Agniveer Army GD 1st June 2026 (Shift 2) Memory-Based Paper (Previous Year Paper)

Army GD Agniveer • 2026 • 50 questions • 60 minutes • Answer key and solutions

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GENERAL KNOWLEDGE

Q1. Which of the following Rebellion occurred between 1855-56?

(a) Santhal rebellion
(b) Kol Rebellion
(c) Ramosi Rebellion
(d) Paika Rebellion

Q2. The major rivers forming Uttar Pradesh's riverine system include:

(a) Ganga, Yamuna, Ghaghara, Gomti
(b) Narmada, Tapi, Mahi, Luni
(c) Godavari, Krishna, Kaveri, Periyar
(d) Sutlej, Beas, Ravi, Chenab

Q3. Who is the 26th Chief Election Commissioner of India?

(a) Shri Gyanesh Kumar
(b) Shri BVR Subrahmanyam
(c) Dr. Vijay Kumar Saraswat
(d) Shri Suman K Dery

Q4. In which year was the Gandhi - Irwin Pact signed?

(a) 1913
(b) 1921
(c) 1929
(d) 1931

Q5. Which one of the following Indian States does NOT contain a portion of the Thar desert?

(a) Gujarat
(b) Haryana
(c) Himachal Pradesh
(d) Punjab

Q6. Which of the following Union Territory has the lowest sex-ratio (2011) ?

(a) Dadra & Nagar Haveli
(b) Andaman & Nicobar
(c) Daman & Diu
(d) Lakshadweep

Q7. Who was the founder of 'Arya Samaj'?

(a) Raja Ram Mohan Roy
(b) Swami Vivekanand
(c) Swami Dayanand Saraswati

(d) Raja Radhakant Dev

Q8. What is the motto of the Indian Air Force?

(a) Touch the sky with glory
(b) Courage and Sacrifice
(c) Service before self
(d) Strength in unity

Q9. The 86^(th)Constitution Amendment Act, 2002 inserted which of the following articles in the Constitution of India?

(a) 21-A
(b) 39-A
(c) 20-A
(d) 56-C

Q10. Which Indian athlete clinched the long jump title at the Meeting Maia Cidade do Desporto in Portugal with a leap of 7.75 metre, in July 2025?

(a) Sandeep Singh Maan
(b) Solairaj Dharmaraj
(c) Kumaravel Premkumar
(d) Murali Sreeshankar

Q11. Which of the following is NOT a level of the Panchayat Raj system ?

(a) State Panchayat
(b) Block Panchayat
(c) Zilla Panchayat
(d) Village Panchayat

Q12. Which of the following islands is/are located in the Bay of Bengal?

(a) Andaman and Nicobar
(b) Diu
(c) Meeru
(d) Minicoy

Q13. Which of the following operations was undertaken by Indian Airforce against Maldives coup who want to overthrow the government in the island republic of Maldives?

(a) Operation Vijay
(b) Operation Meghdoot
(c) Operation Poomalai
(d) Operation Cactus

Q14. Which city has been officially awarded the hosting rights for the World Indoor Athletics Championships 2028?

(a) New Delhi
(b) Bhubaneswar
(c) Mumbai
(d) Bengaluru

Q15. If a Panchayat is dissolved, elections are to be held within _____..

(a) Six months from the date of dissolution
(b) Twelve months from the date of dissolution
(c) Two months from the date of dissolution
(d) One month from the date of dissolution

GENERAL SCIENCE

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Q16. After fertilisation, which of the following is formed when the zygote divides several times within the ovule?

(a) Pollen grain
(b) Pistil
(c) Embryo
(d) Stamen

Q17. What does a speedometer do?

(a) It measures the instantaneous speed
(b) It measures the average speed
(c) It measures the velocity
(d) None of the above

Q18. The compressed air coming out of a punctured tyre

(a) becomes cooler
(b) attains atmospheric temperature and pressure
(c) remains unchanged
(d) becomes hotter

Q19. A thin wire that gives off light from the bulb is called _____.

(a) Terminal
(b) Tip
(c) Source
(d) Filament

Q20. _____ is called 'the power house of the cell'.

(a) Cell membrane
(b) Nucleus
(c) Mitochondria
(d) Golgi bodies

Q21. The layer of vegetation in a forest which is just below the understorey is called _____.

(a) Canopy
(b) Shrub Layer
(c) Herb Layer
(d) Forest Floor

Q22. Which part of our body secrets pepsin?

(a) Liver
(b) Pancreas
(c) Thyroid gland
(d) Stomach

Q23. Which vitamin is obtained from sunlight?

(a) Vitamin-D
(b) Vitamin C
(c) Vitamin A
(d) Vitamin-K

Q24. The substance that is usually lost by the body during dehydration is-

(a) Sodium chloride
(b) Sugar
(c) Potassium chloride
(d) Calcium Phosphate

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Q25. The Method of preserving food by adding salt is called-

(a) Salting
(b) Freezing
(c) Dehydration
(d) Canning

Q26. Which of the following forces is always attractive?

(a) Electrostatic force
(b) Gravitational force
(c) Muscular force
(d) Magnetic force

Q27. All hand-operated pumps for lifting water from tube wells are

(a) handle pump
(b) piston pump
(c) cylinder pump
(d) reciprocating pump

Q28. Glass belongs to which state of matter?

(a) Solid
(b) Liquid
(c) Solid but atomic structure of liquid
(d) Liquid but atomic Structure of solid

Q29. Ribosomes are sites for

(a) Protein synthesis
(b) Photosynthesis
(c) Fat synthesis
(d) Respiration

Q30. What type of waves are light wave?

(a) Transverse wave
(b) Longitudinal wave
(c) Both A & B
(d) None

MATHEMATICS

Q31. What sum of money will amount to Rs. 45000 in 3 years at 20% per annum on simple interest?

(a) 28000
(b) 28125
(c) 28225
(d) 30000

Q32. A number, when increased by 60%, gives 3610. The number is:

(a) 2256.25
(b) 4512.5
(c) 1128.125
(d) 6768.75

Q33. The ratio of the age of mother and son is 7 : 3 and the sum of their ages is 60 years. What is the difference in their age in years?

(a) 42
(b) 24
(c) 4

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(d) 18

Q34. In a school 60% of the students are girls. If number of boys is 480, then what is the total number of students in the school?

(a) 1200
(b) 840
(c) 96
(d) 1320

Q35. 35% of 650 liters is:

(a) 275.5 L
(b) 257.5 L
(c) 237.5 L
(d) 227.5 L

Q36. If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2 : 3, then the greater of the two angles is:

(a) 136°
(b) 54°
(c) 108°
(d) 120°

Q37. In a rectangle the base is 12 cm and the height is 5 cm. What will be the area of rectangle?

