Agniveer Army GD 23 April 2024 (Shift 1) Memory-Based Paper (Previous Year Paper)

Army GD Agniveer • 2024 • 50 questions • 60 minutes • Answer key and solutions

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GENERAL KNOWLEDGE

Q1. Who is the present Chief Minister of Kerala?

(a) Oommen Chandy
(b) A.K. Antony
(c) Pinarayi Vijayan
(d) V.S. Achuthanandan

Q2. In which of the following states of India is the Gangaur festival celebrated?

(a) Manipur
(b) Rajasthan
(c) Karnataka
(d) Kerala

Q3. On 13 April, 1919, which of the following incidents took place in India?

(a) Kakori Conspiracy
(b) Jallianwala Bagh Massacre
(c) Chauri-Chaura Incident
(d) Komagata Maru Incident

Q4. Who is the first citizen of India?

(a) Chief Justice
(b) Prime Minister
(c) President
(d) Law legislator

Q5. Which is the longest river in the northern plains of India?

(a) Godavari
(b) Yamuna
(c) Ganga
(d) Brahmaputra

Q6. In which sport is Arjuna Awards winner Diksha Dagar associated?

(a) Golf
(b) Tennis
(c) Badminton
(d) Athletics

Q7. Who is the guardian of fundamental rights enumerated in Constitution?

(a) President
(b) Parliament
(c) Supreme Court

(d) Cabinet Ministers

Q8. Buddha preached in which language?

(a) Sanskrit
(b) Bhojpuri
(c) Pali
(d) Magadhi

Q9. "Playing It My Way" is an autobiography of _____.

(a) MS Dhoni
(b) Rahul Dravid
(c) Sachin Tendulkar
(d) Yuvraj Singh

Q10. As per Census 2011, which state has the lowest sex-ratio ?

(a) Punjab
(b) Haryana
(c) Uttar Pradesh
(d) Bihar

Q11. In which state are the Khetri mines located?

(a) Orisha
(b) Rajasthan
(c) Bihar
(d) Uttar Pradesh

Q12. Master rank belongs to which defence forces?

(a) Indian Army
(b) Indian Navy
(c) Indian Tibetan Border Police
(d) Border Security Force

Q13. Which of the following article describes India as a "Union of States"?

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

Q14. Which of the following schemes was launched in 2023?

(a) PM Kusum
(b) PM Vishwakarma Yojana
(c) PM Jan Arogya Yojana
(d) PM KISAN Yojana

Q15. Who was the first President of the Indian National Congress, founded in 1885?

(a) Motilal Nehru
(b) W. C. Bannerjee
(c) Jawaharlal Nehru
(d) Mahatma Gandhi

GENERAL SCIENCE

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Q16. Nucleus in cell was discovered by

(a) Robert Brown
(b) Golgi
(c) Bowman
(d) Fountain

Q17. The tissue providing nutrition to the embryo in the uterus is the _____.

(a) Fallopian tube
(b) Oviduct
(c) Placenta
(d) Villi

Q18. With the help of what do peas climb on each other?

(a) Leaves
(b) Roots
(c) Tendrils
(d) Flowers

Q19. Mitochondria is known as the powerhouse of the cell because:

(a) They produce protein
(b) They emit light
(c) They have their own deoxyribonucleic acid (DNA)
(d) They produce adenosine triphosphate (ATP)

Q20. Which of the following is responsible for dwarfism in humans?

(a) Thyroxin
(b) Pituitary
(c) Adrenaline
(d) Pancreas

Q21. What is the valency of carbon?

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

Q22. The process of burning of a candle involves

(a) only physical reactions
(b) only chemical reactions
(c) both physical and chemical reactions
(d) only chemical changes

Q23. Which acid is present in the ant sting?

(a) Tartaric acid
(b) Methanoic acid
(c) Lactic acid
(d) Acetic acid

Q24. Which of the following metals can be cut with a knife?

(a) Aluminum
(b) Platinum
(c) Copper
(d) Sodium

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Q25. Carbon forms which of the following bonds?

(a) Ionic bond
(b) Covalent bond
(c) Metallic bond
(d) Vanderwall

Q26. By which method does heat transfer from the Sun to the Earth?

(a) Driving
(b) Convection
(c) Operation
(d) Radiation

Q27. The volume will _____ on increasing temperature.

(a) Increase
(b) Decrease
(c) Remains same
(d) Cannot be determined

Q28. Which of the following instrument is used only for assessing heart related problems?

(a) ECG
(b) MRI
(c) X Ray
(d) CT Scan

Q29. If voltage is given as 32 V and current is given as 2 A, then find the value of resistance?

(a) 14 ohms
(b) 17 ohms
(c) 15 ohms
(d) 16 ohms

Q30. The total path length covered by an object is known as

(a) Distance
(b) Speed
(c) Velocity
(d) Acceleration

MATHS

Q31. What is the decimal form of 11 divided by 100?

(a) 0.11
(b) 0.01
(c) 1.00
(d) 00.11

Q32. What will be the score of a girl who secures 70% of the marks out of 400?

(a) 300
(b) 100
(c) 120
(d) 280

Q33. What is the result of simplifying the expression $24 \div (3 \times 2) = ?$

(a) 2
(b) 4
(c) 16
(d) 8

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Q34. What is the fractional form of 0.64?

(a) 4/26
(b) 16/25
(c) 1/4
(d) 8/25

Q35. What is the HCF (Highest Common Factor) of 2 and 3?

(a) 5
(b) 3
(c) 1
(d) 0

Q36. What is the average of 100 and 200?

(a) 150
(b) 250
(c) 110
(d) 115

Q37. What is the average of the first 4 even natural numbers?

