Agniveer Army GD 22 April 2024 (Shift 2) 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. Where is the Jallianwala Bagh situated?

(a) Amritsar
(b) Surat
(c) Kolkata
(d) Lucknow

Q2. Who is the present Education Minister of India?

(a) Dharmendra Pradhan
(b) Shri Raj Kumar Singh
(c) Mansukh L. Mandaviya
(d) None of these

Q3. In which state is the festival of Gudi Padwa specially celebrated?

(a) Maharashtra
(b) Punjab
(c) Goa
(d) Odisha

Q4. Raj Ghat is the memorial of _____.

(a) Indira Gandhi
(b) Rajiv Gandhi
(c) Mahatma Gandhi
(d) Jawaharlal Nehru

Q5. Chilka Lake is a

(a) Salt water lake
(b) Fresh water lake
(c) Fresh water lake in the monsoon season
(d) Salt water lake in summer season

Q6. When did the 97th Constitutional Amendment Act take place?

(a) 2008
(b) 2014
(c) 2009
(d) 2011

Q7. Who is the Ex Officio Chairman of the Rajya Sabha?

(a) The President
(b) The Vice President
(c) The Prime Minister

(d) None of the above

Q8. Who has become the Chief Justice of Uttarakhand in February 2024?

(a) Justice Ritu Bahri
(b) Justice Vipin Sanghi
(c) Justice Sanjaya Kumar Mishra
(d) Justice Manoj Kumar Tiwari

Q9. Unfinished is the autobiography of which actress?

(a) Parineeti Chopra
(b) Deepika Padukone
(c) Priyanka Chopra Jonas
(d) Alia Bhatt

Q10. Which army has the rank of Field Marshal?

(a) Indian Army
(b) Indian Coast Guard
(c) Indian Air Force
(d) Indian Navy

Q11. Gangotri Glacier lies in which state?

(a) Arunachal Pradesh
(b) Uttarakhand
(c) Himachal Pradesh
(d) Sikkim

Q12. Which country gained independence along with India in 1947?

(a) Bangladesh
(b) Sri Lanka
(c) Pakistan
(d) Nepal

Q13. According to 2011 census which of the following state has the largest rural population?

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

Q14. Who received the Bharat Ratna Award in 2014?

(a) P.T. Usha
(b) Abdul kalam
(c) Sachin Tendulkar
(d) Virat Kohli

Q15. Where was the 54th meeting of the World Economic Forum held?

(a) Davos, Switzerland
(b) Copenhagen, Denmark
(c) Helsinki, Finland
(d) Oslo, Norway

GENERAL SCIENCE

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Q16. Plant cell wall is made up of:

(a) Cellulose
(b) Protein
(c) Chitin
(d) Keratin

Q17. Hydra reproduces by:

(a) Budding
(b) Binary fission
(c) Cloning
(d) In vitro fertilization

Q18. Which of the following diseases is caused by fungus?

(a) Ringworm
(b) Diarrhoea
(c) Small pox
(d) Polio

Q19. The chemical name of 'Vitamin A' is

(a) Ascorbic acid
(b) Thiamine
(c) Retinol
(d) Tocopherol

Q20. Which of the following is a multicellular organism?

(a) Paramoecium
(b) Amoeba
(c) Sponge
(d) Chlamydomonas

Q21. What is the chemical formula of Methanoic acid?

(a) H_2SO_4
(b) H_2CO_3
(c) $HCOOH$
(d) CH_3COOH

Q22. What is the dominant chemical present in detergent powder?

(a) Calcium carbonate
(b) Sodium carbonate
(c) Hydrochloric acid
(d) Sodium alkyl sulphate

Q23. Which non-metal exist in liquid state at room temperature?

(a) Mercury
(b) Iodine
(c) Bromine
(d) Chlorine

Q24. Who discovered pH scale?

(a) Lavoisier
(b) J.J Thompson
(c) Chadwick
(d) Sorensen

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Q25. What is the molecular formula for hydrochloric acid?

(a) H2SO4
(b) HCl
(c) KOH
(d) HNO3

Q26. What is the SI unit of force?

(a) Kip
(b) Pascal
(c) Newton
(d) Dyne

Q27. A car increases its velocity from 10 m/s to 20 m/s in 5 seconds. Find its acceleration (in m/s^2)?

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

Q28. The law of gravitation is related to?

(a) Density
(b) Mass
(c) Volume
(d) Velocity

Q29. Which of the following substances takes the shape of the container it is kept in?

(a) Solid
(b) Liquid
(c) All of these are correct
(d) None of these

Q30. Wire of heater is made of which of the following?

(a) Nichrome
(b) Tungsten
(c) Silver bromide
(d) Sodium Thiosulfate

MATHS

Q31. If x : 4 : : 6 : 8. What is the value of x ?

(a) 10
(b) 3
(c) 6
(d) 12

Q32. If (x × 1/4 = 6), what is the value of (x)?

(a) 24
(b) 36
(c) 40
(d) 12

Q33. "How many red balls are there if a bag contains 160 green and red balls combined, and 40% of the total balls are green?"

(a) 87
(b) 96
(c) 100

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(d) 120

Q34. What is the area of a rectangle with a length of 15 cm and a breadth of 9 cm?