(a) 30 cm^2
(b) 60 cm^2
(c) 40 cm^2
(d) 50 cm^2

Q38. An Uber auto covers a distance of 639 km in 71 hours. What is its speed in km/hr?

(a) 19
(b) 9
(c) 4
(d) 13

Q39. In a mixture of 60 litres, milk and water are in the ratio 7 : 3. If 3 litres of water be added, find the ratio of milk and water in the new mixture.

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

Q40. Simplify:

186 - 7 × (63 - 39) + 25 ÷ 5

(a) 23
(b) 32
(c) 24
(d) 33

Q41. 18 men built a ship model in 7 days. How many days will it take for 15 men to make that model?

(a) 8.7 days
(b) 8.5 days
(c) 8.4 days
(d) 43/5 days

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Q42. What is the net discount for successive discounts of 30% and 40%?

(a) 58
(b) 42
(c) 48
(d) 40

Q43. The perimeter of a square is 68 m. What is the length (in m) of one side?

(a) 16
(b) 15
(c) 17
(d) 18

Q44. A can complete a job in 20 days and B in 30 days. Working together, how long will they take?

(a) 10
(b) 12
(c) 15
(d) 18

Q45. Simplify: 2/5 + 1.4

(a) 5.4
(b) 2.8
(c) 1.8
(d) 3.9

LOGICAL REASONING

Q46. Select the option that is related to the third term in the same way as the second term is related to the first term.

BFH : DHJ :: GKM : ?

(a) MKI
(b) IMO
(c) KMG
(d) MKG

Q47. If ‘p’ means ‘-‘, ‘q’ means ‘+’, ‘r’ means ‘÷’ and ‘s’ means ‘×’, then 18 p 6 q 4 s 6 r 2 =?

(a) 12
(b) 26
(c) 128
(d) 24

Q48. Six persons, A, B, C, D, E, and F, sit around a circular table but not necessarily in the same order. Each of them faces towards the centre of the table. F sits second to the right of E. D sits third to the left of C. Neither D nor A sits adjacent to F. Who among the following sits fourth to the left of B?

(a) D
(b) C
(c) A
(d) E

Q49. Preeti ranked 9th from the bottom and 8th from the top in her class. How many students are there in her class?

(a) 16
(b) 14
(c) 15
(d) 13

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Q50. Three of the following are similar in a certain way while one is different. Identify the different one.

(a) Lion
(b) Tiger
(c) Eagle
(d) Bear

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) Santhal rebellion

The correct answer is Santhal rebellion.

Key Points

• Santhal Rebellion (1855-56):

• This was a native rebellion in present-day Bihar and Jharkhand, in eastern India against both the British colonial authority and the corrupt zamindari system by the Santhal people.

• It started in 1855 and the rebellion was brutally crushed by the English East India Company by 1856.

Additional Information

• Kol Rebellion (1831-32): The Kol Rebellion was a tribal revolt in the Chota Nagpur area in eastern India, now located in present-day Jharkhand and Odisha.

• Ramosi Rebellion (1822-1825):

• The Ramosi Peasant Force was an armed force formed by the Ramosi people of the Sahyadri mountain range in India in the late 1820s to revolt against the British East India Company.

• The rebellion started around 1822 and ended by 1825.

• Paika Rebellion (1817):

• The Paika Rebellion, also called the Paika Bidroha, was an armed rebellion against British East India Company rule in Odisha, in eastern India.

• It took place in 1817, earlier than the timeframe you specified.

• The Paikas were the traditional landowning militia of Odisha and served as warriors.

Q2. Answer: (a) Ganga, Yamuna, Ghaghara, Gomti

The Correct option is Ganga, Yamuna, Ghaghara, Gomti.

Key Points

• UP's hydrology is dominated by the Ganga and Yamuna and their tributaries—Ghaghara (Saryu), Gomti, and others—creating fertile alluvial plains and frequent floodplains.

• The main river of Uttar Pradesh is Ganga, Yamuna, Gomti, and Ghagra.

• The Ganges River in UP is 1450 km in length and flows through several major cities like Kanpur, Varanasi, and Allahabad.

• The Yamuna is the largest tributary river of the Ganga and it flows through the Agra, Mathura, and Allahabad districts of UP.

• The Gomti river originates in Pilibhit district of Uttar Pradesh a nd it flows through Lucknow city.

Q3. Answer: (a) Shri Gyanesh Kumar

The correct answer is Shri Gyanesh Kumar.

Key Points

• Shri Gyanesh Kumar serves as the 26th Chief Election Commissioner (CEC) of India, having taken over the responsibility following the retirement of the 25th CEC, Rajiv Kumar, in early 2025.

• He is a retired 1988-batch IAS officer of the Kerala cadre and has previously held significant positions, including Secretary in the

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Ministry of Cooperation and the Ministry of Parliamentary Affairs.

• Prior to his elevation as the CEC, he was appointed as an Election Commissioner on March 14, 2024, alongside Sukhbir Singh Sandhu, to fill vacancies in the three-member commission.

• His appointment as CEC was conducted under the provisions of the Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023.

• The Election Commission of India (ECI) is an autonomous constitutional authority responsible for administering Union and State election processes in India under Article 324 of the Indian Constitution.

• The CEC holds office for a term of six years or until they attain the age of 65 years, whichever is earlier, and possesses the same status and salary as a Judge of the Supreme Court of India.

Additional Information

• NITI Aayog Leadership: The other individuals mentioned in the options are key officials of the National Institution for Transforming India (NITI) Aayog:

• Shri BVR Subrahmanyam: A 1987-batch IAS officer who currently serves as the Chief Executive Officer (CEO) of NITI Aayog.

• Shri Suman K Bery: A renowned economist who serves as the Vice Chairperson of NITI Aayog, holding a rank equivalent to a Cabinet Minister.

• Dr. Vijay Kumar Saraswat: A distinguished scientist and former DRDO Chief, currently serving as a full-time Member of NITI Aayog.

• Constitutional Framework: Part XV of the Indian Constitution deals with elections. Originally, the commission had only one member, but it became a multi-member body (one CEC and two ECs) starting from October 1993.

Q4. Answer: (d) 1931

The correct answer is 1931.

• The Gandhi-Irwin Pact was signed in 1931.

Key Points

• Gandhi-Irwin Pact/Delhi Pact (5th March 1931):

• Moderate statesmen Tejbahadur Sapru and Jayakar initiated efforts to bring about a rapprochement between Mahatma Gandhi and the government.

• Six meetings with Viceroy Lord Irwin finally led to the signing of a pact between the two to join the Second Round Table Conference.