(a) 6
(b) 5
(c) 4
(d) 2

Q38. What is the simple interest if the principal amount is Rs 200, the rate of interest is 8%, and the time period is 2 years?

(a) 86
(b) 38
(c) 32
(d) 64

Q39. How many vertices are there in a rectangle?

(a) 1
(b) 8
(c) 2
(d) 4

Q40. What is the perimeter of a rectangle that has a length of 2 cm and a breadth of 3 cm?

(a) 10 cm
(b) 5 cm
(c) 15 cm
(d) 20 cm

Q41. Express each of the following ratios in its simplest forms:- 3 m : 90 cm

(a) 3 : 7
(b) 3 : 10
(c) 10 : 3
(d) 1 : 9

Q42. If person A completes a task in 15 days, what percentage of the task would be completed if they work for 6 days?

(a) 25 %
(b) 40 %
(c) 50 %
(d) 75 %

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Q43. How many zeroes are there in the square of 100?

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

Q44. If 10 people complete a task in 20 days, how many days will it take for 5 person to complete the same task?

(a) 2 days
(b) 12 days
(c) 40 days
(d) 25 days

Q45. What is the number which, when reduced by 8, equals 26?

(a) 34
(b) 44
(c) 24
(d) 18

LOGICAL REASONING

Q46. How many positions is a person from the right if they are in the 21st position from the left in a row of 40 people?

(a) 14
(b) 19
(c) 22
(d) 20

Q47. Direction: Arrange the given words in the reverse dictionary order and choose the one that comes third.
Together, Temple, Temper, Technique

(a) Temple
(b) Technique
(c) Together
(d) Temper

Q48. Complete the series 2, 6, 14, 30 _____?

(a) 58
(b) 60
(c) 62
(d) 68

Q49. Select the option that can replace the question mark (?) in the following series.
Z, V, R, N, J ?

(a) K
(b) F
(c) G
(d) I

Q50. "What is the 9th letter from the left in the alphabet series?"

(a) N
(b) I
(c) K
(d) H

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) Pinarayi Vijayan

The correct answer is Pinarayi Vijayan.

Key Points

• Pinarayi Vijayan is the present Chief Minister of Kerala.

• He is a member of the Communist Party of India (Marxist) or CPI(M).

• He was the longest-serving secretary of the Kerala State Committee of the CPI(M) from 1998 to 2015.

• He also served in the government of Kerala as Minister of Electric Power and Co-operatives from 1996 to 1998.

• Vijayan won a seat in the May 2016 Kerala Legislative Assembly election as the CPI(M) candidate for Dharmadom constituency and was selected as the leader of the Left Democratic Front and the 12th Chief Minister of Kerala.

Additional Information

• Oommen Chandy was the two times Chief Minister of Kerala (2011–2016) and (2004–2006).

• A.K. Antony was the 23rd Defence Minister of India from 2006–2014.

• V.S. Achuthanandan was the Chief Minister of Kerala from 2006 to 2011.

Q2. Answer: (b) Rajasthan

The correct answer is Rajasthan

Key Points

• Gangaur is a festival celebrated in the Indian state of Rajasthan and the Nimaar region of Madhya Pradesh.

• It is also celebrated in some parts of Gujarat and West Bengal.

• Gangaur, also known as Gauri Tritiya, is celebrated mainly in North Indian states, especially in Rajasthan and some parts of Uttar Pradesh, Madhya Pradesh, Haryana, and Gujarat.

• The festival commences on the first day of Chaitra according to Purnimant School and continues for 18 days.

Additional Information

• The womenfolk celebrate the festival of Gangaur with great zeal and devotion, praying to Goddess Parvati/Gauri to bless them with a bountiful spring that's full of harvest, and also marital harmony.

• They also urge the goddess to bless their husbands with good health and long life.

Q3. Answer: (b) Jallianwala Bagh Massacre

The correct answer is 'Jallianwala Bagh Massacre'.

Key Points

• The Jallianwala Bagh massacre took place on 13 April 1919 (on the day of Baisakhi).

• It took place at Jallianwala Bagh near the Golden Temple in Amritsar, Punjab province of India.

• A large peaceful crowd had gathered to protest against the Rowlatt Act

• An English officer named General Dyer blocked the exit with his troops and ordered them to shoot at the crowd, continuing to fire even as the protestors tried to flee.

• In the massacre, more than 400 people died and more than 2000 were injured.

• This incident shocked Rabindranath Tagore to such an extent that he renounced his knighthood.

Additional Information

Incident	Year
Kakori Conspiracy	9 August 1925

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Chauri-Chaura Incident	4 February 1922
Komagata Maru Incident	1914

Q4. Answer: (c) President

The correct answer is President.

Key Points

• The President Of India

• Article 52 says there shall be a president of India.

• The President is known as the first citizen of India because he/she represents our country.

• He is the constitutional head of the nation. All executive decisions are taken in his name.

• The President who is also the head of the Indian State is the first citizen of India and acts as the symbol of the unity, integrity, and solidarity of the Indian nation. Hence, Option 3 is correct.

Articles	Content
52	The President of India
53	The executive power of the Union
54	Election of President
55	Manner of election of President
56	Term of office of President
57	Eligibility of re-election
58	Qualifications for election as President
59	Conditions of President's office
60	Oath or affirmation by the President
61	Procedure for impeachment of the President
62	Time of holding election to fill a vacancy in the office of President and the term of office of person elected to fill a casual vacancy
63	The Vice-President of India
64	The Vice-President to be ex-officio chairman of the council of states
65	The Vice-President to act as President
66	Election of Vice-President
67	Term of office of Vice-President
68	Time of holding election to fill a vacancy in the office of Vice-President and the term of office of person elected to fill casual vacancy.
69	Oath or affirmation by the Vice-President
70	Discharge of President's functions in other contingencies

Additional Information

• The Chief Justice of India

• Officially the Chief Justice of the Republic of India is the chief judge of the Supreme Court of India as well as the highest-ranking officer of the Indian federal judiciary.