(a) 140 cm2
(b) 155 cm2
(c) 135 cm²
(d) 150 cm²

Q35. What is the largest number that divides both 24 and 36 exactly?

(a) 18
(b) 9
(c) 12
(d) 10

Q36. What is the value of (x) if (x/4) = (6/8) ?

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

Q37. What will be the average of the last 10 numbers if the average of 20 numbers is 8 and the average of the first 10 numbers is 10?

(a) 20
(b) 8
(c) 12
(d) 6

Q38. How many diagonals are there in a square?

(a) 1
(b) 2
(c) 4
(d) 6

Q39. "By what number will the largest two-digit number be divisible?"

(a) 9,11
(b) 5,7
(c) 7, 8
(d) 5,6

Q40. What is the rate of simple interest if the interest earned is Rs.650 on a principal amount of Rs.1300 over a period of 10 years?

(a) 12%
(b) 5%
(c) 10%
(d) 20%

Q41. "What will be the ratio if 100 cm is divided by 50 cm?"

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

Q42. What is the decimal form of 25%?

(a) 0.25
(b) 1.25
(c) 6.25

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(d) 0.5

Q43. What is the result of simplifying the expression 35 - 1 + 15over3 × 2 + 1 = ?

(a) 40
(b) 55
(c) 67
(d) 45

Q44. What is the value of sin 45° = ?

(a) 1over√2
(b) 1
(c) 1over√3
(d) 0

Q45. "What is the average of the first four odd prime numbers?"

(a) 1.2
(b) 6.5
(c) 5.4
(d) 4.8

LOGICAL REASONING

Q46. Find the next number of the series.

0, 3, 8, 15, ?

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

Q47. Murali is 14^(th) from the right-end in a row of 40 students. What is his position from the left-end?

(a) 27th
(b) 26th
(c) 28th
(d) 25th

Q48. In a certain code language, 'All the best' is coded as '104'. What is the code for 'Best of luck' ' in that code language?

(a) 114
(b) 104
(c) 110
(d) 120

Q49. Select the option that represents the correct order of the given words as they would appear in an English dictionary.

1. Dish
2. Disease
3. Discuss
4. Disjoin
5. Disgrace

(a) 2, 3, 1, 5, 4
(b) 2, 3, 5, 1, 4
(c) 3, 2, 5, 1, 4
(d) 3, 2, 1, 5, 4

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Q50. Select the option that can replace the question mark (?) in the following series.

Q, N, K, H, E, ?

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

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) Amritsar

The correct answer is Amritsar.

• Jallianwala Bagh is a public garden in Amritsar famous for being one of the most tragic yet landmark events in the history of India.

• This is where the Amritsar Massacre of 1919 took place.

Key Points

• The massacre of Jallianwala Bagh, also known as the Amritsar Massacre, took place on 13 April 1919 under General Dyer's orders, who ordered the firing of protestors gathered at Jallianwala Bagh to condemn the detention of two national leaders, Satya Pal and Saifuddin Kitchlew and the Rowlatt Act.

• The British government formed the Hunter Commission to investigate the shootings of Jallianwala Bagh.

• The committee condemned the incident but did not bring any criminal or disciplinary action against General Dyer.

Additional Information

• Rowlatt Act:

• The Rowlatt Act (1919) repressed political activities and allowed the detention of political prisoners without trial for two years.

• It was passed in 1919 on the recommendations of the Sedition Committee chaired by Sir Sidney Rowlatt.

Q2. Answer: (a) Dharmendra Pradhan

The correct answer is Dharmendra Pradhan.

Key Points

• Dharmendra Pradhan is the present Education Minister of India.

• Dharmendra Pradhan is an Indian politician serving as the Minister of Education and Minister of Skill Development and Entrepreneurship in the Government of India.

• He has also been the Minister of Petroleum & Natural Gas and Minister of Steel.

Additional InformationImportant Cabinet Ministers:

Shri Rajnath Singh	Ministry of Defence
Shri Nitin Jairam Gadkari	1. Ministry of Road Transport and Highways
Shri Narayan Tatu Rane	Ministry of Micro, Small and Medium Enterprises
Smt. Nirmala Sitharaman	1. Ministry of Finance 2. Ministry of Corporate Affairs
Shri Narendra Singh Tomar	1. Ministry of Agriculture & Farmers Welfare
Shri Sarbanada Sonowal	1. Ministry of Ports, Shipping and Waterways 2. Ministry of AYUSH
Dr. Virendra Kumar	Ministry of Social Justice and Empowerment

