Agniveer Army GD 24 April 2024 (Shift 1) Memory-Based Paper (Previous Year Paper)

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

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

yourmocktest.com/pyq/army-gd-agniveer/agniveer-army-gd-24-april-2024-shift-1-memory-base…

Scan the QR code or click the link to open it.

YourMockTest.com — Free Study Material

GENERAL KNOWLEDGE

Q1. Who was the first Governor-General of Bengal ?

(a) Lord Clive
(b) Lord Warren Hastings
(c) Lord Lytton
(d) Lord Ripon

Q2. The river Godavari originates in the state of _____.

(a) Madhya Pradesh
(b) Chhatisgarh
(c) Maharashtra
(d) Odisha

Q3. Who is the current CM of Chhattisgarh?

(a) Vishnu Deo Sai
(b) Dr. Raman Singh
(c) Bhupesh Baghel
(d) Ramvichar Netam

Q4. Mathura is located along the river _____.

(a) Yamuna
(b) Koshi
(c) Beas
(d) Son

Q5. Who was the first female president of the Indian Olympic Association (IOA)?

(a) Mary Kom
(b) Saina Nehwal
(c) Dipa Karmakar
(d) PT Usha

Q6. Which goddess is worshipped on Karva Chauth?

(a) Parvati
(b) Lakshmi
(c) Saraswati
(d) Durga

Q7. Who was the first Law Minister of India?

(a) Pt. Jawaharlal Nehru
(b) B.R. Ambedkar
(c) JB Kriplani

(d) Sucharu Goel

Q8. According to Census 2011, which is the least populous state in India?

(a) Arunachal Pradesh
(b) Sikkim
(c) Mizoram
(d) Goa

Q9. Which of the following awarded the Best Global Music Performance in Grammy Awards 2024?

(a) Rahat Fateh Ali Khan
(b) Irfan Khan
(c) Zakir Hussain
(d) A. R. Rahman

Q10. Ratio of width of India's national flag to its length is _____.

(a) 2 : 3
(b) 1.5 : 2
(c) 3 : 2
(d) 1.5 : 3

Q11. Which of the following states is the largest producer of iron ore in India?

(a) Karnataka
(b) Odisha
(c) Chhattisgarh
(d) Jharkhand

Q12. NITI Ayog is related to which of the following?

(a) Health
(b) Education
(c) Economy
(d) Women Empowerment

Q13. Which of the following states hosts the annual Surajkund crafts fair?

(a) Uttar Pradesh
(b) Himachal Pradesh
(c) Haryana
(d) Uttarakhand

Q14. The first oil refinery setup in India was _____.

(a) Digboi Refinery
(b) Kochi Refinery
(c) Aishwarya Refinery
(d) Jamnagar Refinery

Q15. Article 51A of the Constitution of India is related to:

(a) right to property
(b) fundamental rights
(c) fundamental duties
(d) directive principles of state policy

GENERAL SCIENCE

YourMockTest.com — Free Study Material

Q16. Plants get rid of excess water through:

(a) Shedding of leaves
(b) Photosynthesis
(c) Transpiration
(d) Respiration

Q17. Which one of the following animals reproduce by budding and can also carry out regeneration?

(a) Hydra
(b) Plasmodium
(c) Planaria
(d) Yeast

Q18. Where do human sperm and egg meet?

(a) Cervix
(b) Vagina
(c) Uterus
(d) fallopian tube

Q19. What is the total number of bones in the human body?

(a) 206
(b) 103
(c) 309
(d) 412

Q20. Which is the second largest gland in human body?

(a) Liver
(b) Pancreas
(c) Thyroid
(d) Pineal

Q21. Which disease is caused by deficiency of Vitamin C in humans?

(a) Beri-Beri
(b) Night Blindness
(c) Scurvy
(d) Rickets

Q22. What is the pH of saliva?

(a) 4.4
(b) 8
(c) 6.8
(d) 9

Q23. What is the chemical formula of sodium chloride?

(a) NaCl
(b) Na2Cl
(c) KMnO4
(d) NaCl2

Q24. What happens in the rusting of iron?

(a) Decomposition
(b) Displacement
(c) Oxidation
(d) Reduction

YourMockTest.com — Free Study Material

Q25. Which amongst the following is called as metal of future?

(a) Titanium
(b) Nickel
(c) Copper
(d) Iron

Q26. The Chemical formula of Potassium Sulphate is _____.

(a) K2SO4
(b) K2CO3
(c) KMnO4
(d) KOH

Q27. Who is the propounder of 'Laws of Motion'?

(a) Newton
(b) Einstein
(c) Ferrell
(d) Copernicus

Q28. What is the mean orbital velocity of the Earth?

