Agniveer Army GD 2 July 2025 (Shift 1) 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 of the following Indian Army Command headquarters is located in Jaipur?

(a) Western Command
(b) Southern Command
(c) South Western Command
(d) Northern Command

Q2. Who said - 'Give me blood and I will give you freedom'?

(a) Jawaharlal Nehru
(b) Mahatma Gandhi
(c) Chandra Shekhar Azad
(d) Subhas Chandra Bose

Q3. Which of the following article describes India as a "Union of States"?

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

Q4. Which of the following is a classical dance?

(a) Bihu
(b) Kathak
(c) Bhangra
(d) Lavani

Q5. Which dance is performed by the tribes of Jharkhand?

(a) Bihu
(b) Garba
(c) Ghoomar
(d) Chhau

Q6. Who was awarded the International Booker Prize in 2025?

(a) Anna Burns
(b) Banu Mushtaq
(c) Paul Lynch
(d) Damon Galgut

Q7. What is a delta?

(a) A type of mountain
(b) A landform formed at the mouth of a river
(c) A type of ocean current

(d) A type of desert landform

Q8. How many operational commands does the Indian Air Force have in total?

(a) 3
(b) 4
(c) 5
(d) 6

Q9. What are the forests found in areas with high rainfall called?

(a) tropical rainforest
(b) mountain forest
(c) deciduous forest
(d) none of these

Q10. The Election Commission of India was established in the year _____.

(a) 1961
(b) 1950
(c) 1947
(d) 1954

Q11. How many days did Mahatma Gandhi fast during the Harijan Andolan of 1933?

(a) 15 days
(b) 21 days
(c) 30 days
(d) 10 days

Q12. Which of the following is NOT a fundamental right?

(a) Right to Private Property
(b) Right to Constitutional Remedies
(c) Right against Exploitation
(d) Right to Freedom of Religion

Q13. Which is India's highest waterfall?

(a) Angel Falls
(b) Kunchikal Falls
(c) Jog Falls
(d) Vantawng Falls

Q14. Who has been appointed as the new Chairperson of the National Human Rights Commission (NHRC) in December 2024?

(a) Justice Arun Kumar Mishra
(b) Justice H.L. Dattu
(c) Justice K.G. Balakrishnan
(d) Justice V. Ramasubramanian

Q15. What is the primary role of the army?

(a) To conduct scientific research
(b) To maintain law and order
(c) To defend the country against external threats
(d) To promote trade and commerce

GENERAL SCIENCE

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Q16. Which vitamin is easily destroyed during cooking?

(a) Vitamin A
(b) Vitamin B
(c) Vitamin C
(d) Vitamin K

Q17. Scurvy (bleeding of gums) is caused by the deficiency of which vitamin?

(a) Vitamin K
(b) Vitamin B2
(c) Vitamin C
(d) Vitamin A

Q18. Adolescence begins around the age of 11 and lasts upto:

(a) 15 or 16 years of age
(b) 16 or 17 years of age
(c) 18 or 19 years of age
(d) 19 or 20 years of age

Q19. What is the SI Unit of volume?

(a) Cubic centimeter
(b) Cubic meter
(c) Cubic decimeter
(d) Cubic inch

Q20. What is the type of force applied while pushing a car?

(a) Frictional Force
(b) Gravitational Force
(c) Muscular Force
(d) Tension Force

Q21. What is the standard unit used by a speedometer to measure speed in vehicles?

(a) Meters per second (m/s)
(b) Kilometers per hour (km/h)
(c) Miles per hour (mph)
(d) Feet per second (ft/s)

Q22. Outside the nucleus DNA is found in_____

(a) Golgi bodies
(b) Mitochondria
(c) Ribosome
(d) Endoplasmic reticulum

Q23. Sugar is primarily used in the preparation of which of the following?

(a) Bread
(b) Jam
(c) Medicine
(d) Drinks

Q24. Consider the following statements:

Statement I: Butter is separated from cream by the churning method.

Statement II: When cream is churned, butter comes on top and buttermilk goes to the bottom.

Which of the following is the correct option?

(a) Both Statement I and Statement II are correct
(b) Only Statement I is correct
(c) Only Statement II is correct

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(d) Both Statement I and Statement II are incorrect

Q25. A thermometer is used to measure _____.

(a) heat
(b) thermal inductance
(c) fire
(d) temperature

Q26. In the symbol of the electric cell, the thicker, shorter line represents the_____.

(a) ring terminal
(b) positive terminal
(c) negative terminal
(d) neutral terminal

Q27. During filtration process, the particles which remain on filter paper is called

(a) solvent
(b) residue
(c) filtrate
(d) solute

Q28. What is the SI unit of force?

(a) Volt
(b) Joule
(c) Newton
(d) Watt

Q29. Which of the following is not a part of female reproductive system?

(a) A pair of ovaries
(b) Sperm duct
(c) Uterus
(d) Oviducts

Q30. Which mineral salt is dissolved in a major amount in ocean water?

(a) Calcium chloride
(b) Calcium carbonate
(c) Sodium chloride
(d) Calcium sulphate

MATHEMATICS

Q31. Find the square of 49.

(a) 2401
(b) 2381
(c) 1701
(d) 2301

Q32. What is the LCM of 52 and 48?

(a) 360
(b) 480
(c) 624
(d) 320

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Q33. Average of 50, 30, 0, 0, 0 is:

(a) 16
(b) 20
(c) 40
(d) 30

Q34. A principal amount of Rs. 9800 is invested at an interest rate of 78% per annum for 27 years. Calculate the simple interest earned on the investment.