• The 48th and the present chief justice is N. V. Ramanna.

• The first chief justice of India was H. J. Kania.

• The Prime Minister of India

• Officially the Prime Minister of the Republic of India is the leader of the executive branch of the Government of India.

• The prime minister is the chief adviser to the President of India and the head of the Union Council of Ministers.

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• They can be a member of any of the two houses of the Parliament of India—the Lok Sabha (House of the People) and the Rajya Sabha (Council of the States); but has to be a member of the political party or coalition, having a majority in the Lok Sabha.

• The prime minister is the senior-most member of the cabinet in the executive of government in a parliamentary system.

• The prime minister selects and can dismiss members of the cabinet; allocates posts to members within the government, and is the presiding member and chairperson of the cabinet.

• A legislature

• It is a deliberative assembly with the authority to make laws for a political entity such as a country or city.

• Legislatures form important parts of most governments; in the separation of powers model, they are often contrasted with the executive and judicial branches of parliamentary government.

• Laws enacted by legislatures are usually known as primary legislation.

• In addition, legislatures may observe and steer governing actions, with the authority to amend the budget involved.

• The members of a legislature are called legislators.

• In a democracy, legislators are most commonly popularly elected, although indirect election and appointment by the executive are also used, particularly for bicameral legislatures featuring an upper chamber.

Q5. Answer: (c) Ganga

The correct answer is Ganga.

Key Points

• The Ganga is a great river of the plains of the northern Indian subcontinent.

• It flows through the Indian states of Uttrakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal.

• Ganga river length is 1,560 miles is short compared with the other great rivers of Asia or of the world.

• Ganga river is rising in the Himalayas Gangotri and emptying into the Bay of Bengal.

• It drains 1/4th of the territory of India, and its basin supports hundreds of millions of people.

• It has been the cradle of successive civilizations from the Mauryan empire of Ashoka in the 3rd century BCE to the Mughal Empire, founded in the 16th century.

• The Ganges Brahmaputra system has the third greatest average discharge of the world's rivers, at roughly 1,086,500 cubic feet per second.

• Ganga Brahmaputra system approximately 390,000 cubic feet per second is supplied by the Ganges alone.

• The rivers' combined suspended sediment load of about 1.84 billion tons per year is the world's highest.

Additional Information

Godavari	**• The Godavari is India's second-longest river after the Ganga. - Its source is in Triambakeshwar, Maharashtra. - It flows east for 1,465 kilometers, draining the states of Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh and Odisha. - Length - 1465 km. - Discharge - 3505 m^3/s. - Basin size - 312,812 km^2. - Mouth - Bay of Bengal. - Bridges - Rajamahendra Varam. Godavari Arch Bridge, The Havelock Bridge, Godavari Arch Bridge.**
Yamuna	• The Yamuna is the second-largest tributary river of the Ganga and the longest tributary in India. - Originating from the Yamunotri Glacier at a height of 6387 meters. - Length - 1376 km - Basin size - 366,223 km2 - Sources - Yamunotri, Champasar Glacier - Mouths - the Ganges, Triveni Sangam Bridges - Old Naini Bridge road and rail bridge
Brahmaputra	• The Brahmaputra river in Arunachal Pradesh and Luit, Dilao in Assam, is a trans-boundary river that flows through Tibet, India and Bangladesh. - It is the 9th largest river in the world by discharge and the 15th longest. - Length - 3848 km. - Source- Himalayas. - Tributaries - Teesta River, Danba Qu, Lohit, Subansiri River. - Bridges - Bogibeel Bridge, Dhola Sadiya Bridge, Naranarayan Setu. - Mouths - the Ganges, Bay of Bengal.

Q6. Answer: (a) Golf

The correct answer is Golf.

Key Points

• Diksha Dagar is an Indian professional golfer who has made significant achievements in golf at a young age.

• She was awarded the Arjuna Award, one of India's highest sports honours, recognizing her exceptional contributions to the sport of golf.

• Her victory in the 2019 South African Women's Open marked her as the youngest Indian woman to win a Ladies European Tour title.

• As a hearing-impaired athlete, Dagar's achievements in golf also serve as an inspiration for athletes with disabilities globally.

Additional Information

Arjuna Award

• It is bestowed by the Government of India (Ministry of Youth Affairs and Sports) to sportspersons for their outstanding performance in international as well as national events and also holds leadership qualities with good morals.

• The award was launched in 1961 with a cash prize of Rs 5 lakh, a bronze statue of Arjuna, and a scroll and is presented by the President of India every year to sportspersons of different categories.

• Now the Prize money is increased to 15 lakhs.

• The honour is named after Prince Arjuna, the protagonist of the Indian epic Mahabharata.

• The sportsperson should have performed consistently well for the previous 3 years at the international level with excellence for that year for which the award is recommended.

• He must have shown qualities of leadership sportsmanship and a sense of discipline.

• From 2001, the award is given in disciplines falling under the following categories:

• Olympic Games/Commonwealth Games/Asian Games

• World Cup/World Championship disciplines and cricket;

• Indigenous games; and

• Sports for the physically challenged.

• Arjuna Award was first presented in 1961 to six people.

• Meena Shah (Badminton) was the first woman to get the Arjuna award in 1962.

• The first recipient of the Arjuna Award in the field of Archery was Krishna Das awarded in 1961.