• Regarding Gandhi- Irwin Pact, Jawahar Lal Nehru remarked, ‘This is the way the world ends, not with a bang but a whimper.

Additional Information

• Lord Irwin (1926 AD-1931 AD):

• Simon Commission visited India in 1928.

• Nehru Report, 1928.

• Lahore Session of the Congress, (1929) and Poorna Swaraj, declaration.

• Civil Disobedience Movement, 1930 started.

• Dandi March (12 March 1930).

• Gandhi-Irwin Pact, 5 March 1931.

• Sharda Act, 1929, under which the marriageable age of girls (14 years) and boys (18 years) was raised.

• Jawaharlal Nehru and Subhash Chandra Bose founded the Independence of India League.

Q5. Answer: (c) Himachal Pradesh

The correct answer is Himachal Pradesh.

• The Thar Desert is situated in the Indian state of Rajasthan and stretches to the states of Gujarat, Punjab and Haryana, and the Pakistani province of Sindh.

• The Thar Desert, also known as the Great Indian Desert, is a large arid region in the northwestern part of the Indian subcontinent which forms a natural boundary between India and Pakistan.

• It is the 17th largest desert in the world and the 9th largest hot subtropical desert in the world.

• 85% of the Thar Desert is in India, with the remaining 15% in Pakistan.

Additional Information

• The Desert National Park spans 3,162 km² and serves the Thar Desert ecosystem. It contains 44 villages.

• The Nara Desert Wildlife Sanctuary spans 6,300 km² and is situated in Mirpurkhas District, Pakistan.

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Q6. Answer: (c) Daman & Diu

The correct answer is Daman & Diu.

Key Points

• There are 940 females for every 1000 males in India, according to the 2011 Population Census.

• According to data from the 2011 Census, the Sex Ratio is on the rise..

• Daman and Diu has the lowest sex ratio of 618 out of all Union Territories and States.

• Kerala has the highest sex ratio of 1084.

Additional Information

Dadra & Nagar Haveli

• According to the 2011 Census, the total population of Dadra and Nagar Haveli is 3.4 lacs.

• The population of Dadra and Nagar Haveli constituted 0.03 percent of the Indian population.

• Dadra and Nagar Haveli has a total population of 343,709 people, with 193,760 males and 149,949 females.

• According to the 2011 Census, the average sex ratio in Dadra and Nagar Haveli is 774, which is higher than the national average of 943 females per 1000 males.

Andaman & Nicobar

• Andaman & Nicobar Island as per the Census 2011, has population of 380581 and area is spread in 8249 Km 2.

• Andaman & Nicobar Island population density is 46 Persons/Km 2 as per India Census 2011 data and sex ratio is 876 per 1000 Male.

Lakshadweep

• Lakshadweep UT Census 2011 has a population of 64473 people and a land area of 30 km2.

• According to India Census 2011 data, the population density in Lakshadweep is 2149 people per square kilometre, with a sex ratio of 946 males for every 1000 females.

Q7. Answer: (c) Swami Dayanand Saraswati

The Correct Answer is Swami Dayanand Saraswati.

Key Points

• The Arya Samaj is a monotheistic Hindu reform movement in India that promotes principles and practices based on the belief in the Vedas' infallible authority.

• Maharishi Dayanand Saraswati established the samaj on April 10, 1875.

• The Arya Samaj adheres to the belief that there is only one God and that idol worship is not appropriate.

• The Arya Samaj was the first Hindu organisation to promote proselytization.

Important Points

• Dayananda Saraswati was a Hindu scholar, social activist, and the founder of the Arya Samaj, a Vedic dharma reform movement.

• In 1876, he was the first to call for Swaraj, referring to India as "India for Indians," a call that Lokmanya Tilak later adopted.

Additional Information

• Raja Ram Mohan Roy

• He was one of the founders of the Brahmo Sabha, which was the forerunner of the Brahmo Samaj, an Indian subcontinent social-religious reform movement.

• Swami Vivekananda

• He was an Indian Hindu monk who lived from the 18th century to the early 20th century. He was a close follower of Indian mystic Ramakrishna in the nineteenth century.

• The Ramakrishna Math and the Ramakrishna Mission were both founded by Swami Vivekananda.

Q8. Answer: (a) Touch the sky with glory

The correct answer is Touch the sky with glory.

Key Points

• The motto of the Indian Air Force is "Touch the sky with glory".

• This motto is derived from the Bhagavad Gita, Chapter 11, Verse 24, where Lord Krishna shows his universal form to Arjuna.

• The verse signifies the vastness and grandeur of the universe, akin to the reach and capability of the Indian Air Force.

• The motto reflects the aspiration and commitment of the Indian Air Force to achieve excellence and glory in its operations.

• The Indian Air Force aims to safeguard Indian airspace and conduct aerial warfare during conflicts.

Additional Information

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• The Indian Air Force was officially established on 8th October 1932.
• It is the fourth largest air force in the world after the United States, Russia, and China.
• The primary objective of the Indian Air Force is to secure Indian airspace and to conduct aerial warfare during armed conflicts.
• The Indian Air Force also participates in humanitarian missions and disaster relief operations.

Q9. Answer: (a) 21-A

The correct answer is 21-A.
• The 86^(th) amendment to the constitution of India in 2002 provided
• Right to Education as a Fundamental right in part -III of the constitution.
• This amendment inserted Article -21A which made the right to education a fundamental right for children between ages 6-14 years.

Additional Information

Article	Detail
Article 39-A	It provides provision for free legal aid to the poor and weaker sections of the society and ensures justice for all.
Article 20-A	Article 20(1) provides the provision to protect individuals against ex post facto legislation, which means no individual can be convicted for actions that were committed before the enactment of the law.
Article 56-C	The President shall, notwithstanding the expiration of his term, continue to hold office until his successor enters upon his office.

Q10. Answer: (d) Murali Sreeshankar

The correct answer is Murali Sreeshankar.

Key Points
• Murali Sreeshankar, an accomplished Indian long jumper, secured the title at the Meeting Maia Cidade do Desporto in Portugal in July 2025 with a jump of 7.75 meters.
• He is one of India's top long jump athletes and has consistently performed well in international events, including the Olympics and World Championships.
• Murali Sreeshankar is known for his national record-breaking leap of 8.36 meters, achieved at the Federation Cup in 2022.
• He has represented India in multiple prestigious competitions, including the Commonwealth Games 2022, where he won a silver medal in long jump.
• Sreeshankar's consistent performances have elevated India's presence in athletics on the global stage, particularly in field events.