(a) 209388
(b) 206388
(c) 206300
(d) 206000

Q35. There are 20 balloons, but 2 of them have floated away. What percentage of the balloons are left?

(a) 10%
(b) 50%
(c) 90%
(d) 80%

Q36. 112 : x = 7 : 2

(a) 23
(b) 35
(c) 37
(d) 32

Q37. The average of three numbers is 31. Two of the numbers are 16 and 17. What is the third number?

(a) 30
(b) 31
(c) 60
(d) 55

Q38. 7 × 22 + 11 = ?

(a) 160
(b) 165
(c) 150
(d) 135

Q39. 25% of 8000 is:

(a) 2500
(b) 2000
(c) 1000
(d) 3000

Q40. A : B = 8 : 11, if A = 168, what is the vaule of B.

(a) 321
(b) 231
(c) 123
(d) 134

Q41. There are 160 students in a class, and 50% passed the final exam. How many students failed the exam?

(a) 50
(b) 60
(c) 75
(d) 80

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Q42. 5 × 2 + (3.5 - 1.5) of (3 - 3) = ?

(a) 8
(b) 10
(c) 13
(d) 15

Q43. HCF of 25, 75 is:

(a) 125
(b) 50
(c) 25
(d) 75

Q44. If side of a square is increased by 60%, then what will be the percentage increase in its area?

(a) 156
(b) 120
(c) 126
(d) 132

Q45. Rajan is younger than his father by 20 yrs. 5 yr ago his father was 3 times elder than him. Find the present age of his father.

(a) 25 yr
(b) 30 yr
(c) 35 yr
(d) 36 yr

LOGICAL REASONING

Q46. Arjun ranks from the beginning is 18th in a class of 56 students. What will be his rank from last?

(a) 37
(b) 39
(c) 38
(d) 40

Q47. In a certain code language, 'CUTE' is written as 'BTSD'. How is 'KIND' written in that code language?

(a) JHMC
(b) LKME
(c) RSYU
(d) WIOP

Q48. If R means 'add to', Q means 'multiply by', S means 'subtract from' and P means 'divide by', then (42P7Q5R2)S34 = ?

(a) 2
(b) 8
(c) 24
(d) 16

Q49. In a certain code language, ‘GROW’ is coded as ‘2571’ and ‘WORK’ is coded as ‘5742’. What is the code for ‘K’ in the given code language?

(a) 2
(b) 5
(c) 7
(d) 4

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Q50. Pointing at a lady in a photograph, a man said 'She is niece of my only son'. How is the man related to that lady?

(a) Paternal grandfather
(b) Brother-in-law
(c) Maternal grandfather
(d) Uncle

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) South Western Command

Option 3 is correct, i.e. South Western Command.

• Headquarter of seven Indian Army Commands:

Command	Headquarter
Northern Command	Udhampur
Western Command	Chandigarh
South Western Command	Jaipur
Southern Command	Pune
Army Training Command	Shimla
Central Command	Lucknow
Eastern Command	Kolkata

• Know about Indian Army:-
• It is the 2nd largest force in the world after China.
• The "Army Day" is celebrated on 15th January every year.
• It is headquartered in New Delhi.
• The motto of the Indian Army is "Service Before Self".
• The first Chief of the Army Staff was Rajendrasinjhi Jadeja..
• Some Important Defence Training Institute of Indian Army:
• National Defence Academy (NDA), Khadakwasla, Pune.
• National Defence College (NDC), New Delhi.
• College of Defence Management (CDM), Secunderabad.
• Indian Military Academy (IMA), Dehradun
• Armed Forces Medical College (AFMC), Pune.
• School of Artillery, Deodali.
• College of Military Engineering (CME), Pune
• Infantry Schools, Mhow and Belgaum.

Q2. Answer: (d) Subhas Chandra Bose

The correct answer is Subhas Chandra Bose.

• His famous speech 'Give me blood, and I shall give you freedom!' was made in Burma in 1944 to members of the Indian National Army.

• Subhas Chandra Bose (Netaji) (23 January 1897 – 18 August 1945) is known for his role in India's independence movement.

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• He was born on 23rd January 1897, in Cuttack, Orissa Division, Bengal Province, to Prabhavati Dutt Bose and Janakinath Bose.

• He earned the title ‘Netaji’, in Germany by the Indian soldiers of the Azad Hind Fauj in 1942.

• His very famous slogan is, “Give me blood, and I shall give you freedom!” as well as “Jai Hind”.

• He was elected the President of the All India Youth Congress and also the Secretary of Bengal State Congress.

• He formed the All India Forward Block.

• He is said to have died in 1945 when his plane crashed in Taiwan. However, there are still many conspiracy theories regarding his death.

Important Points

Jawaharlal Nehru	**• Jawaharlal Nehru was the first Prime minister of India. He also India's longest-serving prime minister (15-Aug-1947 to 27-May-1964). - He also India's longest-serving prime minister. - Books were written by him: The Discovery of India, Letters from a Father to his Daughter, Glimpses of World History, etc. - His birthday anniversary is celebrated as 'Children's Day' in India (14 November). He is also known as Chacha Nehru.**
Mahatma Gandhi	• Mahatma Gandhi said “Sanitation is more important than political independence,” while leading a non-violent movement for India’s independence in 1947. - In a speech entitled, "Do or Die (Karo ya Maro)," given on by Mahatma Gandhi. - Mahatma Gandhi was the first person whose picture was depicted on free India’s stamp in 1948. - Books written by him are The Story of my Experiments with Truth, Hind Swaraj, Ashram Observances in action, India of My Dreams.
Chandra Shekhar Azad	• He was an Indian revolutionary who organized and led a band of militant youth during India's independence movement. - He joined the Hindustan Republican Association (HRA) and participated in several violent crimes, notably the Kakori train robbery (1925) and the revenge killing of a British police officer (1928).

