Agniveer Army GD 30 June 2025 (Shift 2) Memory-Based Paper (Previous Year Paper)

Army GD Agniveer • 2025 • 50 questions • 60 minutes • Answer key and solutions

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GENERAL KNOWLEDGE

Q1. Which fighter jet is known as the backbone of India?

(a) Tejas
(b) Mirage 2000
(c) Sukhoi 30 MKI
(d) Jaguar

Q2. What is the name of the recently launched autobiography of Nobel Peace Laureate Kailash Satyarthi?

(a) Flames of Freedom
(b) Light of Hope
(c) Beacon of Change
(d) Diyaslai

Q3. Who led the revolt of 1857 in Jhansi?

(a) Bahadur Shah
(b) Mangal Pandey
(c) Kunwar Singh
(d) Rani Laxmibai

Q4. Which of the following Bollywood stars attended the Met Gala 2025?

(a) Amitabh Bachchan
(b) Aamir Khan
(c) Salman Khan
(d) Shah Rukh Khan

Q5. Gond tribes are spread in great numbers across present day states of _____

(a) Chhattisgarh, Maharashtra, Andhra Pradesh
(b) Chhattisgarh, Kerala, Uttar Pradesh
(c) Chhattisgarh, Bihar, West Bengal
(d) Chhattisgarh, Odissa, Karnataka

Q6. Where is the headquarters of the Western Naval Command located?

(a) Kochi
(b) Karwar
(c) Mumbai
(d) Goa

Q7. Identify the classical dance form that is the principal dance of Northern India.

(a) Sattriya
(b) Kathak
(c) Kuchipudi

(d) Kathakali

Q8. The Dr. Bhimrao Ambedkar Wildlife Sanctuary is located in which state?

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

Q9. Which Indian freedom fighter unfurled the flag known as Saptarishi at Stuttgart in Germany in 1907?

(a) Madam Cama
(b) Mahatma Gandhi
(c) Dadabhai Naoroji
(d) Lokmanya Tilak

Q10. Which of the following type of mountain is Himalaya?

(a) Residual
(b) Block
(c) Fold
(d) Volcanic

Q11. Birth place of Gautam Buddha is _____.

(a) Lumbini
(b) Bodh Gaya
(c) Samath
(d) Takshashila

Q12. Which of the following Article of Indian constitution explains the office of the comptroller and Auditor General of India?

(a) Article 165
(b) Article 125
(c) Article 368
(d) Article 148

Q13. Under which article can the Supreme Court issue a writ?

(a) Article 131
(b) Article 32
(c) Article 143
(d) Article 226

Q14. The Nobel Prize was first awarded in year

(a) 1976
(b) 1958
(c) 1901
(d) 1972

Q15. As of April 2025, who is the Chief Minister of Assam?

(a) MK Stalin
(b) Himanta Biswa Sarma
(c) Arvind Kejriwal
(d) Hemant Soren

GENERAL SCIENCE

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Q16. When blue litmus paper is kept in acetic acid, the blue litmus paper turns to which colour?

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

Q17. Which of the following is not a kingdom of living organisms?

(a) Albumina
(b) Monera
(c) Fungi
(d) Protista

Q18. The seven coloured rays in sunlight are known by the acronym of _____

(a) VIBGAOR
(b) VIBGYOR
(c) VIBJYOR
(d) VIBXLOR

Q19. Deforestation does not result in:

(a) Decrease in rainfall
(b) Increase in soil erosion
(c) Increase in ground water level
(d) Increase in earth's temperature

Q20. The green pigment present in leaves is called _____.

(a) phloem
(b) xylem
(c) chlorophyll
(d) tissue

Q21. _____ includes inhalation, exhalation, and breath.

(a) Rhythm Sequence
(b) Aspiration
(c) Shortness of breath
(d) Respiratory Cycle

Q22. Which of these natural resources is considered as non-renewable resource?

(a) Timber
(b) Fossil Fuels
(c) Solar Energy
(d) Wind Energy

Q23. The important property of magnet which was exploited by navigators and travelers from the ancient times is:

(a) Repulsive property
(b) Induction property
(c) Directional property
(d) Attractive property

Q24. What is the full form of an LED?

(a) Linear Emergency Device
(b) Light Emitting Diode
(c) Liquid Emitting Display
(d) Light Emitting Device

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Q25. The smallest known prokaryotic organism is:

(a) Bacteria
(b) Microcystis
(c) Chlorella
(d) Mycoplasma

Q26. The main constituent of natural gas is

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

Q27. The spinal cord is protected by

(a) Cranium
(b) Medulla Oblongata
(c) myelin sheath
(d) Vertebral column

Q28. Which of the following is NOT a homologous series?

(a) C_3H_7OH, C_4H_9OH, $C_5H_{11}OH$, $C_6H_{13}OH$
(b) CH_4, C_2H_6, C_3H_8, C_4H_{10}
(c) C_2H_2, C_3H_4, C_4H_6, C_5H_8
(d) C_2H_4, C_2H_6, C_3H_6, C_4H_8

Q29. Which of the following plants can be made to climb walls using special support?

(a) Rose plant
(b) Lemon plant
(c) Pumpkin plant
(d) Sunflower Plant

Q30. Which of the following is NOT a method of pollination?

(a) Self-pollination
(b) Wind pollination
(c) Water pollination
(d) Asexual pollination

MATHEMATICS

Q31. What will be the Least Common Multiple of 12, 27, and 40?

(a) 120
(b) 1080
(c) 540
(d) 2160

Q32. Select the option that can replace the question mark (?) in the following equation.

$2 + 5 \div [5 + 8 \div (1 + 1/3) - 1] = ?$

(a) 5/2
(b) 2
(c) 1/2
(d) 3/2

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Q33. Find P, if the average of 15, 26, 32, 41, P, 72 is 40 ?

(a) 56
(b) 52
(c) 54
(d) 53

Q34. What is the Ratio of 2km and 600m ?

(a) 1:6
(b) 10:6
(c) 10:3
(d) 2:5

Q35. A train 270 metres long is running with a speed of 54 km per hour. The time taken by it to cross a tunnel 270 metres long is :

(a) 36 seconds
(b) 10 seconds
(c) 18 seconds
(d) 24 seconds

Q36. Find the value of x.

30% of x = 12.6

(a) 36
(b) 40
(c) 41
(d) 42

Q37. The ratio between the perimeter and the breadth of a rectangle is 5 : 1. If the area of the rectangle is 216 sq. cm, what is the length of the rectangle?

(a) 10 cm
(b) 18 cm
(c) 17 cm
(d) 26 cm

Q38. A man spends 10% of his salary on food. He spends 20% of the remaining part on fuel. If he is left with Rs. 4680, then what is his salary?