(a) 29.8 km/s
(b) 20.8 km/s
(c) 26.8 km/s
(d) 24.8 km/s

Q29. The Highest value of ‘g’ is at:

(a) Center of the Earth
(b) At the poles
(c) At the equator
(d) Is same everywhere

Q30. Which of the following quantities has ‘newton’ as its SI unit?

(a) Force
(b) Power
(c) Energy
(d) Torque

MATHS

Q31. What is the simplest form of 25/15?

(a) 1/2
(b) 3/5
(c) 5/3
(d) 7/5

Q32. "What will be the square of 9?"

(a) 27
(b) 81
(c) 729
(d) 90

Q33. Which number will divide 1422?

(a) 9
(b) 5
(c) 4
(d) 10

YourMockTest.com — Free Study Material

Q34. "How much money is left after spending 10% of 600 rupees?"

(a) 320
(b) 520
(c) 400
(d) 540

Q35. What is the least common multiple (LCM) of 12 and 35 ?

(a) 220
(b) 460
(c) 420
(d) 360

Q36. What is the average of 160 and 150 ?

(a) 155
(b) 145
(c) 110
(d) 100

Q37. "How many vertices are there in a square?"

(a) 4
(b) 2
(c) 6
(d) 9

Q38. What is the speed of a boy who takes 4 seconds to travel 200 meters?

(a) 48 m/s
(b) 10 m/s
(c) 25 m/s
(d) 50 m/s

Q39. $x^3 - 27 = 0$

(a) 1
(b) 3
(c) 9
(d) 81

Q40. What is the decimal form of 7/10 %?

(a) 0.7
(b) 0.07
(c) 1.07
(d) 0.007

Q41. What would be the ratio of A : B : C if the ratio of A to B is 5 : 9 and the ratio of B to C is 6 :11?

(a) 18 : 10 : 11
(b) 11 : 9 : 10
(c) 3 : 3 : 1
(d) 10 : 18 : 33

Q42. What will be the side length of a square whose perimeter is 32 cm?

(a) 8 cm
(b) 16 cm
(c) 4 cm
(d) 24 cm

YourMockTest.com — Free Study Material

Q43. "If 2/5 of a certain number is subtracted from itself, the result is 54. What is the number?"

(a) 96
(b) 78
(c) 90
(d) 86

Q44. How much work will A do in 6 days if he completes the same task in 15 days?

(a) 7/5
(b) 2/5
(c) 1/5
(d) 6/7

Q45. What is the result of simplifying the expression 84 ÷ (4 × 3) = ?

(a) 7
(b) 10
(c) 9
(d) 4

LOGICAL REASONING

Q46. Find the letter in the 8^(th) position when the alphabets are written in alphabetical order from the right:

(a) P
(b) Q
(c) O
(d) S

Q47. X’s rank was 12 from the top. If the total number of students in the class was 16, then X’s rank from the bottom for the class is:

(a) 6
(b) 5
(c) 4
(d) 7

Q48. In a certain code language, 'CARE' is written as '27'. How will 'BLUE' be written in that language?

(a) 45
(b) 70
(c) 40
(d) 50

Q49. In the following series replace the question mark (?) with suitable option.

N, O, Q, T, X, C, ?

(a) I
(b) H
(c) J
(d) L

Q50. Find the missing number from the series:

48, 96, 24, _____, 12

(a) 16
(b) 18
(c) 48
(d) 28

YourMockTest.com — Free Study Material

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) Lord Warren Hastings

The correct answer is Lord Warren Hastings.

Key Points

• Warren Hastings is the First Governor-General of Bengal.

• He served as the Governor-General of Bengal from 1774 to 1785.

• His reign leads to the end of the dual system of administration.

• In 1750, he began his work as a writer (clerk) for the East India Company in Calcutta.

• After Mir Jafar was enthroned as the Nawab after the Battle of Plassey, he became the British resident at Murshidabad, Bengal's capital, in 1758.

• The First Anglo-Maratha war and the Second Anglo-Mysore war were fought under his reign.

• During his presidency, the Regulating Act of 1773 was passed.

• In 1785, he backed Sir William Jones informing the Asiatic Society of Bengal.

• He abolished the judicial powers of the Zamindars.

Additional Information

• Lord Lytton was an English politician who served as Viceroy of India from 1876 to1880.

• He was the viceroy during the Second Anglo-Afghan War.

• He enacted the Vernacular Press Act in 1878.

• Robert Clive served as the Governor of Bengal from 1757-60 and from 1765-67.

• In 1765, he founded the 'Society of Trade,' but it was eventually disbanded.

• Lord Ripon was served as Viceroy of India from 1880 to 1884.

• He repeals the Vernacular Press Act (1882)

• The first Factory Act (1881) was during his tenure.