Key Points

• Jawaharlal Nehru along with Srinivasa Iyengar and Subhash Chandra Bose founded the Independence for India League in the year 1928 which put forth the demand for complete independence.

Q3. 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.

Q4. Answer: (b) Kathak

The correct answer is Kathak.

• Kathak:

• It is the only classical dance of India having links with Islamic culture.

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• It represents a unique synthesis of Hindu and Muslim genius in art.
• Kathak is a form of expressional dance, derived from the word Katha which means a story.

Q5. Answer: (d) Chhau

The correct answer is Chhau.
• Chau or Chhau is a semi-classical Indian dance with martial, tribal, and folk origins from Orissa, Jharkhand, and West Bengal.
• There are three subtypes of this dance form:
• Purulia Chhau - West Bengal
• Mayurbanj Chhau - Odisha
• Seraikella Chhau - Jharkhand

Key Points
• Chhau Dance is a popular form of tribal dance in India that incorporates elements of martial arts into its movements.
• Differences between the three are dependent on their regions of origin.
• This Dance originates in the Purulia district in West Bengal and draws inspiration from martial arts and combative training.
• This form of dance is a means to portray stories to the audience, which is why elaborate masks and headgear associated with battle and war are worn during the performance.

Additional Information
• It enacts episodes from epics including the Mahabharata and Ramayana, local folklore, and abstract themes.
• Over a century old, this dance form was widely endorsed by patrons belonging to the royal families, rich landlords, and British governors in the region.
• These performances are predominantly put up during the Gajan Festival, which takes place to honor Lord Shiva.

Important Points

List of Classical dances in India	State of Origin
Bharatnatyam	Tamil Nadu
Kathak	Uttar Pradesh
Kuchipudi	Andhra Pradesh
Odissi	Odisha
Kathakali	Kerala
Sattriya	Assam
Manipuri	Manipur
Mohiniyattam	Kerala

Q6. Answer: (b) Banu Mushtaq

The Correct Answer is Banu Mushtaq.

In News
• Banu Mushtaq scripted history, winning Booker Prize for her short stories collection.

Key Points
• Banu Mushtaq won the International Booker Prize in London.
• She is the first Indian author writing in Kannada to win this prize.
• Her award-winning work is ‘Heart Lamp’, a collection of twelve short stories.
• The stories are translated into English by Deepa Bhasthi.
• The original Kannada title is ‘Hridaya Deepa’.
• The book covers Mushtaq’s literary work from 1990 to 2023.
• Recognized for vivid portrayals of familial and societal conflict in Karnataka.

Q7. Answer: (b) A landform formed at the mouth of a river

The correct answer is A landform formed at the mouth of a river.

Key Points
• Delta Definition: A delta is a landform that forms at the mouth of a river, where the river meets a body of water such as an ocean, sea, or lake.

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• Formation Process:
• Sediment Deposition: When a river flows into standing water, the velocity of the river decreases.
• As a result, the river deposits the sediments (sand, silt, clay) it has been carrying.
• These sediments accumulate and form a triangular or fan-shaped landform.
• Common Features:
• Deltas are characterized by multiple channels, which are called distributaries, spreading out from the main river.
• They often create fertile soil, making them important for agriculture.
• Famous Examples:
• Ganges Delta (India and Bangladesh)
• Nile Delta (Egypt)
• Mississippi Delta (USA)

Q8. Answer: (c) 5

The correct answer is 5.

Key Points

• Total Commands: The Indian Air Force (IAF) has a total of 7 commands, consisting of 5 operational commands and 2 functional commands.
• Operational Commands: These commands are directly involved in military operations and include air defense, air combat, and ground support.
• Functional Commands: These commands focus on specific functions such as training, maintenance, and strategic planning.
• Important Points:
• Operational commands are tasked with carrying out real-time military operations.
• Functional commands ensure efficient support for operational forces through specialized roles.
• These commands are spread across various regions and functions to ensure readiness and effectiveness of the IAF.

Q9. Answer: (a) tropical rainforest

Tropical rainforests are found in areas with high rainfall.

Key Points

Tropical rainforest:

• Found near the equator between the Tropic of Cancer (23°27'N) and the Tropic of Capricorn (23°27'S).
• Consistently high temperatures throughout the year.
• Generally, receive very high annual rainfall.
• Soils are nutrient-poor because nutrients are not stored in them for very long. The heavy rains wash organic material away from the soil.
• Extremely high biodiversity compared to other ecosystems.

Hence, the type of vegetation that is found in areas of heavy rainfall is tropical evergreen forests.

Additional InformationMountain forest: Mountain forests can be defined as forests on land with an elevation of 2 500 m above sea level or higher, irrespective of the slope, or on land with an elevation of 300–2 500 m and a slope with sharp changes in elevation within a short distance.

Deciduous forest: A deciduous forest is a type of forest dominated by trees that lose their foliage at the end of the growing season.

Q10. Answer: (b) 1950

The correct answer is 1950.