(a) Rs. 5000
(b) Rs. 5500
(c) Rs. 6500
(d) Rs. 6000

Q39. Three bags contain 28, 37 and 58 marbles. What is the average number of marbles in a bags?

(a) 41
(b) 43
(c) 45
(d) 47

Q40. Evaluate (3 × 25) ÷ 5 - 20 × 4 + 75

(a) 20
(b) 30
(c) 6
(d) 10

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Q41. Which of the following is not a perfect square?

(a) 18
(b) 81
(c) 121
(d) 100

Q42. What principal will yield Rs. 120 as simple interest at 6% p.a. in 10 years?

(a) Rs. 120
(b) Rs. 180
(c) Rs. 200
(d) Rs. 210

Q43. 10 men can finish painting a wall in 8 days. How many more men will be needed of the painting work is to be finished in 4 days?

(a) 8
(b) 5
(c) 10
(d) 20

Q44. A gardener plants 17956 trees in such a way that there are as many rows as there are trees in a row. The number of trees in a row are:

(a) 134
(b) 136
(c) 164
(d) 166

Q45. What will be 80% of a number whose 200% is 90?

(a) 56
(b) 72
(c) 36
(d) 28

LOGICAL REASONING

Q46. Pointing to the photograph of a man, Mohan said, "He is the brother of my mother's husband". How is the man related to Mohan?

(a) Father in law
(b) Nephew
(c) Son
(d) Uncle

Q47. Raman and his sister Shikha study in the same class. Raman's rank in an examination is 11^(th) from the bottom and Shikha's rank in the same examination is 1^(st) from the top If there are 11 students who ranked between Raman and Shikha, how many students are there in the class?

(a) 23
(b) 24
(c) 25
(d) 22

Q48. How many such consonants are there in the following arrangement, each of which is immediately followed by a vowel but not preceded by a number?

TRB50%U7C4#KFS2UE*1813V@9IX@LAB

(a) Two
(b) More than three
(c) Three

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(d) One

Q49. In the question below are given two statements followed by two conclusions number I and II. You have to assume everything in the statements to be true even if they seem to be at variance from commonly known facts and then decide which of the four given conclusions logically follows from the statements disregarding commonly known facts and select the appropriate answer.

Statements:

Some goats are books.

All books are chairs.

Conclusions:

I. Some books are chairs

II. Some chairs are goats

(a) Neither I nor II follow
(b) Only II follows
(c) Only I follows
(d) Both I and II follow

Q50. Select the term which will replace the question mark (?) in the following series.

VRS, TSO, PUK, NVG, ?

(a) JWC
(b) JXC
(c) LWD
(d) LXD

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) Sukhoi 30 MKI

The correct answer is Sukhoi 30 MKI.

Key Points

Sukhoi 30 MKI:

• The Sukhoi Su-30MKI is currently referred to as the backbone of the Indian Air Force (IAF), constituting the largest part of its combat fleet and being built under license in India.

• Sukhoi Su-30MKI is a twinjet multirole air superiority fighter developed by Russia's Sukhoi Sukhoi Aviation Corporation and built under licence by India's Hindustan Aeronautics Limited (HAL).

• It is a variant of the Sukhoi Su-30 and is a heavy, all-weather, long-range fighter.

• There are many variants of Sukhoi-30 aircraft, and the variant used by Indian Air Force is Sukhoi 30 MKI.

• Sukhoi 30 MKI is the backbone of the Indian Air Force.

• Sukhoi 30 jets have been modified to carry BrahMos air-to-surface missiles giving them the capacity to conduct long-range precision strikes.

• It was for the first time in the world that such a heavyweight missile was integrated into a fighter aircraft.

• Brahmos is the heaviest weapon to be deployed on Su-30 MKI fighter aircraft, with a weight of 2.5 tonnes.

• Su-30 MKI fighter aircraft:

• Range – 3000 Km

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• Maximum Speed – Mach 2.
• Engine – Saturn AL-31FL
• 12 Hardpoints – Sukhoi 30 can carry different weapons and bombs in the 12 Hardpoints.
• Radar – Bars Planar Array Radar

Additional Information

Tejas:

• It is the lightest, smallest and tailless multi-role supersonic fighter aircraft in its class.
• It is designed to carry a range of air-to-air, air-to-surface, precision-guided, weapons.
• It replaced the ageing Mig 21 fighter planes.
• The Light Combat Aircraft (LCA) programme was started by the Government of India in 1984 when they established the Aeronautical Development Agency (ADA) to manage the LCA programme.

Mirage 2000:

• The Dassault Mirage 2000 is a French multirole, single-engine fourth-generation fighter jet manufactured by Dassault Aviation.
• While earlier Mirage 2000 was designed as a lightweight fighter, it later evolved into a multirole aircraft with several variants developed.
• It was used for dropping laser-guided bombs on peaks occupied by Pakistani intruders during the Kargil War in 1999.

Jaguar:

• The SEPECAT Jaguar is an Anglo-French jet attack aircraft originally used by the British Royal Air Force and the French Air Force in the close air support and nuclear strike role.
• It is still in service with the Indian Air Force.
• Originally conceived in the 1960s as a jet trainer with a light ground attack capability, the requirement for the aircraft soon changed to include supersonic performance, reconnaissance and tactical nuclear strike roles.

Q2. Answer: (d) Diyaslai

The correct answer is Diyaslai.

In News

• A special discussion on Nobel Laureate Kailash Satyarthi's autobiography Diyaslai was held at the Indira Gandhi National Centre for the Arts (IGNCA).

Key Points

• Diyaslai is an autobiography by Kailash Satyarthi that chronicles his fight against child exploitation and his journey to winning the Nobel Peace Prize.
• Former President Ram Nath Kovind described Diyaslai as more than just a book, but a movement for child rights.
• Satyarthi, the son of a police constable from Vidisha, dedicated his life to advocating for child welfare and education.
• He chose to dedicate his Nobel Prize to the nation, emphasizing his commitment to India's future.

Additional Information

• Kailash Satyarthi
• Born: January 11, 1954, in Vidisha, Madhya Pradesh
• A social activist known for his work in child labor eradication
• Founder of Bachpan Bachao Andolan, which has rescued thousands of child laborers
• Received the Nobel Peace Prize in 2014, jointly with Malala Yousafzai
• Indira Gandhi National Centre for the Arts (IGNCA)
• Founded in 1987 to promote Indian art and culture
• Located in New Delhi
• Hosts discussions, exhibitions, and research initiatives

Q3. Answer: (d) Rani Laxmibai

• Rani Laxmibai led the revolt of 1857 in Jhansi.
• Rani Laxmibai of Jhansi is also known by the name of 'Manikarnika'.
• She led the revolt with the help of Tantia Tope.
• She died on 18^(th) June 1858.