Additional Information
• Sandeep Singh Maan
• Sandeep Singh Maan is a para-athlete from India who has represented the country in various international events, including the Paralympics.
• He specializes in track and field events and has won numerous medals at the Asian Para Games and other regional championships.
• He is an inspiration for budding para-athletes in India, showcasing perseverance and excellence.
• Solairaj Dharmaraj
• Solairaj Dharmaraj is a lesser-known Indian athlete who has participated in regional and national events.
• While he has contributed to athletics, his achievements have not yet reached the scale of international recognition like Murali Sreeshankar.
• Kumaravel Premkumar
• Kumaravel Premkumar is an Indian long jumper who has represented India in various international and national competitions.
• He held the national record in long jump with a leap of 8.09 meters until it was surpassed by Murali Sreeshankar in 2018.
• Premkumar has been a significant figure in Indian athletics, inspiring younger athletes in the long jump discipline.

Q11. Answer: (a) State Panchayat

The correct answer is - State Panchayat

Key Points
• State Panchayat

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• The Panchayat Raj system in India is a decentralized form of government where local self-government is established in rural areas.

• It operates at three levels: Village Panchayat, Block Panchayat (also known as Panchayat Samiti), and Zilla Panchayat (District Panchayat).

• There is no provision for a State Panchayat in this system.

• The State Government oversees and guides the functioning of the Panchayat Raj institutions but is not a part of the Panchayat Raj structure itself.

Additional Information

• Village Panchayat

• Also known as Gram Panchayat.

• It is the lowest level of the Panchayat Raj system and operates at the village level.

• Responsible for local administration and development activities within the village.

• Block Panchayat

• Also known as Panchayat Samiti or Intermediate Panchayat.

• It operates at the block level, which is a cluster of villages.

• Coordinates activities and development projects among the villages within the block.

• Zilla Panchayat

• Also known as District Panchayat.

• It is the highest level of the Panchayat Raj system and operates at the district level.

• Oversees and coordinates the activities of the Block Panchayats within the district.

• Responsible for the overall development of the district.

Q12. Answer: (a) Andaman and Nicobar

The correct answer is Andaman and Nicobar.

• The Andaman Islands are an Indian archipelago in the Bay of Bengal.

• These roughly 300 islands are known for their palm-lined, white-sand beaches, mangroves and tropical rainforests.

Additional Information

• Diu is an island situated slightly off the coast of Kathiawad near the Port of Veraval in Gujarat with a coastal length of 21 kms. and is at a distance of about 768 kms. from Daman, the Capital of the newly formed Union Territory of Daman and Diu.

• Meeru Island is an island on the easternmost tip of North Malé Atoll in the Maldives.

• Minicoy is an island in Lakshadweep, India. Along with Viringili, it is on Maliku atoll, the southernmost atoll of the Lakshadweep archipelago.

Q13. Answer: (d) Operation Cactus

The correct answer is option 4 i.e Operation Cactus

• Operation cactus took place in 1988.

• It was against the Maldivian group led by Abdullah Luthufi who wanted to overthrow the government in the Maldives.

• The group was aided by armed mercenaries of the People's Liberation Organisation of Tamil Eelam (PLOTE), a Sri Lankan Tamil secessionist organization.

Name of the operation	Description
Operation Vijay-1961	The Liberation of Goa from Portuguese
Operation Meghdoot-1984	To capture the Siachen Glacier in Jammu and Kashmir from Pakistan
Operation Poomalai-1987	To Support Tamil Tigers during the Sri Lankan Civil War
Operation Cactus-1988	Against the Maldives coup who want to overthrow the government in the island of Maldives.

Q14. Answer: (b) Bhubaneswar

The correct answer is Bhubaneswar.

In News

• The World Athletics Council, meeting in Toruń, Poland, has officially awarded the hosting rights for the 2028 World Indoor Athletics Championships to Bhubaneswar, India.

Key Points

• First for India: This marks the first time India will host the World Indoor Athletics Championships.

• Venue: The event will take place at the indoor facility within the Kalinga Stadium Complex.

• Asian Milestone: India becomes only the fourth Asian nation to host this event, joining Japan (1999), Qatar (2010), and China (2025).

• History: This will be the 22nd edition of the biennial competition, which first began in 1985.

• Historical Context: The USA is the most successful nation in the tournament's history, while India is yet to win a medal at this meet.

Asian Host History

Year	Host Nation	Host City
1999	Japan	Maebashi
2010	Qatar	Doha
2025	China	Nanjing
2028	India	Bhubaneswar

Q15. Answer: (a) Six months from the date of dissolution

The correct answer is Six months from the date of dissolution.

Key Points

• If a Panchayat is dissolved, elections are to be held within six months from the date of dissolution.

• The term Panchayati Raj in India signifies the system of rural local self-government.

• It had been established after the advice of the Balwant Rai Mehta committee, which is established by the Govt. of India in 1957.

• This committee has three-tier panchayat governance such as Gram Panchayat, Panchayat Samiti, and Zila Parishad.

• As a result of this scheme the first Panchayat system introduced in Rajasthan in 1959.

• This system observed a lack of people's participation.

• To overcome this failure a new committee named Ashok Mehta committee gives a two-tier governance plan in 1977.

• The two-tier plan was Zila Parishad and Mandal Panchayat.

• This Panchayati Raj faced a major constitutional amendment in 1992 that brings back the three-tier system again.

• This amendment added a new part to the Constitution, namely, added Part IX titled The Panchayats.

• This amendment adds a Three-tier system of panchayats at the village, intermediate Mandal, and district levels except in States with a population is below 20 lakhs (Article 243B)

• The Panchayat is constituted under Article 243 to 243 (O)

Additional Information

Duration of Panchayati Raj

• The Act provides for a five-year term of office to all the levels of the panchayat. However, the panchayat can be dissolved before the completion of its term.

• But fresh elections to constitute the new panchayat should be completed before the expiry of its five-year duration.

• In case of dissolution, the election should be within a period of six months from the date of its dissolution.

Q16. Answer: (c) Embryo

The correct answer is Embryo.

Key Points

• After fertilization, the zygote undergoes several mitotic divisions within the ovule to form the embryo.

• The embryo is the early developmental stage of a seed plant.

• This process occurs inside the ovule, which is located within the ovary of the flower.

• The embryo will eventually develop into a new plant upon germination.

• The development of the embryo is a critical step in the life cycle of flowering plants (angiosperms).

Additional Information

• Zygote

• The zygote is the initial cell formed when two gamete cells are joined by means of sexual reproduction.

• It contains genetic material from both the male and female parent.

• Ovule

• The ovule is the structure in seed plants that contains the female gametophyte and after fertilization, becomes the seed.
• It consists of the nucellus, integuments, and embryo sac.
• Fertilization
• Fertilization in plants is the process where the male gamete (pollen) fuses with the female gamete (ovule).
• It leads to the formation of the zygote and initiates the development of the embryo.
• Germination
• Germination is the process by which a plant grows from a seed or similar structure.
• It involves the resumption of metabolic activities and growth in the seed, leading to the emergence of the seedling.