Key Points

• The Election Commission is a permanent and independent body established by the constitution of India.
• The Election Commission of India came into force on 25th January 1950.
• The headquarters of the Election Commission is Nirvachan Sadan, located in New Delhi.
• Article 324 of the Indian constitution mandates the Election Commission, to conduct elections to the Parliament and the State Legislatures.
• The Election Commission of India is not concerned with the elections to panchayats and municipalities in the state.
• The Election Commission consists of a Chief Election Commissioner and two Election Commissioners.
• The tenure of Election Commissioners is 6 years or 65 years of age, whichever is earlier.
• The Election Commissioners are appointed by the President.
• Sukumar Sen served as the first Chief Election Commissioner of India.

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• V. S. Ramadevi was the first woman to become a Chief Election Commissioner of India.

• As of 15 May 2022, Rajiv Kumar is the current Chief Election Commissioner of India.

Q11. Answer: (b) 21 days

The correct answer is 21 days.

Key Points

• In the Harijan Andolan of 1933, Mahatma Gandhi fasted for 21 days.

• This was a self-purification fast to support the movement against untouchability, and he urged Hindus to open temples and wells to Harijans.

• Harijan, which means Hari Ka Jan, the man of God, was given by Gandhi Ji in 1933 to Dalit and all other depressed classes after Puna Pact.

• Gandhi Ji decided for an untouchable prevention movement, he was always against untouchability.

• In 1933 he started a movement against it.

• He started traveling all over India from Wardha Ashram to fight against untouchability and for a social demand of socioeconomic and political support to Dalits by fellow Indians and the Government.

• His movement was known as Harijan Yatra which was a long journey that takes 9 months.

• In connection with Harijan upliftment work, Mahatma Gandhi visited Hyderabad on 9 March 1934.

Additional Information

• 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).

Q12. Answer: (a) Right to Private Property

Fundamental right:

• The fundamental rights are in Part III of the Indian Constitution

• Articles 12-35 of the Indian Constitution deal with Fundamental Rights.

• Right to Property ceased to be a fundamental right with the 44^(th) Constitution Amendment in 1978.

• Right to Property was made a Constitutional right under Article 300A

Articles of Fundamental Rights:

Right to Equality	**Articles 14 – 18**
Right to Freedom	Articles 19 – 22
Right against Exploitation	Articles 23 – 24
Right to Freedom of Religion	Articles 25 – 28
Cultural and Educational Rights	Articles 29 – 30
Right to Constitutional Remedies	Articles 32 – 35

Q13. Answer: (b) Kunchikal Falls

The correct answer is Kunchikal Falls.

Key Points

• Kunchikal Falls in the Shimoga district of Karnataka is the highest waterfall in India with a height of 1493 feet.

• Kunchikal Falls, also called Kunchikal Abbe, is located near Masthikatte-Hulikal bordering the Udupi-Shimoga districts of the state of Karnataka.

• Kunchikal falls is formed by the Varahi River.

Additional Information

• Angel Falls is a waterfall located in Venezuela.

• It is the tallest uninterrupted waterfall in the world with a height of 979 meters and a depth of 807 meters.

• Jog Falls is a waterfall on the Sharavati River in the Western Ghats running between the Uttara Kannada and Shimoga districts of Karnataka, India.

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• Vantawng Fall is located at a distance of about 137 km from Aizawl.

• It is located in Vanva river near Thenzawl.

Q14. Answer: (d) Justice V. Ramasubramanian

The correct answer is Justice V. Ramasubramanian.

In News

• Former Supreme Court judge Justice V. Ramasubramanian has been appointed as the Chairperson of the National Human Rights Commission (NHRC) in December 2024.

Key Points

• Justice V. Ramasubramanian is a retired judge of the Supreme Court of India, having served from September 2019 to June 2023.

• He has previously held positions as the Chief Justice of the Himachal Pradesh High Court and as a judge in the Madras and Telangana High Courts.

• His appointment fills the vacancy left by Justice Arun Kumar Mishra, whose tenure as NHRC Chairperson ended on June 1, 2024.

• Justice Ramasubramanian is known for his contributions to significant judgments, including those related to the 2016 demonetization policy.

Additional Information

• National Human Rights Commission (NHRC)

• Established in 1993, the NHRC is responsible for the protection and promotion of human rights in India.

• The Commission consists of a Chairperson, five full-time Members, and several ex-officio Members.

• The Chairperson is typically a former Chief Justice of India or a Supreme Court judge.

• Previous NHRC Chairpersons

• Justice Arun Kumar Mishra (June 2021 - June 2024)

• Justice H.L. Dattu (February 2016 - December 2020)

• Justice K.G. Balakrishnan (June 2010 - May 2015)

• Justice V. Ramasubramanian's Career Highlights

• Born on June 30, 1958, in Tamil Nadu.

• Served as a judge in the Madras High Court from 2006 to 2016.

• Appointed as the Chief Justice of the Himachal Pradesh High Court in June 2019.

• Elevated to the Supreme Court of India in September 2019.

Q15. Answer: (c) To defend the country against external threats

Correct Answer: (3) To defend the country against external threats

Key Points

• Defense: The primary role of the army is to defend the country against external threats, such as enemy attacks or invasions.

• National Security: The army ensures the safety and sovereignty of the nation by protecting its borders.

• Military Operations: The army is involved in combat operations and strategic defense to deter or neutralize threats from foreign adversaries.

• Support During Emergencies: In addition to defense, the army may be called upon for disaster relief and emergency assistance within the country.

• Peacekeeping: The army may also participate in peacekeeping missions under international agreements, maintaining peace in conflict zones around the world.

Q16. Answer: (c) Vitamin C

The correct answer is Vitamin C.

