium through which the waves of sound travel.
• Sound travels slower in the air in comparison with its travel in liquids and solids.
• The speed of sound in an object depends also on the elasticity of the object.
• In fact, sound travels four times faster in liquids than in solids and around fifteen times faster in steel than in air.
• The properties that have an effect on the speed of sound in the air are the pressure, density, and molecular mass of the medium.
• The speed of sound changes with air temperature, humidity, and even air quality.
• The speed of sound is about 332 m/s at 0 degree-Celsius. Hence, Option 3 is correct.
• The speed of sound increases by 0.6 meters per second (m/s) for every degree-Celsius increase in temperature.
• The velocity of the sound varies in the different mediums as given below.
• Sound travels in solids at a rapid rate than air, fluid, or vacuum.
• Through denser media, sound travels at a higher rate. The solid density is higher than the air, liquid, and vacuum densities.
• The velocity of sound in Vacuum medium < Gas medium < Liquid medium < Solid medium.

Image of Speed of Sound:

Q30. Answer: (d) Nichrome

The correct answer is Nichrome.

Key Points

• For an electric iron heater element should have higher resistance, high melting point, and high specific heat, using this information find the element mentioned in the option which will be suitable for an electric iron.
• copper, tungsten, nichrome, iron, platinum We know that the function of an electric iron is to remove wrinkles using pressure and heat.
• Since for using this machine for the long term, a heating element should not be melted.
• We know that there are two conditions under which an element gets melted.
• An element should have high resistance so that it can hold its configuration in a high voltage current.
• It should have a high melting point such that it can sustain high temperatures.
• So, from all the given Nichrome is used as a heating element in electric iron which is an alloy consisting 80% of Nickel and 20% of Chromium melting point of this element is 1400 degrees Celsius with high resistance which makes this element best for use as a heating element. Hence, Option 4 is correct.
• The reason which makes the Nichrome best for heating elements is when it is heated in the air it develops an outer layer of chromium oxide which makes it stable in air and this chromium layer helps the element from oxidizing further during heating.

Additional Information

• Copper is a chemical element with the symbol Cu and atomic number 29.
• It is a soft, malleable, and ductile metal with very high thermal and electrical conductivity. A freshly exposed surface of pure copper has a pinkish-orange color.
• Silver is a chemical element with the symbol Ag and atomic number 47. A soft, white, lustrous transition metal, it exhibits the highest electrical conductivity, thermal conductivity, and reflectivity of any metal.
• Lead is a chemical element with the symbol Pb and atomic number 82.
• It is a heavy metal that is denser than most common materials.
• Lead is soft and malleable, and also has a relatively low melting point. When freshly cut, lead is silvery with a hint of blue it tarnishes to a dull gray color when exposed to air.

Q31. Answer: (d) 5

Given:

The first 5 odd natural numbers are 1, 3, 5, 7, 9

Formula Used:

Sum of n terms of an Arithmetic Progression (AP) = (n/2){(2 × First term) + (n - 1) × common difference}

Mean = (sum of given observations)/(number of given observations)

Calculations:

Common difference = 3 - 1 = 2

=> Sum of 5 terms of given AP = (5/2){2 + (4 × 2)}

=> Sum of 5 terms of given AP = 25

=> Mean = 25/5

Therefore The mean of the first 5 positive odd integers is 5.

Shortcut Trick

The given numbers are 1, 3, 5, 7, 9
We know that mean of the numbers which are in Arithmetic Progression is the middle term of the given series
Therefore The mean of the first 5 positive odd integers is 5.
Alternate Method
We know that the sum of n odd natural numbers = n2
Mean = (sum of given observations)/(number of given observations)
=> Mean = n2/n
=> Mean = n
Therefore The mean of the first 5 positive odd integers is 5.
Key Points
The mean of the numbers which are in arithmetic progression = (First term + Last term)/2

Q32. Answer: (c) Rs.750

Given:
Amount(A) = Rs. 900
Interest rate(r) = 5% p.a. SI
Time(t) = 4 years
Sum(P) = ?
Formula Used:
A = P + (P × r × t)/ 100
Calculation:
A=P + (P × r × t)/100
=> 900 = P + (P × 5 × 4)/ 100
=> 900 = P + P/ 5
=> 6P/ 5 = 900
=> P = 900 × (5/6) = 750
Therefore The sum is Rs.750
Shortcut Trick
Interest rate = 5% = 1/20
If we consider,
Sum = 20 unit
Then,
Interest for 1 year = 1 unit
Interest for 4 year = 4 units
Amount = (20 + 4) = 24 units
24 unit → Rs. 900
20 unit → Rs. 900 × (20/24) = Rs. 750
Therefore The sum is Rs.750

Q33. Answer: (a) Rs. 110

Given:
Cost Price of Umbrella (CP) = Rs. 100
Profit (P) = Rs. 10
Formula Used:
Selling price (SP) = Cost Price + Profit
Calculation:
SP = 100 + 10
=> Rs. 110
Therefore The selling price of umbrella is Rs. 110.

Q34. Answer: (b) 3

Given:
Dividend = 495, Divisor = 6

Formula Used:
Dividend = Divisor × Quotient + Remainder
Calculation:
We can write 495 = 6 × 82 + 3
Here, Divisor = 6, Quotient = 82 and Remainder = 3
Therefore Remainder is 3.

Q35. Answer: (c) 1681

Shortcut Trick
It is important to remember that:
=> If a square number ended with '00' then the number might be a perfect square.
=> The square of a number whose one's digit is '5' ends with '25'.
=> So, options 730, 1520, and 1935 are ruled out. As these can't be a perfect square.
Therefore 1681 is a perfect square.
As we know, $40^2 = 1600$ and $50^2 = 2500$
=> 1681 lies between squares of 402 and 502 and is a square of '41'.
Perfect squares never end with 2, 3, 7, and 8.