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Dr. Subrahmanyam Jaishankar	Ministry of External Affairs
Shri Ramchandra Prasad	Ministry of Steel
Shri Arjun Munda	Ministry of Tribal Affairs
Smt. Smriti Zubin Irani	1. Ministry of Women and Child Development
Mansukh Mandaviya	1. Ministry of Health and Family Welfare 2. Ministry of Chemical Fertilizers
Shri Ashwini Vaishnav	1. Ministry of Railways 2. Ministry of Communications 3. Ministry of Electronics and Information Technology
Shri Piyush Goyal	1. Ministry of Textiles 2. Ministry of Commerce and Industry 3. Ministry of Consumer Affairs, Food and Public Distribution
Shri Dharmendra Pradhan	1. Ministry of Education 2. Ministry of Skill Development and Entrepreneurship
Smriti Irani	Ministry of Minority Affairs
Shri Pralhad Joshi	1. Ministry of Parliamentary Affairs 2. Ministry of Coal 3. Ministry of Mines
Shri Jyotiraditya M. Scindia	Ministry of Civil Aviation
Shri Giriraj Singh	1. Ministry of Rural Development 2. Ministry of Panchayati Raj
Shri Gajendra Singh Shekhawat	Ministry of Jal Shakti
Shri Pashu Pati Kumar Paras	Ministry of Food Processing Industries
Shri Kiren Rijiju	Ministry of Law and Justice
Shri Raj Kumar Singh	1. Ministry of Power 2. Ministry of New and Renewable Energy
Shri Hardeep Singh Puri	1. Ministry of Petroleum and Natural Gas 2. Ministry of Housing and Urban Affairs
Shri Bhupender Yadav	1. Ministry or Environment, Forest and Climate Chane 2. Ministry of Labour and Employment
Dr. Mahendra Nath Pandey	Ministry of Heavy Industries
Shri Parshottam Rupala	Ministry of Fisheries, Animal Husbandry and Dairying
Shri G. Kishan Reddy	1. Ministry of Culture 2. Ministry of Tourism 3. Ministry of Development of North Eastern Region
Shri Anurag Singh Thakur	1.Ministry of Information and Broadcasting 2. Ministry of Youth Affairs and Sports

Q3. Answer: (a) Maharashtra

The correct answer is Maharashtra.

Key Points:

• Gudi Padwa, which is mostly observed in the state of Maharashtra, ushers in the harvest season.

• According to the lunisolar Hindu calendar, Maharashtrians celebrate the day as New Year's Day.

• Gudi, which refers to Brahma's flag, and Padwa, Padva, or Paddava, which refers to the first day of the moon's bright phase, are the two terms that make up the phrase "Gudi Padwa."

• According to the Hindu lunisolar calendar, Gudi Padwa is observed on the first day of Chaitra, which, according to the Gregorian calendar, often occurs between March and April.

• In 2022, Gudi Padwa was celebrated on 2nd April.

Important Points:

• Gudi Padwa is mentioned in numerous myths and legends.

• It is stated in the Brahma Purana, one of the revered Hindu texts, that Lord Brahma restored the universe after a natural disaster killed everyone and stopped time.

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• After Brahma's efforts, time was reset on this day, ushering in a new era of truth and justice. On this day, Lord Brahma is worshipped as a result.

Additional Information:

Important Festivals of North East India	
State	Festivals
Arunachal Pradesh	Boori Boot, Myoko, Dree, Pongtu, Losar, Monpa festival
Assam	Ambubachi, Bhogali Bihu, Baishagu, Dehing Patkai
Mizoram	Chapcharkut Festival
Nagaland	Hornbill festival, Tsukheneye, Sekreny
Meghalaya	Nongkrem festival, Khasis festival, Wangla
Manipur	Yaoshang, Porag, Chavang Kut
Tripura	Kharchi Puja

Q4. Answer: (c) Mahatma Gandhi

The correct answer is Mahatma Gandhi

Key Points

• Raj Ghat is the memorial of Mahatma Gandhi.

Mahatma Gandhi:

• He was born on October 2, 1869, in Porbandar.

• His father's name was Karamchand Gandhi, who was the dewan of Porbandar in Gujarat and Putlibai Gandhi was the mother of Mahatma Gandhi.

• Kasturba Gandhi was known as the wife of Mahatma Gandhi.

• His first satyagraha was Champaran Satyagraha in 1917.

• Rabindranath Tagore called him Mahatma.

• Autobiography: My experiments with the truth.

• He was assassinated on January 30, 1948.

Additional Information

Samadhi Sthal	Name
Chaitanya Bhoomi	B.R. Ambedkar
Vijay Ghat	Lal Bahadur Shastri
Shakti Sthal	Indira Gandhi
Kisan Ghat	Charan Singh
Veer Bhumi	Rajiv Gandhi
Shantivan	Jawaharlal Nehru

Q5. Answer: (a) Salt water lake

The correct answer is Saltwater lake.

Key Points

• Chilika is Asia’s largest and world’s second-largest lagoon.

• It spreads over Puri, Khurda and Ganjam districts of Odisha on the east coast of India, at the mouth of the Daya River.

• It is the largest wintering ground for migratory birds on the Indian subcontinent.

• In 1981, it was designated the first Indian wetland of international importance under the Ramsar Convention.

• Nalbana Bird Sanctuary or Nalbana Island is the core area of the Chilika Lake.

• Satapada, a Sea Mouth Island where Chilika Lake meets the Bay of Bengal, is home to the Irrawaddy dolphins.

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Q6. Answer: (d) 2011

The correct answer is Option 4, i.e. 2011.

Key Points

• The 97th Constitutional Amendment Act of 2011 gave constitutional status and protection to co-operative societies.

• In this context, it made the following three changes in the Constitution:

• It made the right to form cooperative societies a fundamental right (Article 19).