Q17. Answer: (a) It measures the instantaneous speed

A speedometer or a speed meter is a gauge that measures and displays the instantaneous speed of a vehicle.

Meters	Functions
Speedometer	A speedometer or a speed meter is a gauge that measures and displays the instantaneous speed of a vehicle.
Odometer	An odometer or odograph is an instrument used for measuring the distance traveled by a vehicle, such as a bicycle or a car.
Chronometer	A chronometer is a specific type of mechanical timepiece tested and certified to meet certain precision standards.
Barometer	A barometer is a scientific instrument used in meteorology to measure atmospheric pressure.

Note:
• A speedometer is used to measure the speed of the vehicle while Odometer is used to measure the distance traveled by the vehicle.

Q18. Answer: (a) becomes cooler

Explanation:

The compressed air coming out of a punctured tyre becomes cooler is due to the principle of Joule-Thompson Effect.

The air inside the tube of a vehicle is under high pressure. When a puncture occurs to the tyre, air inside comes out from that high pressure to outside environment which is at low pressure. In this process, it has to travel through a small hole. To do this, the air needs energy. This energy is obtained from the internal heat of the air. So it uses its internal energy to come out. Thus by expensing its internal heat, it comes out of the tube and since it has lost its heat, it becomes cool.

From the graph of T-P we can also relate the things.

Q19. Answer: (d) Filament

The correct answer is Filament.
• A thin wire that gives off light from the bulb is called filament.
• The filament of the light bulb is made of tungsten metal.
• Tungsten is used in the manufacturing of filament due to its highest value of melting point.
• Incandescent lamps are filament lamps.
• The filament is enclosed in a bulb to protect the filament from the issues of oxidation.
• Argon, Nitrogen is the gases used to fill a filament lamp.
• The lifespan of a filament lamp is 1000 hours.

Q20. Answer: (c) Mitochondria

The Correct Answer is Option 3 i.e Mitochondria.
• Golgi apparatus:
• This cell organelle is primarily responsible for storage, processing, and packaging proteins.
• Golgi Apparatus is found within the cytoplasm of a cell and are present in both plant and animal cells.
• Mitochondria:
• Mitochondria is the cell organelle also called the Powerhouse of the cell.
• It generates energy molecules called ATP or Adenosine Triphosphate.
• Cell membrane:
• The cell membrane, also called the plasma membrane, is found in all cells and separates the interior of the cell from the outside

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environment.

• The cell membrane regulates the transport of materials entering and exiting the cell.

• Nucleus:

• It is a membrane-bound organelle that contains the genetic material of organisms.

Q21. Answer: (b) Shrub Layer

The correct answer is Shrub Layer.

Key Points

• Shrub Layer -

• The undergrowth part of the forest usually consists of plants from 3 to about 15 feet in height, called the shrub layer.

• It includes both shrubby vegetation and seedling trees.

Additional Information

• Herb Layer -

• It is located between the ground layer and the understory tree layer.

• It consists of shrubs and very small trees in tropical rain forests.

• Under this comes the ground or moss layer, the field or herb layer, the shrub layer, and one or more tree layers.

• Canopy -

• The branches of tall trees in the forest appear like a roof over the trees of low height.

• This is called "Canopy".

• Forest Floor -

• It is the darkest of all rainforest layers.

• It mainly consists of shed vegetative parts, such as leaves, branches, bark, and stems.

• It exists in various stages of decomposition above the soil surface.

Q22. Answer: (d) Stomach

The answer is option 4.

Key Points

• Gastric chief cells present in our stomach secrete pepsin.

• It is responsible for the digestion of proteins.

• The stomach is responsible for the digestion of food.

• It secrets HCl(Hydrochloric acid) to aid digestion.

Additional Information

• Liver

• The largest organ in the human body.

• It secrets bile which digests protein, carbohydrates, and fats(breaks down fats into smaller particles).

• It also converts the extra glucose to glycogen (Stores energy).

• Converts excess amino acids to ammonia.

• Pancreas

• Second largest gland of the human body.

• Secrets insulin, whose deficiency causes diabetes, and excess causes hyperglycemia.

• digests carbs, proteins and nucleic acid.

• Thyroid gland

• It secretes the thyroid hormone.

• It is responsible for maintaining the body's metabolism, muscle and digestive function, brain development, and bone maintenance.

Q23. Answer: (a) Vitamin-D

Correct Answer: Vitamin D

Rationale:

• Vitamin D is known as the "sunshine vitamin" because it is synthesized in the skin in response to exposure to ultraviolet (UV) rays from sunlight.

• When the skin is exposed to sunlight, specifically UVB radiation, it converts 7-dehydrocholesterol to previtamin D3, which then becomes vitamin D3 (cholecalciferol).

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• Vitamin D is essential for maintaining healthy bones and teeth, supporting immune, brain, and nervous system health, and regulating insulin levels, among other functions.

• The recommended exposure to sunlight to maintain adequate vitamin D levels is about 10-30 minutes several times per week, depending on skin type, location, and time of year.

Explanation of Other Options:

Vitamin C

• Rationale: Vitamin C, also known as ascorbic acid, is not obtained from sunlight. It is a water-soluble vitamin that must be obtained from the diet. Rich sources include fruits and vegetables, particularly citrus fruits, strawberries, kiwi, bell peppers, and leafy greens.

Vitamin A

• Rationale: Vitamin A is a fat-soluble vitamin that is not synthesized from sunlight. It is obtained from the diet, either as preformed vitamin A (retinol) from animal products like liver and dairy, or as provitamin A carotenoids from plant sources like carrots, sweet potatoes, and spinach.

Vitamin K

• Rationale: Vitamin K is another fat-soluble vitamin that is not produced by sunlight. It is essential for blood clotting and bone health and is obtained from dietary sources such as leafy green vegetables, fish, meat, and eggs.

Conclusion:

• Among the given options, Vitamin D is the correct answer because it is synthesized in the skin in response to sunlight exposure, whereas Vitamins C, A, and K must be obtained through dietary sources.

Q24. Answer: (a) Sodium chloride

The correct answer is Option 2, i.e Sodium Chloride.

• The substance that is usually lost by the body during dehydration is Sodium chloride.

• Dehydration, loss of water from the body, is almost invariably associated with some loss of salt (sodium chloride) as well.

• The treatment of any form of dehydration, therefore, requires not only the replacement of the water lost from the body but also the restoration of the normal concentration of salt within the body fluid.

• Dehydration may be caused by restricted water intake, excessive water loss, or both.