Key Points

• A large amount of Vitamin C is lost when they’re cooked in water.

• In fact, boiling reduces vitamin C content more than any other cooking method.

• Because vitamin C is water-soluble and sensitive to heat, it can leach out of vegetables when they’re immersed in hot water.

• B vitamins are similarly heated sensitive.

• Since boiling occurs at the highest temperature compared to other methods of cooking the nutrients lost in this method of cooking is the highest.

Additional Information

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• Water-soluble vitamins are those which are carried to the body's tissues but are not stored in the body.
• Vitamin C and some forms of Vitamin B complex are water-soluble.
• Vitamin: These are organic compounds that do not produce any energy but are required for our body.
• They are often known as essential vital nutrients, as they are required for the proper functioning of the body.
• Invented by F.G Hopkins.
• Term coined by C. Funk.
• Fat-soluble vitamins: They are soluble in organic solvents and are absorbed and transported in the same manner as fats do.
• Eg: Vit A, Vit D, Vit E, Vit K.

Important Points

Vitamin	Soluble in	Deficiency
A (Retinol)	Fat	Night blindness
D (Calciferol)	Fat	Rickets and osteomalacia
E (Tocopherols)	Fat	Less Fertility
K (Phylloquinone)	Fat	The problem in clotting of blood
B1 (Thiamin)	Water	Beriberi.
B2 (Riboflavin)	Water	Cracked skin, reddish eyes.
B3 (Niacin)	Water	Pellagra
B5 (Pantothenic acid)	Water	Pre-matured fraying of hair
B6 (Pyridoxine)	Water	Peripheral neuropathy
B7 (Biotin)	Water	Anaemia
B9 (Folic acid)	Water	The problem in pregnancy.
B12 (Cyanocobalamine)	Water	Pernicious anaemia.
C (Ascorbic acid)	Water	Scurvy

Q17. Answer: (c) Vitamin C

Option 3 is correct, i.e. Vitamin C.

• Scurvy is a disease resulting from a lack of vitamin C.
• The Source of vitamin C is ascorbic acid.
• Vitamin C is a water-soluble vitamin and antioxidant.
• It helps in the growth and repair of tissues in all parts of the body and maintain cartilage, bones, and teeth and also aid in the absorption of iron.
• Good sources of vitamin C include green leafy vegetables, broccoli, sweet potato, tomato, squash, etc.
• Early symptoms include weakness, feeling tired, curly hair, and sore arms and legs. Without treatment, decreased red blood cells, gum disease, and bleeding from the skin may occur.

Extra information:

Deficiency	Chemical Name	Disease	Symptoms
Vitamin A	Retinol	Nyctalopia (night blindness)	Poor vision at night.
Vitamin B -1	Thiamine	Beri Beri	Loss of appetite, weakness, pain in the limbs, shortness of breath and swollen feet or legs.
Vitamin C	Ascorbic Acid	Scurvy	Weakness, fatigue, and sore arms and legs.
Vitamin D	Cholecalciferol (D3) Ergocalciferol (D2)	Rickets	Delayed growth, bow legs, weakness, and pain in the spine, pelvis, and legs.

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Vitamin K	phylloquinone	hemorrhagic disease	This can cause excessive bleeding and bruising and, in severe cases, can lead to fatal bleeding into the brain.

Q18. Answer: (c) 18 or 19 years of age

The correct answer is 18 and 19 years of age.

Key Points

• Adolescence is the phase of life between childhood and adulthood, from ages 11 to 19 years.

• Many scientists believed that adolescence might end at 18 or 19 of age.

• Adolescence starts with puberty.

• It is difficult for early teens to change their physical traits and refrain from engaging in harmful behaviour. It can be difficult and uncomfortable to undergo changes in one's physical appearance, and refraining from risky behaviour like drinking or smoking can affect how one's peers see them.

• A new and stronger relationship with one's parents can be an exciting and eye-opening experience for late adolescents. Compared to childhood, early adolescence, and middle adolescence, late adolescents form a very different relationship with their parents. Because of this, late adolescence may bring about a fresh understanding and viewpoint of their parents, enhancing the link between the child and parent.

Additional Information

• Adolescence can be divided into three stages.

• Three stages of adolescence are- early, mid, and late adolescence.

Q19. Answer: (b) Cubic meter

The correct answer is a Cubic meter.

Key Points

• The unit of volume in the SI system is m^3.

• All matter occupies space (three-dimensional space).

• The measure of the volume of this three-dimensional space is called volume.

Additional Information

• One-dimensional figures (such as lines) and two-dimensional figures (such as triangles, quadrilaterals, squares, etc.) have zero volume.

• The mass contained in a unit volume of a substance is called the density of that substance.

• The magnitude (measure) of a two-dimensional (two-dimensional) shape of a plane (plane or curved plane) is called the area.

Q20. Answer: (c) Muscular Force

The correct answer is Muscular Force.

Key Points

• The force applied while pushing a car is muscular force, which is generated by the muscles in the body.

• When a person pushes a car, their muscles exert force on the car in the direction they want to move it. This force is transmitted through the body to the car.

• Unlike other forces, such as friction or gravitational force, muscular force is a voluntary force, controlled by the action of muscles and bones.

• The magnitude of muscular force depends on factors such as the individual's strength, endurance, and how effectively they can exert force on the object being pushed.

• In everyday scenarios, muscular force is essential for moving objects, lifting, and other physical activities requiring human effort.

Additional Information

• Frictional Force – This force is present between two surfaces in contact and resists the relative motion of the objects. In the case of pushing a car, friction also plays a role in preventing or limiting the car's movement based on the surface.