• It included a new Directive Principle of State Policy on the promotion of cooperative societies (Article 43-B).

• It added a new Part IX-B in the Constitution which is entitled as “The Cooperative Societies” (Articles 243-ZH to 243-ZT).

• The new Part IX-B contains various provisions to ensure that the cooperative societies in the country function in a democratic, professional, autonomous, and economically sound manner.

• It empowers the Parliament in respect of multi-state cooperative societies and the state legislatures in respect of other cooperative societies to make the appropriate law.

Q7. Answer: (b) The Vice President

The correct answer is The Vice President.

Key Points

• The Vice President of India is the ex-officio Chairman of the Rajya Sabha. The House conjointly elects a Deputy Chairman from among its members.

Additional Information

• The president is the officer in whom the chief Govt power of a nation is unconditional. The president of a republic is the head of state.

• The Prime Minister of the Republic of India is the leader of the manager branch of the Govt of India.

• The prime minister is the chief authority to the president of the Asian nation and also the head of the Union Council of Ministers.

• They’ll be a member of any of the 2 homes of the Parliament of India—the Lok Sabha (House of the People) and also the Rajya Sabha (Council of the States); however need to be a member of the organization or coalition, having a majority within the Lok Sabha.

Q8. Answer: (a) Justice Ritu Bahri

The correct answer is Justice Ritu Bahri.

Key Points

• Ritu Bahri is the Chief Justice of the Uttarakhand High Court.

• She assumed office on 4 February 2024.

• Ritu Bahri is the first woman Chief Justice of the Uttarakhand High Court.

• She is the former Acting Chief Justice of Punjab and Haryana High Court.

• He or She is appointed by the president of India with the advice of the chief justice and the governor of Uttarakhand.

• The Chief Justice of the Uttarakhand High Court is the highest presiding judicial officer in the state of Uttarakhand and the custodian of the Uttarakhand High Court.

Q9. Answer: (c) Priyanka Chopra Jonas

The correct answer is Priyanka Chopra Jonas.

Key Points

• The memoir titled ‘Unfinished’ is written by Bollywood actress Priyanka Chopra Jonas.

• With the release of her first novel, "Unfinished: A Memoir," which she described as "honest, raw and vulnerable," actor-producer Priyanka Chopra Jonas officially became an author.

• The end result is a book published by the imprint of Michael Joseph that covers her 20-year dual-continental career as an actor and producer and her role as a Goodwill Ambassador for UNICEF.

• The memoir promises to offer insights into the childhood of Priyanka Chopra Jonas in India, her formative adolescent years in the US.

Q10. Answer: (a) Indian Army

The correct answer is the Indian Army.

Key Points

• The rank of Field Marshal is a five-star rank in the Indian Army, which is the highest possible rank.

• This honorary rank has been conferred very rarely and signifies supreme leadership and exceptional service to the nation.

• Only two officers of the Indian Army have been awarded this rank: General S.H.F.J. Manekshaw and General K.M. Cariappa,

highlighting its exclusivity.

Additional Information

• Indian Coast Guard: As a maritime security organization of India, it mainly focuses on safeguarding India's maritime interests. Its highest rank is Director-General.

• Border Security Force (BSF): It is a paramilitary force charged with guarding India's land borders. The highest rank in the BSF is Director General.

• Indian Navy: The corresponding highest rank in the Indian Navy is Admiral of the Fleet. However, it is an honorary/wartime rank that has never been awarded.

• These distinctions reflect organized hierarchical structures within the Indian Armed Forces and other security agencies, each tailored to their specific operational mandates.

Q11. Answer: (b) Uttarakhand

The correct answer is Uttarakhand.

Key Points

• Gangotri Glacier is located in the Uttarkashi district of Uttarakhand state in India.

• It is one of the primary sources of the Ganges river and is situated at an altitude of 4,100 meters above sea level.

• The glacier is a popular trekking destination and attracts a large number of tourists every year.

• Gangotri Glacier is also a site of religious significance, and many pilgrims visit the place as a part of the Chota Char Dham Yatra.

Additional Information

• Option 1) Arunachal Pradesh: Arunachal Pradesh is a state in Northeast India.

• It is known for its scenic beauty and is home to many glaciers and snow-capped mountains. However, Gangotri Glacier is not located in Arunachal Pradesh.

• Option 3) Himachal Pradesh: Himachal Pradesh is another state in North India known for its picturesque landscapes and mountain ranges.

• However, Gangotri Glacier is not located in Himachal Pradesh.

• Option 4) Sikkim: Sikkim is a small state in Northeast India located in the Himalayas.

• It is known for its natural beauty and is home to many glaciers and snow-capped mountains.

• However, Gangotri Glacier is not located in Sikkim.

• Hence, the statement "Gangotri Glacier lies in which state?" is correctly answered by option 2, Uttarakhand.

Q12. Answer: (c) Pakistan

The correct answer is Pakistan.

Key Points

• Pakistan gained independence from British rule along with India in 1947.

• The partition of British India into two separate states, India and Pakistan, occurred on August 14 for Pakistan and August 15 for India in 1947.

• The division was based on religious lines, leading to the establishment of the Islamic Republic of Pakistan and the Republic of India.