Q4. Answer: (d) Shah Rukh Khan

The correct answer is Shah Rukh Khan.

Key Points

• Shah Rukh Khan is the Bollywood star who attended the Met Gala 2025.

• The Met Gala 2025 took place on Monday, May 5, 2025, and follows the tradition of being held on the first Monday of May.

• The 2025 theme was “Superfine: Tailoring Black Style”, focusing on dandyism and tailored menswear, which framed guest looks and red-carpet choices.

• Shah Rukh Khan appeared as one of the Indian-origin celebrities on the Met Gala red carpet, representing Bollywood on an international fashion stage.

Additional Information

• Shah Rukh Khan — Profile: Occupation: Actor-producer; Industry: Bollywood; Country: India; widely known for international recognition and red-carpet appearances.

• Met Gala — Purpose: Fundraiser for the Costume Institute at the Metropolitan Museum of Art, curated annually with a theme that guests interpret through fashion. Date: May 5, 2025.

• Theme Impact: The 2025 focus on Black dandyism and tailored menswear influenced the looks of attendees, including choices by male and gender-fluid celebrities.

• Broadcast: The event’s arrivals were widely covered and often livestreamed by major fashion outlets and platforms.

Q5. Answer: (a) Chhattisgarh, Maharashtra, Andhra Pradesh

The correct answer is Chattisgarh, Maharashtra, and Andhra Pradesh.

• The Gonds lived in a vast forested region called Gondwana – or “country inhabited by Gonds”.

• They practised shifting cultivation.

Key Points

1. Gond, a group of aboriginal peoples (now officially designated as Scheduled Tribes) of central and south-central India, about two million in number.

2. They live in the states of Madhya Pradesh, Maharashtra, Telangana, Andhra Pradesh, Bihar, and Odisha.

3. The majority speak variously and, in part, mutually unintelligible dialects of Gondi, an unwritten language of the Dravidian family.

4. Some Gond has lost their language and speak Hindi, Marathi, or Telugu, depending on which is dominant in their area.

Hence, The Gond tribe is found in Maharashtra, Chattisgarh and Andhra Pradesh.

Q6. Answer: (c) Mumbai

The correct answer is Mumbai.

• The Navy has the following three Commands, each under the control of a Flag Officer Commanding-in-Chief:

• The Western Naval Command (Headquarters at Mumbai).

• The Eastern Naval Command (Headquarters at Visakhapatnam).

• The Southern Naval Command (Headquarters at Kochi).

• The Indian Navy is a well-balanced and cohesive three-dimensional force, capable of operating above, on, and under the surface of the oceans, efficiently safeguarding our national interests.

Key Points

• The Chief of the Naval Staff (CNS) exercises operational and administrative control of the Indian Navy from the integrated headquarters of the Ministry of Defence (Navy).

• He is assisted by the Vice Chief of the Naval Staff (VCNS) and three other Principal Staff Officers, namely the Deputy Chief of the Naval Staff (DCNS), the Chief of Personnel (COP) and the Chief of Material (COM).

• The current CNS is Admiral Karambir Singh.

Q7. Answer: (b) Kathak

The correct answer is Kathak.

Key Points

• Kathak is one of the eight classical dance forms of India and is primarily associated with North India.

• The name "Kathak" is derived from the Sanskrit word "Katha," which means "story," as the dance form is based on storytelling through expressive movements and gestures.

• Kathak has three major gharanas (schools): Lucknow, Jaipur, and Banaras, each known for its unique style and emphasis on different elements of the dance.

• This dance form is characterized by intricate footwork (tatkar), graceful movements, and spins (chakkars), complemented by facial expressions and hand gestures.

• Kathak has a strong connection with both Hindu mythology and Mughal court traditions, showcasing a blend of devotional and secular themes.

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Additional Information

• Classical Dance Forms of India: There are eight recognized classical dance forms in India: Bharatanatyam, Kathak, Kathakali, Kuchipudi, Manipuri, Mohiniyattam, Odissi, and Sattriya.

• Gharanas: The Lucknow gharana emphasizes grace and expressive storytelling; the Jaipur gharana focuses on intricate footwork; and the Banaras gharana is known for its spiritual themes.

• Instruments in Kathak: Common accompanying instruments include the tabla, pakhawaj, sitar, and sarangi, which provide rhythm and melody to the performance.

• Costumes: Traditional Kathak costumes for women include Anarkali suits with dupattas, while men wear kurta-churidar. Both often feature intricate embroidery and embellishments.

• Bol (Syllables): Kathak dancers use rhythmic syllables called "bols" to synchronize their movements with the music, creating a captivating performance.

Q8. Answer: (b) Madhya Pradesh

The correct answer is Madhya Pradesh.

Key Points

• The Dr. Bhimrao Ambedkar Wildlife Sanctuary is situated in the Sagar district of Madhya Pradesh.

• It covers an area of about 258.64 sq. km within the North Sagar Forest Division, including forest regions in Banda and Shahgarh tehsils.

• It was announced in April 2025.

• This sanctuary should not be confused with the Dr. Bhimrao Ambedkar Bird Sanctuary, which is located in Pratapgarh district, Uttar Pradesh.

Q9. Answer: (a) Madam Cama

Madame Cama unfurled the first Indian National Flag in the International Socialist Conference in Stuttgart (Germany) in 1907. The tricolor - flag Madam Cama unfurled had green, saffron, and red stripes. Red represented strength, saffron victory, and green stood for boldness and enthusiasm.

Q10. Answer: (c) Fold

The correct answer is Fold.

Key Points

• The Himalayan mountain range is basically the Fold Mountains.

• It formed as a result of the collision between the Indian Plate and Eurasian Plate which began 50 million years ago and continues today.

• Fold mountains occur near convergent or compressional plate boundaries.

• Some of the examples of Fold Mountains are the Alps, Rockies, Andes, and Himalayas.

Important Points

• The Himalayas, a great mountain system of Asia formed a barrier between the plateau of Tibet to the north and the alluvial plains of the Indian subcontinent to the south.

• The Himalayas include the highest mountains in the world, with more than 110 peaks rising to elevations of 24,000 feet (7,300 meters) or more above sea level.

Additional Information

• Residual Mountain:

• Through erosion of an elevated area, residual mountains are formed.

• Such formations are also known as mountains of denudation.

• Examples are Scottish Highlands, Scandanavian Mountains etc.

• Block Mountain:

• The raising of a fault block leads to the formation of block mountains.

• Higher blocks are called horsts and troughs are known as grabens.

• Volcanic Mountain:

• When tectonic plates move about, volcanoes are formed, and when volcanoes erupt, mountains are formed in turn.

• The shield volcano has a gently sloping cone due to the low viscosity of the emitted material, primarily basalt,

Q11. Answer: (a) Lumbini

The correct answer is Lumbini.