• Prolonged dehydration destroys the normal distribution of salt and water in the body.

• The plasma volume decreases, and the blood viscosity increases.

• As a result of these changes renal function is impaired, the urinary output falls, and waste products accumulate.

Q25. Answer: (a) Salting

The correct option is Salting.

Key Points

• Salting

• The method of preserving food by adding salt is called salting.

• It is the method of preservation of food in which we add extra salt to the fruits to prevent microbial growth.

• It removes moisture from food like meat, and pickles through an Osmosis process.

• Salting helps to preserve fruits, meats, and fish for a long time.

Additional Information

• Freezing

• Freezing is the process in which the food is preserved by keeping the food at a very low temperature or cold.

• It slows down microorganism growth and reproduction.

• Dehydration

• It is the process of removing moisture(water) from the food in order to preserve them.

• Canning

• It is the method of food preservation in which the food is kept in an airtight container at a high temperature.

• This method is used to preserve meats and fruits.

Q26. Answer: (b) Gravitational force

The correct answer is option 2 i.e. Gravitational force.

• All objects in the universe attract each other. This force of attraction between objects is called the gravitational force.

• The attractive or repulsive forces between particles or objects due to their electric charges is known as electrostatic force.

• The force resulting due to the action of muscles is known as the muscular force; since it can be applied only when it is in contact

with an object, it is also called a contact force.

• The force of attraction or repulsion that arises between electrically charged particles because of their motion is known as a magnetic force.

Q27. Answer: (d) reciprocating pump

Concepts:

All hand-operated pumps for lifting water from tube wells are of the reciprocating type.

Reciprocating pumps:

• They are normally used for drinking water supply and irrigation as well.

• The main parts of the reciprocating pumps are:

1) Pump cylinder in which an airtight piston or plunger moves up and down with the help of a pump rod,

2) Valves - Handle the operation of the pump.

3) Pipe and stainer

• Working: As the plunger rises, water is drawn through a non-return valve at the bottom of the cylinder into the cylinder, and on the downward stroke the water is released to the upper side of the plunger. On the next upward movement of the plunger, water is raised to the pump head and discharged through the spout.

• They can be operated manually, with animal power and auxiliary power sources.

Pump Cylinder:

When the water level is very deep the pump cylinder has to be lowered close to the water surface to reduce the suction head and then the reciprocating pump is used to lift the water from underground sources like tube well.

Centrifugal Pumps:

• They are the most commonly used pumps for irrigation in agriculture.

• They are operated with either an electric motor or an engine.

• Main Parts: casing, impeller, high tensile shaft, bearing pedestal, stuffing box, flanges, and coupling.

• Working: Upon rotation of the impeller, the water enters the eye, which is thrown radially outward to the periphery. Such action causes a vacuum in the eye and thus more water enters the suction pipe to maintain the continuous flow. The impeller accelerates the water to a high velocity and the casing converts this velocity head into a pressure head and water delivers to the desired level due to this high-pressure head.

Q28. Answer: (c) Solid but atomic structure of liquid

CONCEPT:

Glass and States of Matter

• Glass is an amorphous solid, meaning it does not have a long-range ordered atomic structure like crystalline solids.

• Instead, its atomic arrangement resembles that of liquids, but it behaves mechanically like a solid.

• This unique state is often referred to as a "supercooled liquid" or "solid with the atomic structure of a liquid."

EXPLANATION:

• In the context of states of matter:

• Solids have an ordered atomic structure, and liquids have a disordered structure.

• Glass does not fit perfectly into either category because, on a microscopic level, its atoms are disordered like a liquid, but it is rigid and retains its shape like a solid.

• This is why glass is categorized as a "solid but with the atomic structure of a liquid."

• Its mechanical properties (rigidity, hardness) are solid-like, but its atomic arrangement is more similar to that of a liquid.

Therefore, the correct answer is Option 3: Solid but atomic structure of liquid.

Q29. Answer: (a) Protein synthesis

The correct answer is Protein synthesis.

Key Points

• Ribosomes are non-membranous granular structures present in the cytoplasm.

• They were first observed under an electron microscope as dense particles by George Palade in the year 1953.

• Ribosomes are the site for "protein synthesis" so they are also called the "protein factory" of the cell.

• There are two types of ribosomes

1. Eukaryotic ribosomes - 80s - occurs in the cytoplasm of eukaryotic cell

2. Prokaryotic ribosomes - 70s - occur in the cytoplasm as well as are associated with the cell membrane of prokaryotic cell.

• The subunits of the ribosomes are:

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• 80s ribosomes - are made of 60s and 40s subunits.

• 70s ribosomes - are made of 50s and 30s subunits.

Important Points

• Composition of the structure of ribosome:

• They are composed of ribonucleic acid (RNA) and proteins

Type	Composition
70s	60% rRNA + 40% proteins
80s	40% rRNA + 60% proteins

Additional Information

• Photosynthesis: It is the process by which green plants and some other organisms use sunlight to synthesize nutrients from carbon dioxide and water. In this process, plant the chlorophyll, carbon dioxide, water, sunlight, and release oxygen.

• Synthesis of Fatty acids occurs in the cytoplasm.

Q30. Answer: (a) Transverse wave

CONCEPT:

• Wave: The disturbance that transfers energy from one place to another is called a wave.

There are mainly two types of waves:

1. Transverse waves: The wave in which the movement of the particles is at right angles to the motion of the energy is called a transverse wave. Light is an example of a transverse wave.

2. Longitudinal wave: The wave in which the movement of the particles is parallel to the motion of the energy is called a longitudinal wave. The sound wave is an example of a longitudinal wave.

EXPLANATION:

• Light-wave is a transverse wave because its components vibrate perpendicular to its direction of propagation. So option 1 is correct.

Q31. Answer: (b) 28125

Given:

Amount, A = Rs. 45000

Time, T = 3 years

Rate, R = 20%

Formula used:

Simple Interest = (Principal × Rate × Time)/100

Amount = Principal + Simple Interest

Calculation:

Let the sum of money be Rs. P

According to formula,

Amount = Principal + Simple Interest

=> 45000 = P + [(P × 20 × 3)/100]

=> 45000 = [P + (3P/5)]

=> 45000 = 8P/5

=> P = 28125.

Therefore The sum of money is Rs. 28125.

Formula used:

Principal = [(100 × A)/(100 + RT)]

Where,

A = Amount, R = Rate, T = Time

Calculation:

Principal = [(100 × 45000)/(100 + 20 × 3)]

=> (45000 × 100)/160

=> 281.25 × 100

=> 28125

Therefore The sum of money is Rs. 28125.

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Q32. Answer: (a) 2256.25

Shortcut Trick

If a number is increased by 60%, it becomes 160% of itself.