• Gravitational Force – This is the force exerted by the Earth on the car, pulling it downwards. However, it does not directly relate to the action of pushing the car unless it contributes to the car's weight.

• Applied Force – This is a general term for any force applied to an object, but it does not specifically refer to the action of using human muscles to push the car.

• Tension Force – This force occurs when an object is being pulled, such as a rope or string, and does not apply directly to the act of pushing a car.

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Q21. Answer: (b) Kilometers per hour (km/h)

The correct answer is Kilometers per hour (km/h).

Key Points

• A speedometer is a device found in vehicles, used to measure the speed at which a vehicle is moving.

• It generally displays the speed in the unit of kilometers per hour (km/h), especially in countries where the metric system is used, like India.

• This unit, km/h, is commonly used for measuring speed over road distances in most parts of the world.

• Some speedometers may also provide an option to switch between miles per hour (mph) and km/h, depending on the region or user preferences.

• For vehicles in countries like the United States and the United Kingdom, miles per hour (mph) is commonly displayed on the speedometer.

• The speedometer is an essential instrument for drivers to ensure they are traveling at safe and legal speeds while driving.

Additional Information

• Speed Units Used Around the World

• In countries like India, Australia, and most of Europe, the speedometer typically uses km/h as the unit of speed.

• In the United States and the United Kingdom, mph is the standard unit displayed on speedometers in vehicles.

• Other units of speed may include meters per second (m/s), though this is more commonly used in scientific contexts rather than in everyday road travel.

• Technology in Speedometers

• Modern vehicles often feature digital speedometers that provide more accurate readings compared to traditional analog dials.

• Some speedometers are also equipped with GPS-based technology, allowing for more precise speed tracking, particularly in varying conditions such as hilly terrain or under heavy traffic.

Q22. Answer: (b) Mitochondria

The correct answer is Mitochondria.

Key Points

• Mitochondria is is a double-layered cell organelle.

• The number of mitochondria in a single cell may be up to 50 to 5000.

• This energy is stored in the form of ATP (Adenosine Triphosphate).

Additional Information

• Ribosomes:

• Ribosomes are the protein factory in a cell.

• Ribosomes are membranous granular structures present in the cytoplasm.

• There are two types of ribosomes:

• Eukaryotic ribosomes.

• Prokaryotic ribosomes.

• Golgi bodies:

• Golgi bodies apparatus help in the storage and secretion of the protein.

• It was first described by Camillo Golgi in the year 1898.

• Endoplasmic reticulum:

• The Endoplasmic reticulum is a large network of membrane-bound tubes and sheets.

• The Endoplasmic reticulum membrane is similar in structure to the plasma membrane.

Q23. Answer: (b) Jam

The correct answer is Jam.

Key Points

• Sugar is commonly used in food processing and preservation, and one of its primary uses is in making jam.

• In the preparation of jam, sugar acts as both a sweetener and a preservative, allowing the jam to be stored for long periods without spoiling.

• Jam is made by cooking fruit with sugar, and in this process, sugar helps in the gel formation, which is essential for the jam to set properly.

• Jam can be made from various fruits, such as strawberries, raspberries, and mangoes, and sugar is the key ingredient that contributes to its flavor and texture.

• Besides jam, sugar is also used in a wide variety of other food products such as cakes, beverages, and candies, but in the

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context of this question, it is specifically linked to making jam.

Additional Information

• Preserving Food with Sugar

• Sugar is widely used in the preservation of fruits and vegetables, particularly in the making of jams and jellies.

• By helping fruits to release their pectin and sugars, sugar allows jams and jellies to thicken and set properly.

• Along with being a preservative, sugar also enhances the natural flavors of the fruits used in jams.

Q24. Answer: (a) Both Statement I and Statement II are correct

The correct answer is Butter is separated from cream by the churning method..

Key Points

• Churning is a process that separates the butter from cream by using mechanical agitation.

• During churning, cream is beaten, and as a result, butter separates out from the liquid. The liquid part is known as buttermilk.

• In the churning method, butter floats to the top, while buttermilk stays at the bottom due to their different densities.

• The butter obtained from this method can be used for various purposes in cooking, while buttermilk is often consumed as a refreshing drink or used in cooking as well.

• The process of separating butter from cream has been traditionally used in dairy farming for centuries and is still used today in both small-scale and large-scale dairy production.

Additional Information

• Other methods of separating butter:

• Modern butter-making: In modern butter-making factories, the churning process is carried out in large machines known as churners, which significantly speed up the process compared to manual methods.

• Clarified Butter: Butter can also be heated to separate the milk solids, resulting in clarified butter, also known as ghee, which is used extensively in South Asian cooking.

• Benefits of consuming butter:

• Butter is rich in essential fatty acids and fat-soluble vitamins such as Vitamin A, D, E, and K.

• When consumed in moderation, butter can be part of a healthy diet, especially when used in place of trans fats found in margarine and processed oils.

Q25. Answer: (d) temperature

• Thermometre is used to measure temperature not heat.

• Thermometers are based on the principal of thermal expansion. When a substance gets hotter, it expands to a greater volume. Nearly all substances exhibit this behavior of thermal expansion.

• As the temperature of the liquid in a thermometer increases, its volume increases. The liquid is enclosed in a tall, narrow glass (or plastic) column with a constant cross-sectional area. The increase in volume is thus due to a change in height of the liquid within the column.

Q26. Answer: (c) negative terminal

The correct answer is the negative terminal.