Key Points

• Siddhartha Gautama, the Lord Buddha, was born in 563 B.C. in the famous gardens of Lumbini, which soon became a place of pilgrimage.

• Among the pilgrims was the Indian emperor Ashoka, who erected one of his commemorative pillars there.

Additional Information

• Buddhism in India

• Buddhism started in India over 2,600 years ago as a way of life that had the potential of transforming a person.

• It is one of the most important religions of South and South-Eastern Asian countries.

• The religion is based upon the teachings, life experiences of its founder Siddhartha Gautam.

• He was born into the royal family of the Sakya clan who ruled from Kapilvastu, in Lumbini which is situated near the Indo-Nepal Border.

• At the age of 29, Gautama left home and rejected his life of riches and embraced a lifestyle of asceticism or extreme self-discipline.

• After 49 consecutive days of meditation, Gautama attained Bodhi (enlightenment) under a pipal tree at Bodhgaya a village in Bihar.

• Buddha gave his first sermon in the village of Sarnath, near the city of Benares in UP.

• This event is known as Dharma-Chakra-Pravartana (turning of the wheel of law).

• He died at the age of 80 in 483 BCE at a place called Kushinagara a town in UP.

• The event is known as Mahaparinibban.

• Four noble truths:

• Suffering (dukkha) is the essence of the world.

• Every suffering has a cause – Samudya.

• Suffering could be extinguished – Nirodha.

• It can be achieved by following the Atthanga Magga (Eight-Fold Path).

Q12. Answer: (d) Article 148

The correct answer is Article 148.

Key Points

• Article 148 of the Indian Constitution establishes the office of the Comptroller and Auditor General (CAG) of India.

• It states that the CAG shall be appointed by the President of India and will hold office for a term of 6 years or until the age of 65, whichever is earlier.

• The CAG is responsible for auditing all receipts and expenditures of the Government of India and the states, including those of bodies and authorities substantially financed by the government.

• The CAG enjoys independence in terms of its functioning and is not subject to the control of the executive branch of the government. This ensures transparency and accountability in public financial management.

• Hence, Article 148 is the correct answer.

Additional Information

• Detailed Functions of the Comptroller and Auditor General:

• The CAG audits the accounts related to all expenditures from the Consolidated Fund of India, each state, and each union territory having a Legislative Assembly.

• The CAG also audits the transactions related to the Contingency Fund and the Public Accounts of the Union and states.

• It is responsible for auditing the accounts of government companies, public sector undertakings (PSUs), and other authorities that receive government funding.

• The CAG submits audit reports to the President or the Governor, who then places them before the respective legislatures.

• Significance of Article 148:

• It safeguards the financial autonomy of the government by ensuring that public funds are used responsibly and as intended.

• It acts as a watchdog of public finances, enhancing transparency and accountability in government operations.

• The independence of the CAG is protected under Article 148, which ensures that it cannot be easily removed from office and operates free from executive interference.

Important Points

• Comparison of Other Articles Mentioned in the Options:

• Article 165: This article deals with the appointment of the Advocate General for the state, who is the legal advisor to the state government. It is unrelated to the CAG. Hence, this option is incorrect.

• Article 125: It relates to the salaries and allowances of Supreme Court judges. It has no connection to the office of the CAG. Hence, this option is incorrect.

• Article 368: It outlines the procedure for amendment of the Constitution. It is not related to the Comptroller and Auditor General. Hence, this option is incorrect.

• Historical Context of the CAG:

• The office of the CAG was established under the Government of India Act, 1935, and was later formalized in the Constitution of India in 1950.

• The first CAG of independent India was V. Narahari Rao, who served from 1948 to 1954.

• Notable Contributions of the CAG:

• The CAG has played a key role in exposing major financial irregularities in India, such as the 2G spectrum scam and the coal allocation scam.

• Its reports have been instrumental in driving policy changes and reforms in public financial management.

Q13. Answer: (b) Article 32

The correct answer is Article 32.

Key Points:

• Article 32 provides the right to Constitutional remedies which means that a person has the right to move to Supreme Court (and high courts also) for getting his fundamental rights protected. While the Supreme Court has the power to issue writs under Article 32, High Courts have been given the same powers under Article 226.

Important Points:

• Mandamus means "a command" which is issued by the court to enforce fundamental rights whenever a public officer or a government representative has committed an act of violating a person’s fundamental rights.

• Habeas Corpus means “to produce the body” which is issued to let the court know the grounds of confinement. This protects an individual's Liberty.

• Quo Warranto means "By what authority". It is issued by the court to enquire into the legality of a claim which a person asserts to public office. This writ enables the public to see that a public office is not usurped.

• Certiorari means "to be certified". It is issued to a Lower court after a case has been decided by it, quashing the decision or order by the High court or Supreme court. It ensures that the jurisdiction of an inferior Court or Tribunal is properly exercised.

Additional Information

Article	Description
Article 131	Original Jurisdiction of Supreme Court
Article 32	Writ jurisdiction of Supreme Court
Article 143	Power of president to consult the Supreme Court
Article 226	Powers of High Courts to issue Writs

Q14. Answer: (c) 1901

The correct answer is 1901.

Key Points

• The first Nobel prizes were awarded in 1901.

• The 1901 awardee of Nobel prize were -

• Physics - Wilhelm Rontgen

• Chemistry - Jacobus Henricus van't Hoff

• Medicine - Emil Adolf von Behring

• Literature - Sully Prudhomme

• Peace - Henry Dunant and Frederic Passy

• Nobel Prizes are awarded in the fields of Chemistry, Physics, Physiology or Medicine, Literature, and Peace.

Additional Information

• Noble Prize gave to those who have conferred the greatest benefit to humankind in the above fields.

• A sixth prize was also established in the field of Economic Sciences, it is not a Nobel Prize but 'The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel'.

• Alfred Nobel was a Swedish chemist and known for the invention of dynamite.

Important Points

• Until now, four individuals have received more than one Nobel Prize.

• Roger Penrose, Reinhard Genzel, and Andrea M. Ghez are received Noble in Physics 2020.

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• Emmanuelle Charpentier and Jennifer Doudna are received Noble in Chemistry 2020.

Q15. Answer: (b) Himanta Biswa Sarma

The correct answer is Himanta Biswa Sarma.

Key Points

• Himanta Biswa Sarma has been serving as the Chief Minister of Assam since May 10, 2021.

• He is a senior leader of the Bharatiya Janata Party (BJP) and played a crucial role in strengthening the party's presence in Assam and the Northeastern states.

• Before becoming the Chief Minister, Sarma held several important portfolios in the Assam government, including Health, Finance, Education, and PWD.