Additional Information

• Bangladesh: Was originally part of Pakistan known as East Pakistan and gained independence in 1971 following the Bangladesh Liberation War.

• Sri Lanka: Then known as Ceylon, gained independence from British rule in 1948, a year after India and Pakistan.

• Nepal: Was never under British colonial rule, and thus did not gain independence in 1947. It is one of the few countries in the region to have maintained its independence throughout history.

Q13. Answer: (b) Uttar Pradesh

Option 2 is correct, i.e. Uttar Pradesh.

According to the 2011 census, Uttar Pradesh has the largest rural population with 155.11 million rural folks.

• Know about Uttar Pradesh:

• Capital: Lucknow.

• Formed on: 24 January 1950.

• Language: Hindi, Urdu, Bhojpuri.

• Major Rivers: Ganga, Yamuna, Ramganga, Gomti and Ghagra.

• World Heritage Site: Agra Fort, Fatehpur Sikri, Taj Mahal.

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• National Parks: Dudhwa National Park.

• Tiger Reserve: Amangarh (buffer of Corbett TR), Dudhwa, Pilibhit.

Q14. Answer: (c) Sachin Tendulkar

The correct answer is Sachin Tendulkar.

Key Points

• Sachin Tendulkar received the Bharat Ratna Award in the year 2014.

• The Bharat Ratna is the highest civilian award in India, given for exceptional service towards the advancement of art, literature, and science, and in recognition of public service of the highest order.

• Sachin Tendulkar is a retired Indian cricketer famously known as "Master Blaster" and is considered to be one of the greatest batsmen in the history of cricket.

• He was awarded the Bharat Ratna for his contributions to Indian cricket.

Additional Information

• The Republic of India's highest civilian honor is the most prestigious is the Bharat Ratna.

• The award, which was established on January 2, 1954, is given in recognition of "exceptional service/performance of the highest order" and is given without regard to a person's race, profession, position, or sex.

• A peepal leaf-shaped medallion and a Sanad (certificate) with the President's signature are given to the recipients.

The award is not accompanied by a financial grant.

• In the Indian hierarchy, those who have received the Bharat Ratna are ranked seventh.

Q15. Answer: (a) Davos, Switzerland

The correct answer is Davos, Switzerland.

Key Points

• The 54th meeting of the World Economic Forum was held at Davos, Switzerland.

About the World Economic Forum (WEF):

• The World Economic Forum is the International Organization for Public-Private Cooperation.

• It was established in 1971 as a not-for-profit foundation that is headquartered in Geneva, Switzerland.

• The WEF was founded by Klaus Schwab, a business professor at the University of Geneva.

• The Forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.

• Reports released by the WEF - Global Competitiveness Report, the Global Risks Report and the Global Gender Gap Report.

Q16. Answer: (a) Cellulose

The Correct Answer is Cellulose.

Key Points

• Plant cell walls are primarily made of cellulose.

• Cellulose fibers are long, linear polymers of hundreds of glucose molecules.

Important Points

• Chitin is a fibrous substance consisting of polysaccharides, which is the major constituent in the exoskeleton of arthropods and the cell walls of fungi.

• Keratin is the type of protein that makes up your hair, skin, and nails.

• Keratin can also be found in your internal organs and glands.

• Keratin is a protective protein, less prone to scratching or tearing than other types of cells your body produces.

• Proteins are essential nutrients for the human body.

• They are one of the building blocks of body tissue and can also serve as a fuel source.

Q17. Answer: (a) Budding

The correct answer is Budding.

• Budding is an asexual mode of reproduction.

Key Points

• In this process, a new organism is developed from a small part or outgrowth of the parent's body.

• Organism reproduced by budding is a clone and is genetically identical to the parent organism.

• Organisms such as hydra reproduce by means of budding.

• In hydra, a bud develops as an outgrowth due to repeated cell division at one specific site.

• These buds develop into tiny individuals and after full maturation get detached from the parent body and become new independent individuals.

Q18. Answer: (a) Ringworm

The correct answer is Ringworm.

Key Points

• Ringworm is caused by a type of fungus that eats keratin.

• The fungus that causes ringworm is called Microsporum.

• Ringworm is also known as dermatophytosis.

• Liverworts are a group of non-vascular plants similar to mosses.

Important Points

• The body of the fungus is made up of filaments called Mycelium.

• A widely used antibiotic penicillin is produced from Penicillium notatum.

• Fungal diseases: Athlete foot, Ringworm, Candidiasis, etc.

Additional Information

• Smallpox:

• It is caused by the variola virus.

• It happens due to the change in weather conditions.

• Edward Jenner made the vaccine for Small Pox.

• Polio:

• Polio or Poliomyelitis is an infectious disease caused by the polio virus. Polio is transmitted through contaminated water or food, or contact with an infected person.

• Poliomyelitis, or simply Polio, is a highly contagious infectious disease caused by three types of Poliovirus.

• The Poliovirus is a virus that destroys the nervous system causing paralysis.

• Poliovirus is a highly contagious virus specific to humans.

• Jonas Salk discovered and developed the first polio vaccine.

• The first polio vaccine was the inactivated polio vaccine which came into use in 1955.