Important PointsArjuna Awards Winner of 2023:

Arjuna Award Winner	Sports
Ojas Pravin Deotale	Archery
Parul Chaudhary	Athletics
Aditi Gopichand Swami	Archery
Mohammad Hussamuddin	Boxing
R Vaishali	chess
Mohammed Shami	Cricket
Anush Agarwalla	Equestrian
Divyakriti Singh	Equestrian Dressage
Diksha Dagar	Golf
Krishan Bahadur Pathak	Hockey
Sushila Chanu	Hockey
Pawan Kumar	Kabaddi
Ritu Negi	Kabaddi
Nasreen	Kho-Kho
Pinki	Lawn Bowls
Aishwarya Pratap Singh Tomar	Shooting
Esha Singh	Shooting
Harinder Pal Singh Sandhu	Squash
Ayhika Mukherjee	Table Tennis

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Sunil Kumar	Wrestling
Antim Panghal	Wrestling
Naorem Roshibina Devi	Wushu
Sheetal Devi	Para Archery
Illuri Ajay Kumar Reddy	Blind Cricket
Prachi Yadav	Para Canoeing
Murali Sreeshankar	Athletics

Q7. Answer: (c) Supreme Court

The correct answer is Supreme Court.

Key Points

• The body which acts as the guardian of Fundamental Rights is the Supreme Court. The court protects the Fundamental Rights of the citizens from being exploited.

• The Supreme Court, as the Guardian of Fundamental Rights, can declare any law null and void if it violates fundamental rights.

Important Points

• Article 32 of the Constitution (Right to Constitutional Remedies): It is a fundamental right, which states that individuals have the right to approach the Supreme Court (SC) seeking enforcement of other fundamental rights recognized by the Constitution.

• Article 226 of the Constitution empowers a high court to issue writs including habeas corpus, mandamus, certiorari, prohibition, and quo warranto for the enforcement of the fundamental rights of the citizens and for any other purpose.

• The Supreme Court stands at the apex of the judicial system of the country.

• Article 124 provides for the establishment and constitution of the Supreme court.

• Established as the Supreme court of India on 28th January 1950.

• Also known as the 'guardian of our Constitution.

• Also known as 'court of record'.

• The Chief Justice and other Judges of the Indian Supreme Court are appointed by the President

• The power to increase or decrease the number of judges of the supreme court rests with the Parliament.

• After the appointment of the new four justices on 18 September 2019, the strength of the Supreme court increases from 30 to 34.

• The chief justice of India is the head of the Supreme Court of India.

• The appointment of judges other than the chief justice, the chief justice of India shall always be consulted.

Additional Information

• The Judges of the Supreme Court can be removed only by the Parliament by the procedure established by Law.

• A judge of the Supreme Court or High Court can be removed only on the ground of proven misbehavior or incapacity.

• A motion containing the charges against the judge must be approved by a special majority in both Houses of Parliament.

• After the motion passed by both the houses by a special majority, it will be sent to the President.

• Finally, the President gives his order of removal o the judge concerned.

Q8. Answer: (c) Pali

The correct answer is Pali.

Key Points

• Gautama Buddha used the Pali language in his lecture and his education.

• It is the language spoken by the educated i.e Priests and Pundits.

• Prakrit along with Pali is the language of the common masses during this time period.

• It is said that Lord Buddha preached his teachings in the Prakrit language. It was the language of the ordinary people so that everybody could understand his message.

• Tripitaka's were in the Pali language.

Important Points

• Siddhartha is the early name of Buddha.

• He was the son of Suddhodhana and Mahamaya.

• He belonged to a small gana known as the Sakya Gana and was a Kshatriya.

• He left the comforts of his home in search of knowledge.

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• He learned the technique of meditation from his first teacher Alara Kalama.
• After attaining enlightenment he went to Sarnath, near Varanasi, where he taught for the first time
• Buddha preached his first sermon at Sarnath.
• He died in 483 BC under a Sal tree in Kushinagar.
• Kaushambi is the place where Lord Buddha stayed and preached in the sixth and ninth years of his attaining enlightenment.

Q9. Answer: (c) Sachin Tendulkar

The correct answer is Sachin Tendulkar.

Key Points

• "Playing It My Way" is an autobiography written by Sachin Tendulkar, one of the greatest cricketers of all time.
• The book was published in 2014 and covers Tendulkar's life and career, from his childhood in Mumbai to his retirement from international cricket in 2013.
• Tendulkar is widely regarded as one of the greatest batsmen in the history of cricket, having scored more runs and centuries than any other player in both Test and ODI formats.

Additional Information

• MS Dhoni is also a famous Indian cricketer who captained the Indian national team from 2007 to 2016.
• He has also written an autobiography called "The Dhoni Touch".
• Rahul Dravid is another former Indian cricketer who is known for his technique and sportsmanship.
• He has not written an autobiography as yet.
• Yuvraj Singh is a former Indian cricketer who is known for his aggressive batting and left-arm spin bowling.
• He has also written an autobiography called "The Test of My Life".

Q10. Answer: (b) Haryana

The correct answer is Haryana.

Key Points

• State and their Sex Ratio:

State	Sex Ratio
Punjab	895
Haryana	877
Uttar Pradesh	908
Bihar	918

Additional Information

• Sex Ratio in India:
• Sex ratio is used to describe the number of females per 1000 of males.
• Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India.
• In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 943 females per 1000 males.
• The Sex Ratio 2011 shows an upward trend from the census 2001 data.
• Census 2001 revealed that there were 933 females to that of 1000 males.
• For decades India has seen a decrease in the sex ratio 2011, but since the last two of the decades, there has been a slight increase in the sex ratio.
• Since the last five decades, the sex ratio has been moving from around 930 females to that of 1000 males.
• Sex Ratio of few Indian States:
• Kerela - 1084
• Puducherry - 1037
• Tamil Nadu - 996
• Andhra Pradesh - 993
• Delhi - 868
• Chandigarh - 818
• Dadra and Nagar Haveli - 774
• Daman and Diu - 618

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Q11. Answer: (b) Rajasthan

The correct answer is Rajasthan.