• Himanta Biswa Sarma holds a law degree from Government Law College, Guwahati, and a PhD from Gauhati University.

• As CM, he has focused on infrastructure development, law enforcement reforms, and anti-drug campaigns in the state, along with initiatives for social welfare and education reforms.

Additional Information

• MK Stalin

• M.K. Stalin has been the Chief Minister of Tamil Nadu since May 2021.

• He is the President of the Dravida Munnetra Kazhagam (DMK) and son of former CM M. Karunanidhi.

• Stalin's government focuses on welfare schemes like financial aid for women and improvements in health, education, and industrial sectors.

• Before becoming CM, he served as the Minister for Rural Development and held various leadership roles, including Deputy Chief Minister.

• Arvind Kejriwal

• Arvind Kejriwal has been serving as the Chief Minister of Delhi since February 2015.

• He is the national convener of the Aam Aadmi Party (AAP), which was founded in 2012.

• Kejriwal's government focuses on education, healthcare (Mohalla Clinics), and free electricity/water schemes.

• He is a former Indian Revenue Service (IRS) officer and gained prominence through the India Against Corruption movement led by Anna Hazare.

• Hemant Soren

• Hemant Soren has been serving as the Chief Minister of Jharkhand since December 2019.

• He is the leader of the Jharkhand Mukti Morcha (JMM), a regional political party in Jharkhand.

• Soren's government focuses on tribal welfare, land rights, and schemes like "Sona Sobran Dhoti Saree" and employment generation.

• Hemant Soren is the son of Shibu Soren, a prominent tribal leader and former Chief Minister of Jharkhand.

Q16. Answer: (c) Red

The correct answer is Red.

Key Points

• Litmus paper is an acid/base indicator that changes colour and is used to distinguish between bases and acids.

• These are used extensively to verify a substance's acidity or alkalinity in laboratories and educational institutions.

• Litmus is a pigment produced from naturally occurring compounds, like lichens (fungi), of which Roccella tinctoria is the most widely used species.

• Under acidic conditions, blue litmus paper turns red and stays the same in basic conditions.

• An acid is material in an aqueous solution that releases hydrogen ions.

• Blue litmus paper is prepared by treating plain paper with lichen-blue litmus.

• Acids such as sulphuric acid, hydrochloric acid, nitric acid, ethanoic acid, citric acid, vinegar, etc. are usually tested with blue litmus paper.

Blue litmus paper turns red in acetic acid solution:

Q17. Answer: (a) Albumina

• Albumina is not a classification under the kingdom of plants as well as animals.

Q18. Answer: (b) VIBGYOR

The correct answer is VIBGYOR.

Key Points

• There are seven distinct colors in sunlight.

• They are represented by the acronym, VIBGYOR.
• VIBGYOR stands for:
• V – Violet
• I – Indigo
• B – Blue
• G – Green
• Y – Yellow
• O – Orange
• R – Red

Q19. Answer: (c) Increase in ground water level

Explanation:

Deforestation: Humans have taken land from the forest to cultivate in order to feed the ever-increasing population and to build houses, industries, etc. Cutting down of trees on a large scale for these purposes is known as deforestation. The effects of deforestation:

• Soil Erosion: It is a process in which the top fertile layer of soil is lost by the natural forces. Due to soil erosion, the soil becomes less fertile.
• Rainforests produce, store, and filter water, protecting against soil erosion, floods and drought.
• Deforestation is endangering rainforests worldwide, driven by logging, mining, agriculture, and ranching.
• Rainforests influence the carbon cycle (green plants take up carbon dioxide for photosynthesis, a process during which oxygen is released into the air) and also have a profound effect on rainfall.
• When trees are cut down in a forest, it eliminates or decreases the amount of transpiration, which means that the amount of rainfall in that area will decrease.
• Deforestation causes increases in temperatures and changes in the amount and distribution of rainfall —generally creating a drier climate. These impacts can affect soil moisture, reducing yields in some areas and increasing flooding in others
• During deforestation trees are cut down and burned or allowed to rot, their stored carbon is released into the air as carbon dioxide, causing global warming.

So, deforestation does not Increase in groundwater level.

Q20. Answer: (c) chlorophyll

The correct answer is chlorophyll.

Explanation:

• Chlorophyll is a pigment present in the chloroplast which gives green colour to plants.
• Chlorophyll is a leaf that is required for trapping light energy.
• The energy trapped by chlorophyll is used to synthesize food from carbon dioxide and water.
• It exists in several forms but chlorophyll a and chlorophyll b are the most common.
• Chlorophyll a is the chief pigment associated with photosynthesis.
• It is found in all photosynthetic organisms such as cyanobacteria.
• Plants cannot synthesize their food without the help of chlorophyll.
• Solar energy is stored in the form of food in the leaves with the help of chlorophyll.

Important Points

• Photosynthesis is the process by which plants use sunlight, water, and carbon dioxide to create oxygen and energy in the form of sugar.
• During photosynthesis, plants take in carbon dioxide (CO_2) and water (H_2O) from the air and soil.
• Within the plant cell, the water is oxidized, meaning it loses electrons, while the carbon dioxide is reduced, meaning it gains electrons. This transforms the water into oxygen and the carbon dioxide into glucose.

Additional Information

• Phloem is tissue in plants that conduct food to other parts of the plant.
• Phloem is also called bast.
• The xylem is a vascular tissue which conveys water and dissolved minerals to the rest of the plant.
• It also provides physical support.

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Q21. Answer: (d) Respiratory Cycle

Correct Answer: Respiratory Cycle

Rationale:

• The Respiratory Cycle refers to the process of breathing, which includes three key components: inhalation (the intake of oxygen-rich air into the lungs), exhalation (the release of carbon dioxide-rich air from the lungs), and the act of breath itself (the overall exchange of gases).

• Inhalation involves the contraction of the diaphragm and external intercostal muscles, allowing the lungs to expand and fill with oxygen.

• Exhalation occurs as the diaphragm and intercostal muscles relax, causing the lungs to recoil and expel carbon dioxide.

• The respiratory cycle is vital for maintaining proper oxygenation of blood and the removal of carbon dioxide, which is critical for cellular respiration and overall body function.

Explanation of Other Options:

Rhythm Sequence

• Rationale: This term refers to a regular, repeating pattern of events, but it is not specifically related to the process of breathing. While the respiratory cycle has a rhythmic nature, "Rhythm Sequence" does not adequately describe the physiological components of inhalation, exhalation, and breath.

Aspiration

• Rationale: Aspiration typically refers to the accidental entry of food, liquid, or other substances into the airway rather than the digestive tract. It does not describe the normal process of breathing.

Shortness of breath

• Rationale: Shortness of breath, medically known as dyspnea, is a symptom of respiratory distress or difficulty breathing. It is not a term that defines the normal breathing process.