Q19. Answer: (c) Retinol

The correct answer is Retinol.

Key Points

• Retinol is the fat-soluble vitamin retinol.

• The chemical name of Vitamin A is Retinol.

• Deficiency of vitamin A causes night blindness.

• Vitamin A can be found in many fruits, vegetables, fish and dairy products

Thus, we can conclude that the chemical name of 'Vitamin A' is Retinol.

Additional Information

Vitamin	Chemical Name
Vitamin A	Retinol
Vitamin C	Ascorbic Acid
Vitamin B1	Thymine
Vitamin B2	Riboflavin
Vitamin B3	Niacin
Vitamin B5	Pantothenic acid
Vitamin B7	Biotin
Vitamin C	Ascorbic acid
Vitamin D	Cholecalciferol
Vitamin E	Tocopherol

Q20. Answer: (c) Sponge

The correct answer is Sponge.

Key Points

• Sponges belong to the phylum Porifera.

• They are generally marine and mostly asymmetrical animals.

• These are primitive multicellular animals and have a cellular level of organization.

• "Spongilla" is a freshwater sponge.

• It is a member of the family Spongillidae

• It is generally found in lakes, ponds, and slow streams

Additional Information

• Paramoecium is a single-celled freshwater animal that has a characteristic slipper-like shape and is covered with cilia.

• An amoeba often called an amoeboid, is a type of cell or unicellular organism which has the ability to alter its shape, primarily by extending and retracting pseudopods.

• Chlamydomonas is a genus of green algae consisting of about 150 species all unicellular flagellates, found in stagnant water and on damp soil, in freshwater, seawater, and even in snow as "snow algae".

Q21. Answer: (c) HCOOH

Option 3 is correct, i.e. HCOOH.

Key Points

• The scientific name of HCOOH is formic acid.

• Formic acid is the other name of Methanoic acid.

• An acid is a compound that produces hydrogen ions when it dissolves in solution. The acidic property depends on the concentration of the Hydrogen ion in the solution.

• H+ ion cannot exist alone. It always conjugates with the water and forms hydronium ion(H^3O+).

• If the concentration of H+ ion is more then it is called the Strong acid. Example: Hydrochloric acid(HCl), Sulphuric acid (H2SO4), Nitic acid(HNO3), etc.

• It the concentration of H+ ion is less then it is called the weak acid. Example: Acetic acid(CH3COOH), Carbonic acid(H2CO3), etc.

Q22. Answer: (b) Sodium carbonate

The correct answer is Sodium carbonate

Key Points

• _()Sodium carbonate (Na2CO3), also known as soda ash is a sodium product primarily used to make detergents and soaps.

• Sodium carbonate (Na2CO3) is an inorganic compound found in large natural deposits and mines. Its common name is washing soda and it is manufactured by the Solvay-ammonia process.

Additional Information

• Detergents are generally ammonium or sulphonate salts of long-chain carboxylic acids. They have almost the same properties as soaps but they are more effective in hard water.

• Amine Oxide, Carboxymethyl Cellulose (CMC), Citric Acid, Cyclodextrin, Alcohol Ethoxylate (AE) Non-ionic surfactant, Alkyl (or Alcohol) Ethoxy Sulphate (AES) and Alkyl Sulphate (AS) Anionic surfactant are some other chemicals present in detergents.

• Detergents with the straight chain of hydrocarbons are preferred over the branched chain as the latter are non-biodegradable and consequently cause environmental pollution.

Name	Chemical Formula
Calcium carbonate	CaCO3
Hydrochloric acid	HCl
Sodium alkyl sulphate	C_nH_(2n+1)OSO2ONa

Q23. Answer: (c) Bromine

The correct answer is Bromine.

• Bromine is a chemical element with the symbol Br and atomic number 35. It is the third-lightest halogen, and is a fuming red-brown liquid at room temperature that evaporates readily to form a similarly coloured gas.

• Its properties are thus intermediate between those of chlorine and iodine.

• It is the Non-metal, which exists in the liquid state at room temperature

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Key Points

• Bromine is used in many areas such as agricultural chemicals, dyestuffs, insecticides, pharmaceuticals and chemical intermediates.

• Some uses are being phased out for environmental reasons, but new uses continue to be found.

• Bromine compounds can be used as flame retardants.

Additional Information

• Mercury is a chemical element with the symbol Hg and atomic number 80.

• Iodine is a chemical element with the symbol I and atomic number 53.

• Iodine is a trace element that is naturally present in some foods, is added to some types of salt, and is available as a dietary supplement.

• Chlorine is a chemical element with the symbol Cl and atomic number 17.

• Chlorine kills bacteria – it is a disinfectant.

• It is used to treat drinking water and swimming pool water.

Q24. Answer: (d) Sorensen

The correct answer is Sorensen.

Key Points

• The pH scale was invented by the Danish biochemist Soren Peter Lauritz Sorensen.

• He introduced this scale in 1909 to measure the acidity and basicity of substances.

Additional Information

pH Scale:

• pH is a measure of how acidic/basic a substance is.

• pH stands for the potential of hydrogen, which refers to the concentration of hydrogen ions in a solution.