Key Points

• The Khetri mines are located in Rajasthan.

• Khetri mines in Rajput are famous for copper mines.

• Khetri Nagar, which is located 10 km far from Khetri, is known as the 'Tamba Project'.

• Khetri Nagar was built by Hindustan Copper Limited which is a public sector under the "Government of India" and under his jurisdiction.

• Khetri Nagar is a town in the Jhunjhunu district of Rajasthan in India.

• Khetri Nagar is also very well known with the name of 'Copper'.

Additional Information

• There are four main mining methods: underground, open surface (pit), placer, and in-situ mining.

• Underground mines are more expensive and are often used to reach deeper deposits.

• Surface mines are typically used for more shallow and less valuable deposits.

• Placer mining is used to sift out valuable metals from sediments in river channels, beach sands, or other environments.

• In-situ mining, which is primarily used in mining uranium, involves dissolving the mineral resource in place then processing it at the surface without moving rock from the ground.

Q12. Answer: (b) Indian Navy

The correct answer is the Indian Navy.

Key Points

• In the Indian Navy, Junior Commissioned Officers (JCOs) hold important leadership positions and are responsible for supervising and managing enlisted personnel.

• The highest rank among JCOs in the Indian Navy is Master Chief Petty Officer (1st Class). Individuals holding this rank have significant experience and expertise in their respective fields and often serve in key leadership roles onboard naval vessels or shore establishments.

• Following the Master Chief Petty Officer (1st Class), the next rank is Master Chief Petty Officer (2nd Class). While still a senior rank among JCOs, individuals holding this rank may have slightly less experience or responsibility compared to those in the 1st Class rank.

• The lowest rank among JCOs is that of Chief Petty Officer. Chief Petty Officers serve as the entry-level JCOs and are typically responsible for leading small teams or sections within their units.

• Overall, JCOs play a crucial role in the Indian Navy's operations by providing leadership, expertise, and guidance to enlisted personnel, ensuring the efficient functioning of naval units both at sea and onshore.

Q13. Answer: (a) Article 1

Option 1 is correct, i.e. Article 1.

Key Points

• The Union and its Territories:

• Article 1 describes India, i.e. Bharat, as a Union of States.

• According to Article 1, the Territory of India can be classified into three categories:

• Territories of the States.

• Union Territories.

• Territories that may be acquired by the Government of India at any time.

• At present, there are 28 states and 8 Union territories in the country.

• Article 2 empowers the Parliament to admit into the Union of India, or establish new states on such terms and conditions as it thinks fit.

Important Points

• Article - 3. Formation of new States and alteration of areas, boundaries or names of existing States.

• Article - 4. Laws made under articles 2 and 3 to provide for the amendment of the First and the Fourth Schedules and supplemental, incidental and consequential matters.

Additional Information

• Quasi-federal means an intermediate form of state between a unitary state and a federation.

• A unitary state is governed as a single entity in which the central government is ultimately supreme.

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Q14. Answer: (b) PM Vishwakarma Yojana

The correct answer is PM Vishwakarma Yojana.

Key Points

• PM Vishwakarma Yojana was launched in 2023, aimed at supporting and promoting the welfare of traditional artisans and craftspeople.

• The scheme seeks to empower Vishwakarma artisans by providing them with the tools, financial support, and platforms necessary to showcase and sell their products.

• It acknowledges the importance of preserving traditional crafts and skills that are a significant part of India's rich cultural heritage.

Additional Information

• PM Kusum: Launched in 2019, aimed at assisting farmers in installing solar pumps and grid-connected solar and other renewable power plants in their fields.

• PM Jan Arogya Yojana (PM-JAY): Also known as Ayushman Bharat, launched in 2018, it is a national health protection scheme providing health coverage to poor and vulnerable families.

• PM KISAN Yojana: Launched in 2019, the scheme provides income support to all landholding farmers' families in the country to supplement their financial needs for procuring various inputs related to agriculture and allied activities, as well as domestic needs.

Q15. Answer: (b) W. C. Bannerjee

The correct answer is W.C. Bannerjee.

Key Points

• W.C. Bonnerjee

• W.C. Banerjee was born on 29th December 1844 at Calcutta. He finished his schooling at Oriental Seminary and Hindu School.

• In 1862, he joined a law firm in Calcutta as a clerk from where he got acquainted with the law.

• In 1882, he became the first Indian to be appointed as a Standing Counsel.

• He famously defended Surendranath Banerjee in contempt of court case in the High Court of Calcutta.

• In the first session of the INC in December 1885 at Bombay, Bonnerjee was the President. This session was attended by 72 members.

• Although he was defeated, he became the first Indian to stand for election for the British Parliament.

• He passed away at Calcutta in 1906 aged 61.

Additional Information

• Motilal Nehru

• Motilal Nehru was a leader of the Indian independence movement, cofounder of the Swaraj Party, and the father of India's first prime minister, Jawaharlal Nehru.

• The massacre of hundreds of Indians by the British at Amritsar in 1919 prompted Motilal to join Mahatma Gandhi's non-cooperation movement, giving up his career in law and changing to a simpler, non-Anglicized style of life.

• In 1923 Motilal helped found the Swaraj Party (1923–27), the policy of which was to win election to the Central Legislative Assembly and obstruct its proceedings from within.