Given that 160% of the number = 3610

Original Number = 3610 × (100 / 160)

Original Number = 36100 ÷ 16 = 2256.25

Therefore The correct answer is 2256.25.

Alternate Method

Original Number (100%)

Increase (+60%)

Final Value (160%) = 3610

? (To Find)

Given:

A number, when increased by 60%, gives 3610.

Formula Used:

Final Value = Original Number × (1 + Percentage Increase / 100)

Calculations:

=> Let the original number be x.

=> Final Value = x + 60% of x

=> 3610 = x × (1 + 60 / 100)

=> 3610 = x × (160 / 100)

=> 3610 = x × (8 / 5)

=> x = (3610 × 5) ÷ 8

=> x = 18050 ÷ 8

=> x = 2256.25

Therefore The correct answer is 2256.25.

Additional Information

Percentage Change

Percentage change is always calculated as: ((New Value − Original Value) ÷ Original Value) × 100.

Base of Percentage

When a specific quantity is systematically increased or decreased, the original unknown quantity is always considered as the base value (100%).

Multiplying Factor Method

For a direct percentage increase of R%, the multiplying factor is directly written as (1 + R/100). Similarly, for a decrease of R%, it is (1 − R/100).

Q33. Answer: (b) 24

Shortcut Trick

Sum of ratio parts = 7 + 3 = 10 units.

Given 10 units = 60 years => 1 unit = 6 years.

Ratio difference = 7 − 3 = 4 units.

Age difference = 4 units × 6 = 24 years.

Therefore The correct answer is 24 years.

Alternate Method

Given:

Ratio of Mother and Son age = 7 : 3

Sum of their ages = 60 years

Formula Used:

Value of 1 unit = Total Sum ÷ Sum of Ratio parts

=> Let the age of the Mother be 7x and the age of the Son be 3x.

=> 7x + 3x = 60

=> 10x = 60

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=> x = 60 ÷ 10 = 6
=> Age of Mother = 7 × 6 = 42 years
=> Age of Son = 3 × 6 = 18 years
=> Difference in age = 42 − 18 = 24 years
Therefore The correct answer is 24 years.
Additional Information
Ratio Division
To find a part from a total sum divided in ratio a:b, use the formula: Part A = [a ÷ (a+b)] × Total.
Constant Age Difference
The difference between the ages of two individuals always remains the same, regardless of how many years pass.
Ratio to Value Conversion
If the ratio is x:y and the total is T, the difference is given by |x−y| × [T ÷ (x+y)].

Q34. Answer: (a) 1200

% of Girls = 60
=> % of boys = 40
=> Let the total number of students = x
=> 40% of x = 480
=> 400/100 × x = 480
Therefore x = 480/0.4 = 1200
Therefore Total number of students = 1200

Q35. Answer: (d) 227.5 L

Given:
Total = 650 liters
Percentage = 35%
Formula used:
Required value = (Percentage × Total) ÷ 100
Calculation:
=> (35 × 650) ÷ 100
=> 22750 ÷ 100 = 227.5
Therefore 35% of 650 liters = 227.5 liters.

Q36. Answer: (c) 108°

Shortcut Trick
Sum of consecutive interior angles on the same side of a transversal is always 180°.
Given ratio = 2 : 3 => Total parts = 2 + 3 = 5 units.
5 units = 180° => 1 unit = 36°.
Greater angle = 3 units = 3 × 36° = 108°.
Therefore The correct answer is 108°.
Alternate Method
Given: Ratio of two interior angles on the same side of a transversal = 2 : 3.
Formula Used: When two parallel lines are intersected by a transversal, the sum of consecutive interior angles is 180°.
Let the two angles be 2x and 3x.
=> 2x + 3x = 180°
=> 5x = 180°
=> x = 180° ÷ 5
=> x = 36°
=> Smaller angle = 2 × 36° = 72°
=> Greater angle = 3 × 36° = 108°
Therefore The correct answer is 108°.
Additional Information
Alternate Interior Angles

Angles on opposite sides of the transversal and between the parallel lines are equal.

Q37. Answer: (b) 60 cm²

Given:

Base of rectangle (Length) = 12 cm

Height of rectangle (Breadth) = 5 cm

Formula used:

Area of rectangle = Length × Breadth

Calculation:

Area of rectangle = 12 cm × 5 cm

=> 60 cm²

Therefore The area of the rectangle is 60 cm².

Q38. Answer: (b) 9

Shortcut Trick

Speed = Distance ÷ Time

Speed = 639 ÷ 71

Since 71 × 9 = 639 (Units digit check: 1 × 9 = 9).

Therefore The correct answer is 9 km/hr.

Alternate Method

Given:

Total Distance (D) = 639 km

Total Time (T) = 71 hours

Formula Used:

Speed (S) = Distance (D) ÷ Time (T)

Calculations:

=> Speed = 639 ÷ 71

=> Speed = 9

Therefore The correct answer is 9 km/hr.

Additional Information

Speed Conversion

To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Average Speed

Average speed is the total distance traveled divided by the total time taken: Average Speed = (Total Distance) ÷ (Total Time).

Relative Speed

For two objects moving in the same direction, relative speed = S1 − S2. In the opposite direction, relative speed = S1 + S2.

Q39. Answer: (c) 2 : 1

Given:

Initial mixture = 60 litres

Milk and water ratio = 7 : 3

Water added = 3 litres

Formula Used:

New ratio = (Initial quantity of milk) : (Initial quantity of water + Added water)

Calculation:

Initial quantity of milk = (7/10) × 60 = 42 litres

Initial quantity of water = (3/10) × 60 = 18 litres

New quantity of water = 18 + 3 = 21 litres

New ratio of milk to water = 42 : 21 = 2 : 1

New ratio = 2 : 1

The correct answer is option 3.

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Q40. Answer: (a) 23

Given:

186 - 7 × (63 - 39) + 25 ÷ 5

Concept:

Follow BODMAS rule to solve this question, as per the order given below:

Calculation:

=> 186 - 7 × (63 - 39) + 25 ÷ 5

=> 186 - 7 × 24 + 25 ÷ 5

=> 186 - 7 × 24 + 5

=> 186 - 168 + 5

=> 23

Therefore 186 - 7 × (63 - 39) + 25 ÷ 5 = 23

Q41. Answer: (c) 8.4 days

Given:

Total number of Men = 18

Time taken = 7 days

Formula Used:

Total work = Number of workers × Time

Calculation:

Total work = 18 × 7 = 126 unit

Let number of days taken by 15 men to make the same model be x

According to question-

=> 15 × x = 126

=> x = 126/15

=> x = 8.4 days

Therefore Number of days taken by 15 men to make the same model is 8.4 days

Q42. Answer: (a) 58

Shortcut Trick

The net equivalent discount for two successive discounts of x% and y% is given by the formula: [x + y − (x × y) ÷ 100]%

Here, the given discounts are x = 30 and y = 40

=> Net Discount = [30 + 40 − (30 × 40) ÷ 100]%

=> Net Discount = (70 − 12)% = 58%

Therefore The correct answer is 58%.