Conclusion:

• The Respiratory Cycle is the correct term for the process that encompasses inhalation, exhalation, and breath. It is a fundamental physiological process essential for life, enabling oxygen delivery and carbon dioxide removal.

Q22. Answer: (b) Fossil Fuels

The Correct answer is Option 2

Key Points

Fossil Fuels:

• Fossil Fuels (like coal, oil, and natural gas) are considered non-renewable resources because they take millions of years to form, and once used, they cannot be replenished within a human timescale. Their consumption leads to depletion, and they are finite in nature.

• Timber: While it can be renewable if managed sustainably (i.e., through replanting and sustainable forestry practices), it can be non-renewable if forests are overharvested without proper management.

• Solar Energy: This is a renewable resource as the energy from the sun is abundant and continuously replenished.

• Wind Energy: Also a renewable resource, as the wind is a natural, sustainable force that doesn't deplete when used to generate electricity.

• Thus, fossil fuels are the only non-renewable resource in the given options.

Q23. Answer: (c) Directional property

The Correct Answer is Directional property.

• The directional property of the magnets states that the freely suspended magnet always points in the direction of the geographical north-south direction.

• Every magnet, whatever its form, has a north pole and a south pole.

• Repulsive Properties – Like magnetic poles, they repel each other and, unlike magnetic poles, they attract each other.

• If a piece of unmagnetized magnetic material touches or is brought near the pole of a permanent magnet, it becomes the magnet itself. The magnetism is being triggered. In the far end, the North Pole triggers the North Pole.

• Attractive Property – Magnet attracts ferromagnetic materials such as iron, cobalt and nickel.

Q24. Answer: (b) Light Emitting Diode

The correct answer is Light Emitting Diode.

Key Points

• Light Emitting Diode is a semiconductor light source that emits light when current flows from it.

• LEDs work on the principle of Electroluminescence

• It is widely used in digital machines and gadgets like mobile phones, digital billboards, and electrical appliances.
• The two primary materials used in LEDs are aluminium gallium indium phosphide alloys and indium gallium nitride alloys.

Additional Information

• LED was invented by Nick Holonyak Jr. also known as the Father of Light Emitting Diode in 1962.
• They consume less power and require low operational voltage.

Q25. Answer: (d) Mycoplasma

The correct answer is Mycoplasma.

Key Points

• The smallest known prokaryotic organism is Mycoplasma.
• Mycoplasmas are the smallest free-living organisms and considered to be the simplest of bacteria.
• They belong to the bacterial class Mollicutes, whose members are distinguished by their lack of a cell wall and their plasma-like form.
• Thus, they exploit their host's cells to survive.
• The primary habitats of human and animal mycoplasmas are the mucous surfaces of the respiratory and urogenital tracts and the joints in some animals.

Additional Information

• Bacteria:
• Bacteria are a type of biological cell.
• They constitute a large domain of prokaryotic microorganisms.
• Typically a few micrometres in length, bacteria have a number of shapes, ranging from spheres to rods and spirals.
• Microcystis:
• It is a genus of freshwater cyanobacteria that includes the harmful algal bloom-forming Microcystis aeruginosa.
• Many members of a Microcystis community can produce neurotoxins and hepatotoxins, such as microcystin and cyanopeptolin.
• Communities are often a mix of toxin-producing and nonproducing isolates.
• Chlorella:
• Chlorella is a genus of about thirteen species of single-celled green algae belonging to the division Chlorophyta.
• The cells are spherical in shape, about 2 to 10 μm in diameter, and are without flagella.
• Chlorella is a type of algae that packs a big nutrient punch, as it's a good source of several vitamins, minerals, and antioxidants.

Q26. Answer: (a) Methane

The correct answer is Methane.

• The main constituent of natural gas is Methane.

Key Points

• Natural Gas: It is a mixture of methane (80-90%), ethane, and propane.
• Its calorific value is 50 kJ/g.
• Methane (CH4):
• It is also called marsh gas.
• It is used in the preparation of carbon black, organic compounds, and as a gaseous fuel.
• Its mixture with air is explosive.
• It is also the reason for the explosion in coal mines.

Additional Information

• Ethane:
• Its formula is C2H6.
• It is used in the preparation of ethanol, acetaldehyde and acetic acid.
• Butane:
• Its formula is C4H10.
• It is used in LPG cylinders.

Important Points

• Liquefied Petroleum Gas (LPG):
• It is a mixture of butane (C4H10) iso-butane (C4H10) and propane (C3H8).
• A strong foul-smelling substance ethyl mercaptan is also added to LPG to detect its leakage because LPG is a colourless and odourless gas.

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Q27. Answer: (d) Vertebral column

Concept:

The human neural system is divided into two parts :

1. The central neural system (CNS)

2. The peripheral neural system (PNS)

• The CNS includes the brain and the spinal cord and is the site of information processing and control. The PNS comprises of all the nerves of the body associated with the CNS (brain and spinal cord)

Explanation:

• The Spinal cord Is a part of the Central nervous system.

• It is a long, fragile tube-like structure that begins at the end of the brain stem and continues down almost to the bottom of the spine.

The spinal cord is made up of nerves that supply information to think about.

• The Spinal Cord is protected by the Vertebral column

• It is the flexible column extending from neck to tail, made of a series of bones called the vertebrae. There are a total of 33 vertebrae

• The vertebral column's main function is to secure the spinal cord, it also provides body stiffening and closure for pectoral and pelvic girdles and many muscles.

Additional Information

Myelin sheath	**• It is an insulating layer that covers the body of the neuron or nerve cell. It is produced by the Schwann cells. - The myelin sheath is made up of fats and proteins and ensures quick and efficient transmission of an electrical impulse along with the nerve cells.**
Cranium	• Cranium is the main part of the skull. - It is also known as a brain box and it formed by 8 bones. - It provides bony protection for the brain. - The human skull is the bony structure in the human skeleton which forms the head. - This protects the facial structures and forms a brain cavity.
Medulla Oblongata	• The medulla oblongata, also called the medulla, is the lowest part of the brain and the lowest portion of the brainstem. - The Medulla oblongata or simply medulla is a long stem-like structure that makes up part of the brain. - It is anterior and partially inferior to the cerebellum. - The medulla oblongata (or medulla) controls the heartbeat, breathing, and blood pressure.

Q28. Answer: (d) C2H4, C2H6, C3H6, C4H8

The correct answer is C2H4, C2H6, C3H6, C4H8.

Key Points

• A homologous series is a group of organic compounds with the same functional group and similar chemical properties where each successive member differs by CH2.

• The compounds in the series C2H4, C2H6, C3H6, C4H8 do not follow a regular pattern of adding CH2 groups.