• Jawaharlal Nehru

• On 14 November 1889, Jawaharlal Nehru was born in Allahabad to parents with Kashmiri Pandit lineage.

• He played a prominent role in the freedom struggle and became the first prime minister of independent India.

• He became the General Secretary of the All India Congress Committee in September 1923. He was the party president in the Lahore session in 1929 when the declaration of complete independence as the goal of the freedom movement was passed.

• He became the president of the All India States Peoples Conference in 1935. He threw open its membership to people across the political spectrum. This organisation would play an important part in the integration of the princely states into India.

• Mahatma Gandhi

• Mohandas Karamchand Gandhi was an Indian lawyer, anti-colonial nationalist, and political ethicist.

• He was known as the Father of the Nation and commonly called Bapu.

• His birthday on 2 October is commemorated in India as Gandhi Jayanti, a national holiday.

• He was a prolific writer. One of Gandhi's publications Hind Swaraj published in Gujrati in 1909.

• He was the leader of various movements (Satyagraha, Champaran Movement, Kheda Movement, Quit India Movement).

Q16. Answer: (a) Robert Brown

The Correct Answer is Robert Brown.

Key Points

• The nucleus of the cell was discovered in 1831 by Robert Brown.

• In eukaryotic cells, the nucleus is a protoplasmic body with genetic information surrounded by a double membrane.

• With the aid of grafting experiments on Acetabularia, Hammerling demonstrated in 1953 that the nucleus is a repository for hereditary knowledge.

Important Points

• The nucleus is a critical organelle that controls nearly all cellular functions.

• The lack or presence of a nucleus within a cell is used to classify most types of cells (categorized either as a prokaryotic or eukaryotic cell.)

• A nucleus is a double-membraned eukaryotic cell organelle that houses genetic information.

Additional Information

• Camillo Golgi

• He was an Italian pathologist and biologist who specialized in the nervous system.

• Sir William Bowman, 1st Baronet

• He was a physician, histologist, and anatomist who worked in England. While he had a good career as an ophthalmologist during his lifetime, he is best known for his experiments using microscopes to study various human organs.

• Jane Fountain

• He is a political scientist who also works as a technology theorist in the United States.

Q17. Answer: (c) Placenta

• Through the Placenta, the embryo gets nutrition in the uterus from the mother’s blood.

• The placenta provides oxygen and nutrients to the baby and removes carbon dioxide and other waste products.

• The placenta connects the growing baby’s umbilical cord to the mother by attaching itself to the inner wall of the womb.

• Towards the end of pregnancy, the placenta transfers antibodies from mothers to the fetus.

• HCG(Human chorionic gonadotropin) is also secreted by Placenta

Q18. Answer: (c) Tendrils

The correct answer is Tendrils.

Key Points

• Pea plants utilize tendrils to climb on each other and on other supports.

• Tendrils are thin, spirally wound structures that stem from the plant. They are sensitive to touch and wrap around objects to secure the pea plant as it grows upwards.

• This climbing mechanism allows the plant to reach sunlight more effectively, which is crucial for photosynthesis and the overall growth of the plant.

• The ability to use tendrils for climbing is an adaptation that helps pea plants to compete for light in crowded environments.

Additional Information

• Leaves: While leaves are crucial for photosynthesis, they are not the structures pea plants use to climb.

• Roots: Roots provide plants with nutrients and water from the soil. They do not function in climbing or supporting the plant above ground.

• Flowers: Flowers are the reproductive organs of pea plants. They play no role in the plant's ability to climb or support itself.

Q19. Answer: (d) They produce adenosine triphosphate (ATP)

Concept -

Mitochondria:

• Mitochondria are membrane-bound organelles present in all eukaryotic cells' cytoplasm.

• Typically it is sausage-shaped or cylindrical having a diameter of 0.2-1.0µm (average 0.5µm) and length 1.0-4.1µm.

• Each mitochondrion is a double membrane-bound structure with the outer membrane and the inner membrane dividing its lumen distinctly into two aqueous compartments, i.e. the outer compartment and the inner compartment.

• The inner compartment is filled with a dense homogeneous substance called the matrix.

• The outer membrane forms the continuous limiting boundary of the organelle. The inner membrane forms a number of infoldings called the cristae

Mitochondria for aerobic respiration:

• Mitochondria are the sites of aerobic respiration.

• They produce cellular energy in the form of ATP, hence they are called ‘power houses’ of the cell.

• A series of chemical reactions occur in the cytoplasm as breakdown products from food digestion find their way into the cell.

• This allows some of the energy stored up in these items to be released and integrated into ATP, the cell's universal energy

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source (adenosine triphosphate).

• The remaining molecular fragments from this phase then reach the mitochondria, where they are converted to carbon dioxide and water through a complex sequence of steps.

• The energy that has been trapped in these fragments is converted into more ATP.

• The cell can then use the ATP molecules generated in this way to provide the energy it requires to work.

• To function, ATP is made up of ADP + P + energy.

• The overall chemical reaction that occurs when glucose is broken down is:

$C_6H_{12}O_6 + 6O_2 \text{----------} > 6CO_2 + 6H_2O + ATP$ (energy)

Explanation -

• The mitochondria are the site for aerobic respiration releasing energy in the form of ATP.

• As mitochondria produce ATP (energy) which is then utilized by the entire cell to function, it is thus called the powerhouse of the cell.

Hence the correct answer for this question is option 4.

Q20. Answer: (b) Pituitary

The correct answer is Pituitary.

Key Points

• The pituitary is responsible for dwarfism in humans.

• Growth hormone is released into the bloodstream from the anterior pituitary gland.