• The range goes from 0 - 14, with 7 being neutral. pHs of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base.

• pH is really a measure of the relative amount of free hydrogen and hydroxyl ions in the water.

Q25. Answer: (b) HCl

The correct answer is HCl.

Key Points

• The molecular formula for hydrochloric acid is HCl.

• Properties of Hydrochloric Acid:

• Strongly acidic

• Viscous and colourless

• Highly corrosive acid

• Pungent smell

• Properties dependent upon concentration - Melting and boiling point, pH, and density

• Uses of HCl:

• Used in rubber and textile industries.

• Production of chlorides, fertilizers, dye, and organic compounds Refining of metals.

• Regulate pH of solutions.

• Unblock pores in oil wells.

Q26. Answer: (c) Newton

The correct answer is Newton.

• Newton is the SI unit of force.

Key Points

• Force:

• Force is that external cause which when acts on a body, changes or tries to change the initial state of the body.

• Force = mass × acceleration

• Its S.I. unit is Newton (kg. ms^(-2)).

• Force is a vector quantity.

• Dyne is the CGS unit of force.

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Additional Information

• Pressure is defined as a force acting normally on the unit area on the surface.

• SI unit of pressure is N/m^2 also called Pascal (Pa).

• Pressure is a scalar quantity.

Q27. Answer: (c) 2

The correct answer is 2.

CALCULATION:

Given - Initial velocity (U) = 10 m/s, Final velocity (V) = 20 m/s and time (t) = 5 sec

• Acceleration can be calculated by using equations of motion

=>V = U + at

=> $a=(V-U)/t=(20-10)/5=10/5=2\ m/s^2$

Q28. Answer: (b) Mass

The correct answer is Mass.

Key Points

• The law of gravitation, introduced by Sir Isaac Newton, explains the force of attraction between two objects is directly proportional to the product of their masses.

• This fundamental principle indicates that every object in the universe attracts every other object with a force that is dependent on its mass.

• The greater the mass of the objects, the stronger the gravitational pull between them.

Additional Information

• Density: Refers to the mass per unit volume of a substance but doesn't directly influence the gravitational force according to the law of gravitation.

• Volume: Is the quantity of three-dimensional space enclosed by a closed surface, and like density, it doesn't directly factor into the law of gravitation, which is mainly concerned with mass.

• Velocity: Refers to the speed of something in a given direction. While velocity can affect the orbits of objects under gravity, the law of gravitation itself is solely about mass and the distance between masses, not their velocity.

Q29. Answer: (b) Liquid

The correct answer is Liquid.

Key Points

• Liquids take the shape of the container they are kept in, a property due to their fluidity.

• Unlike solids, liquids have no fixed shape but a fixed volume that doesn't change with the shape of its container.

• This characteristic allows liquids to flow and conform to the contours of any container.

Additional Information

• Solid: Retains a fixed shape and volume, not taking the shape of its container. Solids have particles that are closely packed in a rigid structure.

• Gas: Has neither a fixed shape nor a fixed volume. Gases expand to fill any container they are in, diffusing to fill the entire space available.

• None of these: This option is not applicable as it is clear that liquids are substances that take the shape of the container they are kept in.

Q30. Answer: (a) Nichrome

Explanation:

Nichrome:

• Nichrome has low resistivity.

• Nichrome is a non-magnetic alloy that is made up of mainly chromium and nickel.

• It has a very high melting point, which makes it nichrome to make high-temperature wires.

• It is used in heating elements such as hair dryers, toasters, and ovens.

• Nichrome is used to make the coils used in water heaters.

Tungsten:

• Tungsten is a transition metal.

• Its atomic number is 74 with the sign 'W' as Tungsten or wolfram

• The melting point of this element is very high but get oxidised at high temperature.

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• So, to protect this element from getting oxidised it is kept in a container filled with inert gases

Additional Information

Electric bulb: It is an electric device that converts electric energy into heat and light energy.

• it is generally made of glass with inert gases filled in it (Nitrogen and argon).

• The filament is made of tungsten which has a very high melting point.

An alloy is a substance made by melting two or more elements together, at least one of the metals.

Name of the alloy	Made up of
Brass	Copper and Zinc
Bronze	Copper and Tin
Stainless steel	Iron, chromium, Nickle, Carbon
Gunmetal	Copper, Tin, Zinc, lead
Nichrome	Nickel, Chromium, Manganese, Iron
German Silver	Copper, Zinc, and Nickle
Nickel Steel	Iron and Nickel

Q31. Answer: (b) 3

Calculation:

x/4 = 6/8

x = (6 × 4)/8

x = 24/8

x = 3

Therefore The correct answer is Option 2).

Q32. Answer: (a) 24

Given

(x) × 1/4 = 6

Formula Used:

To find x, we need to isolate x on one side of the equation.

Calculation:

=> (x) × 1/4 = 6

To solve for x, we multiply both sides by the reciprocal of 1/4, which is 4.

=> x = 6 × 4

=> x = 24

Therefore, the value of x is 24.