Key Points

• Cell Terminology:

• The shorter, thicker vertical line in the symbol of a cell represents the negative terminal.

• The longer, thinner vertical line in the symbol of a cell represents the positive terminal.

• A smaller line in the symbol for a cell represents its negative terminal.

• In the symbol for a cell, the positive terminal is a long line.

• A line connecting all the instruments indicates wire.

• Two/more cell symbols connected together indicate battery.

Q27. Answer: (b) residue

The correct answer is residue.

Key Points

• Filtrate -

• The filtration process is used to separate an insoluble solid from a liquid.

• After this process, the solid which collects in the filter paper is called the residue.

• Solute -

• The solute is a substance that dissolves in a solvent, that is, it has a dissolving nature.

• Solvent -

• That medium in which the solute is dissolved is called the solvent.

• For example, if lemon is dissolved in water to make lemonade, the lemon will be soluble and the water will be solvent.

Additional Information

• The element that is formed by mixing the solute and solvent is called a solution.

• Both solute and solvent have properties inside the solution.

• Different Types of Solutions-

• Depending upon the dissolution of the solute in the solvent, solutions can be categorized into supersaturated solution, unsaturated and saturated solutions.

• A supersaturated solution comprises a large amount of solute at a temperature wherein it will be reduced, as a result, the extra solute will crystallize quickly.

• An unsaturated solution is a solution in which a solvent is capable of dissolving any more solute at a given temperature.

• A saturated solution can be defined as a solution in which a solvent is not capable of dissolving any more solute at a given temperature.

Q28. Answer: (c) Newton

The correct answer is Newton

Key Points

• Newton is the SI unit of force.

• The SI unit system is an international system of units that is widely used for scientific and technical measurements.

• Force is a vector quantity that has both magnitude and direction.

• It is measured in terms of the amount of acceleration it can give to a mass.

Additional Information

• The SI unit of force, Newton, is named after Sir Isaac Newton in recognition of his work on classical mechanics.

• One Newton is defined as the force required to accelerate a one-kilogram mass by one meter per second squared.

• Force can be calculated using Newton's second law of motion: F = ma (Force = mass × acceleration).

• The concept of force is fundamental in physics and engineering, affecting various fields such as mechanics, electromagnetism, and thermodynamics.

Q29. Answer: (b) Sperm duct

The correct answer is Option [2] i.e.Sperm duct.

Key Points

• Reproductive Organs:

• The male reproductive organs comprise of a pair of testes, sperm ducts, and a penis.

• The sperms are produced by the testes. The sperms are very small in size with a head, a middle piece, and a tail.

• The female reproductive organs comprise of a pair of ovaries, oviducts, and the uterus.

• The eggs (ova) are produced by the ovaries.

• The development of the baby takes place in the uterus. A mature egg is released into the oviduct every month.

• The female reproductive system is framed to perform different functions:

• It creates egg cells that are essential for reproduction known as ova.

• The system is organized to deliver the ova to the region of fertilization.

• The egg fertilization takes place in the Fallopian tubes along with the sperm.

• The implanting in the walls of the uterus and initiating the stages of pregnancy is the next step of fertilized eggs.

• Other than these functions, the reproductive system also creates female sex hormones to maintain the reproductive cycle.

• The female reproductive system is composed of a pair of ovaries along with oviducts, vagina, cervix, uterus, and the external genitalia that are located in the pelvic region.

Q30. Answer: (c) Sodium chloride

The correct answer is Sodium chloride.

Key Points

• Sodium chloride, also known as table salt, is a mineral salt that is dissolved in major amounts in ocean water.

• It is estimated that the ocean contains about 35 grams of salt per liter of water, and about 85% of that salt is sodium chloride.

• Calcium chloride and calcium sulfate are also present in ocean water but in much smaller amounts compared to sodium chloride.

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• Calcium carbonate is a mineral that is found in the shells and skeletons of many marine organisms, but it is not dissolved in ocean water as much as sodium chloride.

• The high concentration of sodium chloride in ocean water is one of the reasons why it is not safe to drink without proper treatment.

Additional Information

• Calcium chloride is a salt that is commonly used as a de-icing agent on roads and sidewalks, as well as in food production and medical applications.

• Calcium sulphate, also known as gypsum, is a mineral that is used in construction, agriculture, and as a food additive.

• Calcium carbonate is used in a variety of industries, including construction, paper production, and as a dietary supplement.

• It is important to note that while sodium chloride is the most abundant mineral salt in ocean water, there are also many other dissolved substances that contribute to the overall composition of seawater.

Q31. Answer: (a) 2401

Given:

Number = 49

Calculation:

Square of 49:

49 × 49 = 2401

Therefore The square of 49 is: 2401

Q32. Answer: (c) 624

Given:

Numbers = 52 and 48

Calculation:

Prime Factorization

52 = 2 × 2 × 13

48 = 2 × 2 × 2 × 2 × 3

The highest powers of all prime factors

LCM = 2^4 × 3 × 13

LCM = 16 × 3 × 13 = 624

Therefore The Least Common Multiple (LCM) of 52 and 48 is: 624

Q33. Answer: (a) 16

Given:

Numbers = 50, 30, 0, 0, 0

Formula used:

Average = (Sum of numbers) / (Total number of values)

Sum = 50 + 30 + 0 + 0 + 0 = 80

Average = 80 / 5 = 16

Therefore The average is: 16

Q34. Answer: (b) 206388

Given:

Principal (P) = Rs. 9800

Rate of interest (R) = 78% per annum

Time (T) = 27 years

Formula used:

Simple Interest (SI) = (P × R × T) / 100

Calculation:

SI = (9800 × 78 × 27) / 100

SI = (9800 × 2106) / 100

SI = 20638800 / 100

SI = Rs. 206388

Therefore The simple interest earned on the investment is: Rs. 206388

Q35. Answer: (c) 90%

Given:
Total balloons = 20
Balloons that floated away = 2
Calculation:
Balloons left = Total balloons - Balloons that floated away
Balloons left = 20 - 2 = 18
Percentage of balloons left = (Balloons left / Total balloons) × 100
Percentage of balloons left = (18 / 20) × 100 = 0.9 × 100 = 90%
Therefore The percentage of balloons left is: 90%

Q36. Answer: (d) 32

Given:
112 : x = 7 : 2
Calculation:
112 / x = 7 / 2
112 × 2 = 7 × x
224 = 7x
x = 224 / 7
x = 32
Therefore The value of x is: 32

Q37. Answer: (c) 60

Given:
Average of three numbers = 31
Two of the numbers are 16 and 17
Calculation:
Average = (Sum of numbers) / (Total number of values)
Let the third number is x.
31 = (16 + 17 + x) / 3
31 × 3 = 16 + 17 + x
93 = 33 + x
x = 93 - 33
x = 60
Therefore The third number is: 60

Q38. Answer: (b) 165

Given:
7 × 22 + 11
Calculation:
7 × 22 + 11
154 + 11 = 165
Therefore The result is: 165

Q39. Answer: (b) 2000

Given:
Percentage = 25%
Value = 8000
Formula used:
Value = (Percentage × Total) / 100
Calculation:
Value = (25 × 8000) / 100
Value = 200000 / 100

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Value = 2000

Therefore 25% of 8000 is: 2000

Q40. Answer: (b) 231

Given:

Ratio of A to B = 8 : 11

A = 168

Calculation:

A / B = 8 / 11

168 / B = 8 / 11

168 × 11 = 8 × B

1848 = 8B

B = 1848 / 8

B = 231

Therefore The value of B is: 231

Q41. Answer: (d) 80

Given:

Total number of students = 160

Percentage of students who passed = 50%

Calculation:

Number of students who passed = (50 / 100) × 160 = 80

Number of students who failed = Total students - Students who passed

Number of students who failed = 160 - 80 = 80

Therefore The number of students who failed the exam is: 80

Q42. Answer: (b) 10

Given:

5 × 2 + (3.5 - 1.5) of (3 - 3)

Calculation:

5 × 2 + (3.5 - 1.5) of (3 - 3)

=> 5 × 2 + (3.5 - 1.5) of 0

=> 5 × 2 + 2 × 0

=> 10

Therefore The result is: 10

Q43. Answer: (c) 25

Given:

Numbers = 25, 75

Calculation:

The prime factorization of both numbers

25 = 5 × 5

75 = 5 × 5 × 3

The common factors are 5 × 5 = 25

Therefore The HCF of 25 and 75 is: 25

Q44. Answer: (a) 156

Calculation:

Let a be the side of a square.

So, the area of the square = a^2

New side = a + {(60/100) × a} = (160/100) × a = 1.6a

So, area of new square = $(1.6a)^2 = 2.56a^2$

Percentage increase in its area = $(2.56a^2 - a^2)/a^2 \times 100 = 156\%$

Therefore The correct answer is 156%.

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Shortcut TrickCalculation:

Side(+ 60%)	5	8
Side (+ 60%)	5	8
Area	25	64

So the percentage change in area = {(64 - 25)/25} × 100

=> 39 × 4 = 156%

Therefore The correct answer is 156%.

Q45. Answer: (c) 35 yr

Let;

Age of Rajan's father = p years

So, Age of Rajan = (p - 20) years

5 years ago;

Age of Rajan's father = (p - 5) years

Age of Rajan = (p - 25) years

According to question;

Age of father 5 years ago = 3 × Age of Rajan 5 years ago

(p - 5) = 3 × (p - 25)

p - 5 = 3p - 75

2p = 70

p = 35 years

So, Present age of Rajan's father = 35 years

Hence, "35 yr" is the correct answer.

Q46. Answer: (b) 39

Total number of students = 56

Arjun's rank from the beginning = 18th

Arjun's rank from the last = Total number of students - Arjun's rank from the beginning + 1

= 56 - 18 + 1

= 39

Hence, 39 is the answer.

Q47. Answer: (a) JHMC

In a certain code language, 'CUTE' is written as 'BTSD'.

Similarly, 'KIND' written in that code language as

KIND is written as JHMC.

Hence, "JHMC" is the correct answer.

Q48. Answer: (a) 2

Decoding signs:

Sign	R	Q	S	P
Stands For	•	×	•	÷

Given: (42P7Q5R2)S34 = ?

(42P7Q5R2)S34 = ? => (42 ÷ 7 × 5 + 2) - 34 = ?

=> (42 ÷ 7 × 5 + 2) - 34 = ?

=> (6 × 5 + 2) - 34 = ?

=> (30 + 2) - 34 = ?

=> 34 - 32 = ?

=> 2 = ?

Hence, "Option 1" is the correct answer.

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Q49. Answer: (d) 4

The logic followed here is,

ROW is common in both the language, and 257 is common in both the code.

So, the code for K is 4.

Hence, the correct answer is "Option 4".

Q50. Answer: (c) Maternal grandfather

Family chart:

Drawing the family tree,

So, the man is the maternal grandfather to that lady.

Hence, “Maternal grandfather” is the correct answer.

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