• C2H4 (ethylene) is an alkene, C2H6 (ethane) is an alkane, C3H6 (propene) is an alkene, and C4H8 could be either butene (an alkene) or cyclobutane (a cycloalkane).

• Since the series contains both alkanes and alkenes, it does not constitute a homologous series.

Additional Information

• Homologous Series: A series of compounds with the same functional group and similar chemical properties, where each successive member differs by a CH2 unit.

• Alkanes: Saturated hydrocarbons with single bonds between carbon atoms, general formula CnH2n+2.

• Alkenes: Unsaturated hydrocarbons with at least one double bond between carbon atoms, general formula CnH2n.

• Functional Groups: Specific groups of atoms within molecules that are responsible for the characteristic chemical reactions of those molecules.

• Isomers: Compounds with the same molecular formula but different structural formulas, leading to different physical and chemical properties.

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Q29. Answer: (c) Pumpkin plant

The correct answer is Pumpkin plant.

Key Points

• The pumpkin plant is a type of vine that can climb walls and other structures when provided with support.

• Pumpkin plants have tendrils that help them latch onto supports, enabling them to climb vertically.

• Supporting pumpkin plants helps maximize garden space and promotes better air circulation, reducing the risk of fungal diseases.

• Providing vertical support also keeps the pumpkins off the ground, reducing the likelihood of rot and pest damage.

Additional Information

• Types of Supports:

• Trellises: A framework of light wooden or metal bars, chiefly used as a support for fruit trees or climbing plants.

• Cages: Often used for growing tomatoes, these can also support pumpkin vines.

• Arbors: A garden structure providing vertical space for climbing plants.

• Benefits of Vertical Gardening:

• Efficient use of space, particularly in small gardens.

• Improved air circulation, which helps prevent disease.

• Ease of harvesting and maintenance.

• Pumpkin Varieties:

• Small Sugar: Ideal for cooking and baking.

• Jack Be Little: A miniature variety perfect for decorations.

• Atlantic Giant: Known for producing extremely large pumpkins.

• Growing Conditions:

• Sunlight: Requires full sun for optimal growth.

• Soil: Prefers well-drained, fertile soil.

• Watering: Needs consistent moisture, particularly during fruit set.

Q30. Answer: (d) Asexual pollination

The correct answer is Asexual pollination.

Key Points

• Asexual pollination is not a recognized method of pollination in plants.

• Pollination is the process of transferring pollen from the male part of the flower (anther) to the female part (stigma).

• Common methods of pollination include self-pollination, wind pollination, and water pollination.

• Asexual reproduction in plants occurs through methods like budding, vegetative propagation, and not through pollination.

Additional Information

• Self-pollination

• Occurs when pollen from the anther is transferred to the stigma of the same flower or another flower on the same plant.

• Examples include wheat, rice, and peas.

• Wind Pollination

• Occurs when pollen is carried by the wind to the stigma of another flower.

• Common in grasses, corn, and pine trees.

• Water Pollination

• Occurs when pollen is transported by water.

• Examples include some aquatic plants like seagrasses.

• Insect Pollination

• Occurs when insects transfer pollen from one flower to another.

• Examples include bees pollinating apple blossoms and butterflies pollinating flowers.

• Vegetative Propagation

• A method of asexual reproduction in plants where new plants grow from parts of the parent plant, such as stems, roots, or leaves.

• Examples include runners in strawberries and tubers in potatoes.

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Q31. Answer: (b) 1080

Given:

Numbers = 12, 27 and 40

LCM = ?

Calculation:

=> 12 = 2 × 2 × 3

=> 27 = 3 × 3 × 3

=> 40 = 2 × 2 × 2 × 5

LCM = 2 × 2 × 2 × 3 × 3 × 3 × 5 = 1080

Hence, the correct answer is "1080".

Q32. Answer: (a) 5/2

Concept used:

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

Calculation:

2 + 5/ [5 + 8/ (1 + 1/3) – 1] = ?

=> ? = 2 + 5/ [5 + 8/ (4/3) – 1]

=> ? = 2 + 5/ [5 + 6 – 1]

=> ? = 2 + 5/10

=> ? = 2 + 1/2

Therefore ? = 5/2

Q33. Answer: (c) 54

Shortcut Trick

Total numbers (n) = 6, Average = 40

Total sum required = 40 × 6 = 240

Sum of given numbers = 15 + 26 + 32 + 41 + 72 = 186

Value of P = 240 − 186 = 54

Therefore The correct answer is 54.

Alternate Method

Given: Observations = {15, 26, 32, 41, P, 72} | Total Observations = 6 | Average = 40

Formula Used: Average = (Sum of all observations) ÷ (Total number of observations)

15

26

32

41

P=54

72

Avg = 40

=> Average = (15 + 26 + 32 + 41 + P + 72) ÷ 6

=> 40 = (186 + P) ÷ 6

=> 40 × 6 = 186 + P

=> 240 = 186 + P

=> P = 240 − 186

=> P = 54

Therefore The correct answer is 54.

Additional Information

Arithmetic Mean (Average)

The average is the central value of a set of numbers, calculated by Sum ÷ n.

Sum of Deviations

The algebraic sum of deviations of all observations from their arithmetic mean is always zero (∑(x_i − Avg) = 0).

Weighted Average

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When values have different importance, Weighted Avg = ∑(Value × Weight) ÷ ∑Weights.

Q34. Answer: (c) 10:3

Given:

Two quantities: 2 km and 600 m

Formula Used:

To find the ratio between two quantities, they must be in the same unit.

1 kilometer (km) = 1000 meters (m)

Ratio = Quantity 1 : Quantity 2

Calculation:

Convert 2 km to meters:

2 km = 2 × 1000 m = 2000 m

Ratio = 2000 m : 600 m

Ratio = 20 : 6

Ratio = 10 : 3

Therefore The ratio of 2 km and 600 m is 10:3.

Q35. Answer: (a) 36 seconds

Formula used:

Speed = Distance/Time

Calculation:

Speed of the train = 54 km/hr = 54 × 5/18 = 15 m/sec

Length of the train = 270 m

Length of the tunnel = 270 m

Total distance to be covered is combined length of both trains = 270 + 270 = 540 m

=> Time taken by train to cross the tunnel = 540/15 = 36 seconds

Q36. Answer: (d) 42

Calculations:

30% of x = 12.6

=> (30/100) × x = 12.6

=> x = 126/3

=> x = 42

Therefore The value of x is 42.

Q37. Answer: (b) 18 cm

Given:

Ratio of perimeter to breadth = 5 : 1

Area of rectangle = 216 sq. cm

Formula used:

Perimeter of rectangle = 2 × (length + breadth)

Area of rectangle = length × breadth

Calculations:

Let the breadth be 'b' cm.

Then, the perimeter = 5b cm.