Q36. Answer: (b) 25

Calculation:
25% of 100
=> 100 × 25/100
=> 25
Therefore The value of 25% of 100 will be 25.

Q37. Answer: (c) 22800

Given:
salary of a man = Rs. 20,000
Increment in salary = 14%
Formula Used:
Increased salary = Old salary + increment in salary
calculation:
Increment of salary by 14%
14% of Rs 20,000 = 2800
=> New salary of a man = 20,000 + 2800
=> Rs. 22,800
Therefore The new salary of man will be Rs. 22800.

Q38. Answer: (a) 0.5

Given:
The number to be added is 5.
The Resultant number is 6.
Calculation:
Let the number be 'x'.
Now, According to the question
2x + 5 = 6
=> 2x = 6 - 5
=> 2x = 1
=> x = 1/2
=> x = 0.5
Therefore The number is 0.5.

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Q39. Answer: (d) 126

Concept:

If speed is given in m/s and we have to convert it in km/hr

Then we need to multiply the given speed by 18/5.

Calculation:

Speed in km/hr is = 35 × (18/5)

=> 7 × 18 = 126 km/hr

Therefore The speed in km/hr is 126 km/hr.

Given:

Speed = 35 m/s

Calculation:

Speed of any object in m/s shows that the object travels a particular distance in unit second.

=> 35 m/s means in 1 sec that object travels 35 m

=> In 60 seconds the object travels 35 × 60 = 2100 m

=> In 60 min the object travels 2100 × 60 m = 126000 m

Now, 126000 m = 126000 ÷ 1000 Km

=> 126 km

Therefore The speed in km/hr is 126 km/hr.

Q40. Answer: (b) 10

M1× D1 = M2 × D2

=> 20 × 20 = 40 × D2

=> D2= 400 ÷ 40

=> D2 = 10 Days

Therefore The same work can be completed by 40 people in 10 days.

Traditional Method:

Since 20 people can do work in 20 days

So, 1 person can do the work in 20 × 20 days

=> 40 people can do the work = (20 × 20)/40

=> 40 people can do the work = 400/40

=> 40 people can do the work = 10 days

Therefore The same work can be completed by 40 people in 10 days.

Q41. Answer: (c) 112

Calculation:

7 × 2^0 = 7 × 1 = 7

7 × 2^1 = 7 × 2 = 14

7 × 2^2 = 7 × 4 = 28

7 × 2^3 = 7 × 8 = 56

7 × 2^4 = 7 × 16 = 112

Therefore The next value in the series is 112.

Q42. Answer: (d) 10999

Given:

Number of digits = 4

Concept:

The greatest number of four-digit = 9999

The smallest number of four-digit = 1000

Calculation:

According to Question

The sum of the greatest and smallest number of four-digit = 9999 + 1000

=> 10999

Therefore The sum of the greatest and smallest number of four-digit is 10999.

Q43. Answer: (d) 99

Given:

HCF of two numbers = 11

LCM of two numbers = 693

One number = 77

Formula:

Product of two numbers (x × y) = LCM × HCF

Calculation:

Let first number be x

and other number be y

According to Question

Product of Two Numbers (x × y) = 693 × 11

=> 77 × y = 693 × 11

=> y = (693 × 11)/77

=> y = 7623/77

=> y = 99

Therefore Other number is 99

Q44. Answer: (a) 9

Given:

The dimensions of a larger rectangular field,

Length = 180 m, Breadth = 120 m

The dimensions of a smaller rectangular field

Length = 60 m, Breadth = 40 m

Formula used:

Area = Length × Breadth

Calculation:

The area of larger rectangular field = 120 × 180 m^2

=> 21600 m^2

The area of smaller rectangular field = 60 × 40 m^2

=> 2400 m^2

The number of rectangular plots can be made = 21600/2400

=> 9

Therefore The rectangular plots of dimensions 40 m by 60 m can be made 9.

Q45. Answer: (a) 08 cm

Given:

Height (perpendicular) of the triangle = 5 cm

Area of the triangle = 20 cm^2

Formula used:

Area of triangle = (1/2) × b × h

b = Base of the triangle

h = Height of the triangle

Calculation:

According to the question,

20 cm^2= (1/2) × b × 5cm

=> b = 40/5 = 8 cm

Therefore The required length of the base of the triangle is 8 cm.

Q46. Answer: (b) QRS

The pattern follows here is :

Hence, the next term in the series will be "QRS".

Q47. Answer: (a) CAT

The logic follows here is :

Similarly,

Hence, the correct answer is "CAT".

Q48. Answer: (c) 49

The pattern follows here is :

There are two different series merged in one.

1. First series is the (Square of consecutive odd numbers).
2. Second series is the (Square of consecutive even numbers).

Hence, the missing term will be "49".

Q49. Answer: (c) 3 km

According to the given information :

Distance between final and starting point = OC

OA = CB = 5km and both are parallel to each other.

Therefore, AB = OC = 3 km.

Thus, the distance between final and starting point = 3 km.

Hence, the correct answer is "3 km".

Q50. Answer: (d) NPTSL

The logic follows here is :

Digits are coded with Letters.

Digit	1	5	7	8	9
Letter (Code)	X	T	Z	A	L

Digit	2	3	4	6
Letter (Code)	N	P	S	U

From the above two tables, we can get corresponding codes of the asked digits,

Digit	2	3	5	4	9
Letter (Code)	N	P	T	S	L

Hence, the correct answer is "NPTSL".

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