• The pituitary gland also produces other hormones that have different functions from growth hormones.

• Growth hormone is produced by the pituitary gland.

• It has many functions including maintaining normal body structure and metabolism.

• It is a small pea-sized gland that plays a major role in regulating vital body functions.

• It is also referred to as the 'master gland' of the human body as it controls the activity of most of the other hormone-secreting glands.

Additional Information

• Thyroxine is the main hormone secreted into the bloodstream by the thyroid gland.

• It is also called tetraiodothyronine. It maintains the basic metabolism of the body.

• Adrenaline hormone is secreted by the adrenal gland.

• Adrenaline hormones are rapidly secreted in response to the stress of any kind and during emergency situations and are called emergency hormones or hormones of Fight or Flight.

• The pancreas functions as both endocrine and exocrine functions.

• The pancreas has exocrine glands that produce enzymes that are useful for digestion.

• These are released from the acinar cells that act as exocrine cells.

Q21. Answer: (d) 4

The correct answer is 4.

Key Points

• A carbon atom has four electrons in its outermost valence shell. So, it needs four more electrons to complete the octet configuration. So the valency of carbon is 4.

• Carbon is the 6th element in the periodic table which means it has 6 electrons.

• According to its electronic configuration, 2 electrons are in K shell and the remaining 4 are in the L shell.

• Electrons in the last shell are called valence electrons and the number of these electrons determine the valency of the compound this means the valency of carbon is 4.

• Carbon’s valency is also called co-valency.

Q22. Answer: (c) both physical and chemical reactions

The correct answer is both physical and chemical reactions.

Concept:

Physical change:

• A change in which a substance's physical properties change is referred to as a physical change.

• A physical reaction is another term for a physical change.

• In most cases, a physical change can be reversed. Thus, physical changes are not always reversible.

• No new products are formed in physical changes.

Chemical change:

• When one chemical substance is transformed into one or more different substances, this is referred to as a chemical change.

• A chemical reaction is another term for a chemical change.

• In most cases, a chemical change is irreversible.

Explanation:

• Burning of a candle is both a chemical and a physical reaction.

• The physical change occurs when the wax of a candle melts and it loses its shape, and hence the physical state of the wax has changed from solid to liquid.

• This liquid wax is drawn up the wick through capillary action, where it is vaporized by the heat of the flame.

• At the same time, there are chemical reactions occurring.

• The chemical change is the combustion of fuel in the presence of oxygen to produce carbon dioxide.

• This combustion process involves breaking the chemical bonds within the wax molecules and forming new bonds with oxygen atoms to produce carbon dioxide and water vapor.

• This is a chemical change as new substances with different chemical properties are formed.

Thus, the process of burning of a candle involves both physical and chemical reactions.

Q23. Answer: (b) Methanoic acid

The correct answer is Methanoic acid.

Key Points

• Methanoic acid is present in the ant sting.

• Chemical formula- HCOOH.

• The sting causes a burning sensation.

• Methanoic acid is also known as formic acid.

• A mild base such as baking soda or soap may be applied to neutralize the effect.

• In 1671, the English naturalist John Ray describe the isolation of the active ingredient.

• He collected and distilled a large number of dead ants, and the acid he discovered later became known as formic acid.

• Formic acid is also present in a natural state in stinging nettles.

• Formic acid is a colourless, fuming liquid that is miscible with water. It is produced as a by-product in the manufacture of acetic acid.

Q24. Answer: (d) Sodium

The correct answer is Sodium.

• Sodium metal can be cut with a knife.

• Sodium is silver-white color metal with malleable and ductile properties.

• It is a metal that can easily be cut with a knife.

• It is a good conductor of heat and electricity.

Key Points

• Sodium and potassium can be cut with a knife.

• Sodium is a chemical element with the symbol Na and atomic number 11.

• It is a soft, silvery-white, highly reactive metal. Sodium is an alkali metal, being in group 1 of the periodic table.

• Its only stable isotope is ^{23}Na.

• The free metal does not occur in nature and must be prepared from compounds.

Additional Information

• Aluminum:

• Symbol: Al

• Atomic mass: 26.981539 u

• Atomic number: 13

• Platinum

• Symbol: Pt

• Atomic mass: 195.084 u

• Atomic number: 78

• Copper

• Symbol: Cu

• Atomic mass: 63.546 u

• Atomic number: 29

Q25. Answer: (b) Covalent bond

The correct answer is Covalent Bond.

Key Points

• Carbon forms covalent bonds.

• There are three major types of covalent bonds: single, double, and triple bonds.

• A carbon atom can form four single bonds.

• A Covalent bond is a bond that is formed after the sharing of electron pairs between atoms.

Q26. Answer: (d) Radiation

The correct answer is Radiation.

• Radiation is the method through which heat is transferred from the sun to the earth.

Key Points

• The heat that eventually causes the earth to warm actually comes from the sun.

• The sun is a huge ball of gases, mainly hydrogen. Every day, the hydrogen in the sun is converted into helium through millions and millions of chemical reactions. The by-product of these reactions is heat.

• The heat released from the sun's chemical reactions does not stay near the sun but rather radiates away from it and into space.

• So much energy is released through the reactions that some of it still can reach the earth, even though the earth is millions of miles away from the sun.

• The heat energy usually reaches earth in the form of light, and many of the sun's rays are in the ultraviolet spectrum. The transfer of heat in this way is known as thermal radiation.

Additional Information

• Some of the heat energy from the sun bounces back off the earth's atmosphere, but some of it gets through and reaches the earth's surface.

• The energy that does reach the earth's surface warms it.

• The extra energy causes chemical reactions, which give off the heat again as a by-product this heat is released through the same process of thermal radiation.