Alternate Method

Given:

Successive discounts = 30% and 40%

Calculations:

=> Let the Marked Price (MP) be 100.

=> Price after the first discount of 30% = 100 − (30 ÷ 100 × 100) = 100 − 30 = 70

=> Price after the second discount of 40% = 70 − (40 ÷ 100 × 70) = 70 − 28 = 42

=> Final Selling Price (SP) = 42

=> Total Discount given = MP − SP = 100 − 42 = 58

=> Net Discount Percentage = (58 ÷ 100) × 100% = 58%

Therefore The correct answer is 58%.

Additional Information

Successive Discount

When two or more discounts are applied one after the other on the Marked Price. For two discounts a% and b%, the combined discount is (a + b − ab ÷ 100)%.

Marked Price (MP) & Selling Price (SP)

Discount is always calculated on the Marked Price (label price). The Selling Price is derived as: SP = MP × (100 − Discount%) ÷ 100.

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Multiplier Method for Successive Discounts

To calculate the final SP after multiple successive discounts directly, use: Net SP = MP × (100 − d1)÷100 × (100 − d2)÷100 × (100 − d3)÷100.

Q43. Answer: (c) 17

Shortcut Trick

For a Square, the Perimeter is 4 times its Side.

Side = Perimeter ÷ 4

Side = 68 ÷ 4 = 17 m

Therefore The correct answer is 17 m.

Alternate Method

Given:

Perimeter of the Square = 68 m

Formula Used:

Perimeter of a Square = 4 × Side

Calculations:

=> Let the Side of the Square be 'a' meters.

=> 4 × a = 68

=> a = 68 ÷ 4

=> a = 17 m

Therefore The correct answer is 17 m.

Additional Information

Area of a Square

The total space occupied by a square is calculated as Side × Side or a^2.

Diagonal of a Square

The Diagonal of a square with side 'a' is given by the formula $d = a\sqrt{2}$.

Properties of a Square

All four sides are equal, all internal angles are 90°, and diagonals bisect each other at 90°.

Q44. Answer: (b) 12

Shortcut Trick

Use the product-sum formula for two people working together.

Time Taken = (Time_A × Time_B) ÷ (Time_A + Time_B)

Time Taken = (20 × 30) ÷ (20 + 30)

Time Taken = 600 ÷ 50 = 12 days.

Therefore The correct answer is 12 days.

Alternate Method

Given: Time taken by A = 20 days, Time taken by B = 30 days.

Formula Used: Total Work = LCM of individual times; Efficiency = Total Work ÷ Time.

Person	Days	Total Work	Efficiency
A	20	60 (LCM of 20, 30)	3
B	30	2	

=> Combined Efficiency of A and B = 3 + 2 = 5 units per day.

=> Time taken together = Total Work ÷ Combined Efficiency

=> Time taken together = 60 ÷ 5

=> Time taken together = 12 days.

Therefore The correct answer is 12 days.

Additional Information

Efficiency and Time Relationship

Efficiency is inversely proportional to Time. If the ratio of time taken by A and B is x : y, the ratio of their efficiencies is y : x.

Work and Wages

Wages are always distributed in the ratio of the efficiency of the workers or the actual work done by them, not the time taken.

Negative Work (Pipes & Cisterns)

In problems involving outlet pipes, the efficiency of the outlet pipe is treated as negative work and subtracted from the total efficiency.

Q45. Answer: (c) 1.8

Shortcut Trick

Convert the fraction directly into a decimal.

2/5 = 0.4

Now, add it to the given decimal value:

Expression = 0.4 + 1.4 = 1.8

Therefore The correct answer is 1.8.

Alternate Method

Given:

Expression = 2/5 + 1.4

Calculation:

=> Convert the decimal 1.4 into a fraction.

=> 1.4 = 14/10

=> Simplify the fraction: 14/10 = 7/5

=> Substitute the fraction back into the expression:

=> Expression = 2/5 + 7/5

=> Since the denominators are the same, add the numerators directly:

=> Expression = (2 + 7) / 5 = 9/5

=> Convert the resulting fraction back to a decimal:

=> 9/5 = 1.8

Therefore The correct answer is 1.8.

Additional Information

BODMAS Rule

Always simplify expressions using the sequence: Brackets, Orders (powers/roots), Division, Multiplication, Addition, and Subtraction.

Fraction to Decimal Conversion

To convert a fraction to a decimal, divide the numerator by the denominator. If the denominator is a factor of 10, 100, etc., multiply both the numerator and denominator by the necessary multiplier to easily convert it into a decimal (e.g., 2/5 = (2 × 2) / (5 × 2) = 4/10 = 0.4).

Q46. Answer: (b) IMO

The pattern followed is,

Similarly,

IMO is related to the third term in the same way as the second term is related to the first term.

Hence, “IMO” is the correct answer.

Q47. Answer: (d) 24

BODMAS RULE

Letter	p	q	r	s
Symbol	•	•	÷	×

Given equation: 18 p 6 q 4 s 6 r 2

The equation become: 18 – 6 + 4 × 6 ÷ 2

= 18 – 6 + 4 × 3

= 18 – 6 + 12

= 18 + 12 - 6

= 30 - 6

= 24

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Hence, the correct answer is "24".

Q48. Answer: (c) A

Given: Six persons, A, B, C, D, E, and F, sit around a circular table but not necessarily in the same order. Each of them faces towards the centre of the table.

1) F sits second to the right of E.

2) D sits third to the left of C.

3) Neither D nor A sits adjacent to F.

After positionig all, the remianing position will be occupied by the only person left i.e. B.

Thus, A sits fourth to the left of B.

Hence, the correct option is "Option 3".

Q49. Answer: (a) 16

Given:

Preeti's rank from the top = 8th, rank from the bottom = 9th.

Total number of students = 8 + 9 – 1 = 16.

So, there are 16 students in the class.

Hence, the correct answer is "Option 1".

Q50. Answer: (c) Eagle

The logic followed here is:

Lion, Tiger, and Bear are wild mammals, while Eagle is a bird.

Lion → Wild animal (mammal)

Tiger → Wild animal (mammal)

Eagle → Bird

Bear → Wild animal (mammal)

Thus, Eagle is different from the others.

Hence, the correct answer is Option 3.

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