Perimeter = 2 × (length + breadth)

=> 5b = 2 × (length + b)

=> 5b = 2 × length + 2b

=> 3b = 2 × length

=> length = 1.5b

Area = length × breadth

=> 216 = 1.5b × b

=> b^2 = 216 / 1.5

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=> $b^2 = 144$

=> b = 12 cm

length = 1.5 × 12 = 18 cm

Therefore The length of the rectangle is 18 cm.

Q38. Answer: (c) Rs. 6500

Spend on food = 10%

=> Spend on fuel = (100 – 10) × 20% = 18%

=> Remaining salary of man = 100% – (10 + 18)% = 72%

=> 72% → Rs. 4680

=> 100% → Rs. 6500

Therefore His salary is Rs. 6500.

Q39. Answer: (a) 41

Given:

Three bags contain 28, 37 and 58 marbles.

Concept Used:

Average = Sum of all observations / Number of observations

Calculation:

Total marbles in 3 bags = 28 + 37 + 58

=> 123

The average number of marbles in the bag = 123/3

=> 41

Therefore Required number of average marbles is 41.

Q40. Answer: (d) 10

Simple multiplication 3 × 25 = 75. Bracket takes priority over division, multiplication, addition or subtraction.

Hence, (3 × 25) ÷ 5 - 20 × 4 + 75 = 75 ÷ 5 - 20 × 4 + 75 = 15 - 20 × 4 + 75.

Multiplication takes priority over addition or subtraction.

Hence, 15 - 20 × 4 + 75 = 15 - 80 + 75.

Addition takes priority over subtraction.

Hence, 15 - 80 + 75 = 90 - 80 = 10

Q41. Answer: (a) 18

Calculation:

18 = 2 × 9

81 = 9 × 9

121 = 11 × 11

100 = 10 × 10

Except 18, all other numbers have a perfect pair of factors

Therefore The number which is not a perfect square is 18

Q42. Answer: (c) Rs. 200

Shortcut Trick

Effective interest percentage for the given period = Rate × Time

Effective % = 6% × 10 = 60%

According to the question, 60% of Principal = Rs. 120

Hence, 100% of Principal = (120 ÷ 60) × 100 = Rs. 200

Therefore The correct answer is Rs. 200.

Alternate Method

Given:

Simple Interest (SI) = Rs. 120

Rate of interest (R) = 6% p.a.

Time period (T) = 10 years

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Formula Used:

SI = (P × R × T) ÷ 100

Calculations:

=> 120 = (P × 6 × 10) ÷ 100

=> 120 = (P × 60) ÷ 100

=> 120 × 100 = 60 × P

=> 12000 = 60 × P

=> P = 12000 ÷ 60

=> P = 200

Therefore The correct answer is Rs. 200.

Additional Information

Total Amount

The total Amount (A) at the end of the term is the sum of the initial Principal and the interest earned: A = P + SI.

Interest Calculation for Different Periods

In Simple Interest, the interest for each year is the same: SI per year = (P × R) ÷ 100. For 10 years, it is simply 10 × (annual interest).

Variable Formulas

To find Time (T) when SI, P, and R are given: T = (SI × 100) ÷ (P × R).

Q43. Answer: (c) 10

Shortcut Trick

Using the Man-Days concept: M1D1 = M2D2

Given: 10 × 8 = M2 × 4

=> M2 = 20 men

Extra men needed = 20 − 10 = 10 men

Therefore The correct answer is 10 men.

Alternate Method

Person	Days	Total Work	Efficiency
10 Men	8	80 units	10 units/day

Given: Initial Men (M1) = 10, Initial Days (D1) = 8, Target Days (D2) = 4

Formula Used: Total Work = Men × Days

=> Total Work = 10 × 8 = 80 units

=> Total Men required for 4 days = Total Work ÷ D2

=> New Men (M2) = 80 ÷ 4 = 20 men

=> Additional Men = M2 − M1

=> Additional Men = 20 − 10 = 10 men

Therefore The correct answer is 10 men.

Additional Information

Chain Rule Formula

For work problems involving multiple variables, use (M1D1H1)/W1 = (M2D2H2)/W2, where H is hours and W is work.

Inverse Proportion

The number of men is inversely proportional to the time taken. If time is halved (8 to 4), the number of men must be doubled (10 to 20).

Q44. Answer: (a) 134

Given:

Total trees = 17956

rows = columns

Solution:

17956 = 134 x 134

If there are 134 rows in the garden, there will be 134 trees in each row.

Hence, there are 134 trees in a row.

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Q45. Answer: (c) 36

Calculation:

Let the number be x

According to question:

=> x × (200/100) = 90

=> (x) × 2 = 90

=> x = (90)/2

=> x = 45

Now

80% of 45 = (4/5) × 45 = 36

Q46. Answer: (d) Uncle

Family Chart:

Given:

Pointing to the photograph of a man, Mohan said, "He is the brother of my mother's husband".

So, The man is Uncle of Mohan.

Hence, the correct answer is "Option 4".

Q47. Answer: (a) 23

Given:

=> Raman's rank in an examination is 11^(th) from the bottom.

=> Shikha's rank in the same examination is 1^(st) from the top.

Explanation:

Position of Shikha from top = 1st

Number of students in between Raman and Shikha = 11th

So, the position of Raman from the top is = 11+ 1+1=13th

The number of students in the class = Position of Raman from the top + Position of Raman from the bottom - Raman = 13+11-1= 23

Hence, 23 is the correct answer.

Q48. Answer: (d) One

The logic followed is:

Condition to be checked:

1) Consonants are there in the following arrangement, each of which is immediately followed by a vowel but not preceded by a number.

Number (symbol, vowel, consonant) → Consonants → Vowel

Given arrangement: TRB50%U7C4#KFS2UE*1813V@9IX@LAB

@LA is immediately followed by a vowel but not preceded by a number.

So, there is only one such consonant in the following arrangement, which is immediately followed by a vowel but not preceded by a number.

Hence, ‘one’ is the correct answer.

Mistake Points

Immediately preceded by means immediately before or to come just before.

Immediately followed by means immediately after or to come just after.

Q49. Answer: (d) Both I and II follow

Given:

Some goats are books.

All books are chairs.

Solutions:

The least possible Venn diagram is:

Conclusions:

I. Some books are chairs - Follows (As all books are chairs than some books will be chairs)

II. Some chairs are goats - Follows (As we know some goats are books and all books are chairs than some chairs will be goats)

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Hence, the correct answer is "option (4)".

Q50. Answer: (b) JXC

Position values of the letters according to the English alphabet series,
To find the logic we can divide it in 3 different series i.e.,
I series if first letter,
II series of second letter,
III series of third letter,
So, the next term is JXC.
Hence, the correct answer is "JXC".

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