Q33. Answer: (b) 96

Given:

Total Balls (green + red) = 160

Percentage of Green Balls = 40%

Formula Used:

Number of Green Balls = (Percentage of Green Balls / 100) × Total Balls

Calculation:

Number of Green Balls = (40/100) × 160

=> Number of Green Balls = 0.4 × 160

=> Number of Green Balls = 64

To find the number of red balls, we subtract the number of green balls from the total number of balls.

Number of Red Balls = Total Balls - Number of Green Balls

=> Number of Red Balls = 160 - 64

=> Number of Red Balls = 96

Therefore, there are 96 red balls in the bag.

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Q34. Answer: (c) 135 cm²

Given:
Length (l) = 15 cm
Breadth (b) = 9 cm
Formula Used:
Area of Rectangle = l × b
Calculation:
=> Area = 15 cm × 9 cm
=> Area = 135 cm²
Therefore, the area of the rectangle is 135 cm²

Q35. Answer: (c) 12

Given:
Numbers: 24 and 36
Concept:
To find the largest number that divides both 24 and 36 exactly, we need to find their greatest common divisor (GCD).
Calculation:
List the factors of each number:
Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36
The common factors are: 1, 2, 3, 4, 6, 12
The greatest common divisor (GCD) is the largest common factor: 12
Therefore, the largest number that divides both 24 and 36 exactly is 12.

Q36. Answer: (b) 3

Given:
(x/4) = (6/8)
Concept used:
Cross-multiply or simplify the fraction on the right side:
Calculation:
(x/4) = (6/8)
=> 8 × x = 4 × 6
=> 8x = 24
=> x = 24/8 = 3
So, the value of x is 3.

Q37. Answer: (d) 6

Given:
Average of 20 numbers = 8
Average of the first 10 numbers = 10
Concept:
Total sum of numbers = Average × Number of items.
Calculation:
Total sum of 20 numbers = 20 × 8 = 160
Total sum of the first 10 numbers
=> (10 × 10 = 100)
Subtract to find the sum of the last 10 numbers
=> (160 - 100 = 60)
Average of the last 10 numbers
=> (60 / 10 = 6)
Hence, the average of the last 10 numbers is 6.

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Q38. Answer: (b) 2

Solution will be available later

Q39. Answer: (a) 9,11

Given:

The largest two-digit number is 99.

To find: By what number will 99 be divisibly among the given options.

9, 11

Check divisibility by 9 => (99 ÷ 9 = 11), divisible.

Check divisibility by 11 => (99 ÷ 11 = 9), divisible.

Result => Divisible by both 9 and 11.

5, 7

Check divisibility by 5 => 99 is not divisible because it doesn't end in 0 or 5.

Check divisibility by 7 => 99 is not divisible by 7 evenly.

Result => Not divisible by both 5 and 7.

7, 8

Check divisibility by 7 => 99 is not divisible by 7 evenly.

Check divisibility by 8 => 99 is not divisible by 8.

Result => Not divisible by both 7 and 8.

5, 6

Check divisibility by 5 => 99 is not divisible because it doesn't end in 0 or 5.

Check divisibility by 6 => For a number to be divisible by 6, it must be divisible by both 2 and 3. 99 is divisible by 3 but not by 2.

Result => Not divisible by both 5 and 6.

Therefore, only option 1) 9, 11 is correct where the largest two-digit number, 99, is divisible by both 9 and 11.

Q40. Answer: (b) 5%

Given:

Simple Interest (SI) = Rs. 650

Principal (P) = Rs. 1300

Time (T) = 10 years

Formula Used:

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

Where R is the rate of interest per annum.

Calculation:

650 = (1300 × R × 10)/100

650 = (13000 × R)/100

650 = 130 × R

R = 650/130

R = 5

The rate of simple interest is 5% per annum.

Q41. Answer: (b) 2 : 1

Solution will be available later

Q42. Answer: (a) 0.25

Solution will be available later

Q43. Answer: (d) 45

Solution will be available later

Q44. Answer: (a) 1over√2

Solution will be available later

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Q45. Answer: (b) 6.5

Given:

The first four odd prime numbers: 3, 5, 7, 11

Concept:

Average = Sum of numbers / Quantity of numbers

Calculation:

Sum = 3 + 5 + 7 + 11 = 26

Quantity = 4

Average = 26 / 4 = 6.5

Hence, the average of the first four odd prime numbers is 6.5

Q46. Answer: (a) 24

The logic followed here is:

Hence, the correct answer is "option (1)".

Q47. Answer: (a) 27th

Murali is 14th from the right end in a row of 40 boys.

His position from the left end = (40 - 14) + 1

= 27.

Hence, Murali will be "27th" from the left end.

Q48. Answer: (a) 114

The logic used is →

Code = Sum of the positional values of each alphabet

1. All the best

=> 1 + 12 + 12 + 20 + 8 + 5 + 2 + 5 + 19 + 20 = 104

2. Best of luck

=> 2 + 5 + 19 + 20 + 15 + 6 + 12 + 21 + 3 + 11 = 114

Therefore The correct answer is Option 01.

Q49. Answer: (c) 3, 2, 5, 1, 4

According to the sequence in the dictionary:

3. Discuss

2. Disease

5. Disgrace

1. Dish

4. Disjoin

Hence, the correct answer is "3, 2, 5, 1, 4".

Q50. Answer: (b) B

Solution will be available later

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