• Some of the heat energy is trapped by the greenhouse gases in the atmosphere, and the temperature of the earth rises.

Important Points

Q27. Answer: (a) Increase

The correct answer is Increase.

Key Points

• The volume of most substances will increase on increasing temperature due to thermal expansion.

• When substances are heated, their particles gain kinetic energy and move apart from each other, leading to an increase in volume.

• This principle is observed in solids, liquids, and gases, though the magnitude of volume expansion differs among these states of matter.

• Thermal expansion is a critical factor considered in construction, manufacturing, and various scientific applications to accommodate the change in volume without causing damage.

Q28. Answer: (a) ECG

The correct answer is ECG.

Key Points

• ECG records the rate of heartbeats.

• It is used only for assessing heart related problems.

• ECG stands for Electrocardiogram.

• In ECG, electrodes are placed on the skin to note the normal working condition of the heart.

Additional Information

• Magnetic resonance imaging (MRI) uses a large magnet and radio waves to look at organs and structures inside your body.

• Health care professionals use MRI scans to diagnose a variety of conditions, from torn ligaments to tumours.

• X-rays are electromagnetic waves with a wavelength range of 0.1Å – 100Å.

• The wavelength of X-rays is small in comparison to the wavelength of light. Hence they carry more energy.

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• CT Scan or computed tomography is a special type of X-ray examination.
• Through which the internal organs of the body are seen and diseases are detected.

Q29. Answer: (d) 16 ohms

The correct answer is 16 ohms.

Key Points

• The resistance of an electrical component can be calculated using Ohm's Law, which states that the voltage (V) across an electrical component is equal to the product of its resistance (R) and the current (I) flowing through it (V = IR).
• Given the voltage is 32 V and the current is 2 A, we can rearrange Ohm's Law to solve for resistance (R = V/I).
• Substituting the given values, R = 32 V / 2 A = 16 ohms.
• Therefore, the resistance of the component is 16 ohms, which indicates how much it resists the flow of electric current.

Additional Information

• Ohm's Law: A fundamental principle in electronics and electrical engineering that describes the relationship between voltage, current, and resistance in an electrical circuit.
• Resistance: It is measured in ohms and is a measure of the opposition to the flow of current. It can vary depending on the material, temperature, and physical dimensions of the conductor.

Q30. Answer: (a) Distance

The correct answer is Distance.

Key Points

• Distance refers to the total path length covered by an object, regardless of the direction of travel.
• It is a scalar quantity, which means it is described by magnitude only and does not involve direction.
• Distance gives an account of how much ground has been covered by an object in motion during its journey from one location to another.
• This concept is crucial in understanding the basics of motion and is widely used in physics to describe the movement of objects.

Additional Information

• Velocity: A vector quantity that refers to the rate at which an object changes its position in a specific direction.
• Speed: A scalar quantity that measures how fast an object is moving, regardless of its direction of travel. Unlike distance, speed does not account for the path taken.
• Acceleration: A vector quantity that represents the rate of change of velocity of an object over time, including changes in speed and direction.

Q31. Answer: (a) 0.11

Solution will be available later

Q32. Answer: (d) 280

Solution will be available later

Q33. Answer: (b) 4

Solution will be available later

Q34. Answer: (b) 16/25

Solution will be available later

Q35. Answer: (c) 1

Solution will be available later

Q36. Answer: (a) 150

Solution will be available later

Q37. Answer: (b) 5

Solution will be available later

Q38. Answer: (c) 32

Solution will be available later

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Q39. Answer: (d) 4

Solution will be available later

Q40. Answer: (a) 10 cm

Solution will be available later

Q41. Answer: (c) 10 : 3

Solution will be available later

Q42. Answer: (b) 40 %

Solution will be available later

Q43. Answer: (c) 4

Given:

The number is 100.

Calculation:

We need to find the number of zeroes in the square of 100.

Square of 100 = 100^2

=> $100^2 = 100 \times 100$

=> $100^2 = 10000$

Counting the zeroes in 10000, we find there are 4 zeroes.

Therefore There are 4 zeroes in the square of 100.

Q44. Answer: (c) 40 days

Solution will be available later

Q45. Answer: (a) 34

Solution will be available later

Q46. Answer: (d) 20

To find out the position of a person from the right in this scenario, you subtract their position from the total number of people in the row, then add 1 to account for the starting position.

So, if someone is in the 21st position from the left in a row of 40 people:

40 (total positions) - 21 (position from the left) + 1

= 20th position from the right.

Q47. Answer: (d) Temper

Reverse dictionary order:

T is the common letter in all four words.

‘o’ comes after ‘e’ in dictionary order so Together comes first in reverse dictionary order.

Temp is a common letter in Temple and Temper

‘l’ comes after ‘e’ in dictionary order so Temple comes second and Temper third in reverse dictionary order and then Technique comes fourth.

Thus, the reverse dictionary order is:

Together,

Temple,

Temper,

Technique

Hence, Temper is the third word.

Q48. Answer: (c) 62

To complete the series (2, 6, 14, 30, …), let's analyze the pattern of growth between the numbers.

• From (2) to (6), the increase is (4) ((6 - 2 = 4)).

• From (6) to (14), the increase is (8) ((14 - 6 = 8)).

• From (14) to (30), the increase is (16) ((30 - 14 = 16)).

• We can observe that the increments double each time: (4, 8, 16, …)

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Thus, following this pattern, the next increase should be double (16), which is (32).

Therefore, adding (32) to the last number in the series ((30)) gives us:

• [30 + 32 = 62]

So, the next number in the series is (62).

Q49. Answer: (b) F

Solution will be available later

Q50. Answer: (b) I

Solution will be available later

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