• The Ilbert Bill controversy (1883-84) was during his tenure

Q2. Answer: (c) Maharashtra

The correct answer is Maharashtra.

Key Points

• The Godavari River rises from Trimbakeshwar in the Nashik district of Maharashtra.

• It is the oldest River in India.

• It is also known as the Dakshin Ganga.

• It is the second-longest river in India.

• Dams on the Godavari river are - Polavaram Dam (Andhra Pradesh), Pochampad Dam (Telangana).

Important Points

• Tributaries of Godavari river are -

• Indravati (Chattisgarh)

• Painganga.

• Venganga.

• Pranhita

• Cities that lie along the Godavari river are -

• Nasik, Nanded (Maharashtra).

YourMockTest.com — Free Study Material

• Bhadrachalam (Andhra Pradesh).

Additional Information

• Sources of some important Rivers of India -

• Brahamputra - Kailash Mansarover Lake

• Indus - Kailash Mansarover Lake

• Jhelum - Seshnag Lake

• Chenab - Bara-la-cha Pass

• Ravi - Rohtang Pass

• Sutluj - Kailash Mountain

• Ganga - Gangotri

• Narmada - Maikal Hills

Q3. Answer: (a) Vishnu Deo Sai

The correct answer is Vishnu Deo Sai

Key Points

• On December 10, 2023, Vishnu Deo Sai was elected as the Chief Minister of Chhattisgarh.

• He is a member of the Bharatiya Janata Party (BJP) and represents Kunkuri as an MLA.

• Vishnu Deo Sai will be the 4th individual to serve as Chief Minister of the state.

• He marks a historic milestone as the state's 1st tribal Chief Minister.

Additional Information

• Dr. Raman Singh, the former Chief Minister of Chhattisgarh, has been elected as the Speaker of the Chhattisgarh Assembly.

Q4. Answer: (a) Yamuna

Mathura is a sacred city in Uttar Pradesh, northern India. The deity Lord Krishna is said to have been born on the site of Sri Krishna Janma Bhoomi, a Hindu temple.

Key Points

General information about Mathura:

• Mathura, formerly Muttra, city, western Uttar Pradesh state, northern India.

• It lies in the Ganges-Yamuna Doab on the Yamuna River, about 25 miles (40 km) northwest of Agra.

• It is a part of the great northern plains and is situated on the west bank of the river Yamuna.

• Mathura is 141 km south of Delhi and 47 km northwest of Agra.

• The climate of Mathura is extreme and tropical.

• Summers are extremely hot and winters are cold and foggy.

• It experiences southwestern monsoon rains from July to September.

Hence, option 1 is the correct answer.

Confusion Points

• Beas is a tributary of the Indian River and Amritsar lies on the bank of this river.

• There are several tributaries of Ganga like Alaknanda, Ramganga, Kali, Yamuna, Gomti, Ghagra, Gandak, Kosi, and Sone, draining 11 states of the country join River Ganga at different confluence points during its journey.

Q5. Answer: (d) PT Usha

The correct answer is PT Usha

Key Points

• India’s field star PT Usha was elected unopposed as the first woman president of the Indian Olympic Association (IOA).

• The IOA executive committee elections, which had an electoral college of 77 members including PT Usha, were supervised by retired Supreme Court judge Justice L Nageswara Rao.

• Apart from being the first woman president of the IOA in its 95-year history, PT Usha is also the first Olympian to be appointed as IOA president.

Additional Information

• PT Usha

• PT Usha is one of India’s most successful track and field athletes.

• She boasts four gold medals and seven silvers at the Asian Games.

• PT Usha missed out on an Olympic medal at the Los Angeles 1984 by a fraction of a second.

YourMockTest.com — Free Study Material

• Her timing of 55.42s in the women's 400m hurdles at the Los Angeles Olympics still stands as India's national record.

• On the administrative front, PT Usha was serving as the chairperson of the junior selection committee in the Athletics Federation of India (AFI) before the IOA elections.

Q6. Answer: (a) Parvati

The correct answer is Parvati.

Key Points

• Goddess Parvati is the deity worshipped on the day of Karva Chauth.

• Women observe a fast from sunrise to moonrise praying for the well-being and long life of their husbands, and Goddess Parvati is considered a symbol of devotion and marital happiness.

• The festival vividly celebrates love and companionship in the marital bond, wherein Goddess Parvati's dedication towards Lord Shiva is commemorated.

• Goddess Parvati, also known as the 'Goddess of Power,' is revered for her strength and determination, qualities that are admired and invoked by the women fasting on this day.

Additional Information

• Lakshmi: Goddess of wealth and prosperity, worshipped for financial well-being and abundance.

• Saraswati: Goddess of knowledge, music, art, wisdom, and learning, celebrated during Vasant Panchami and Saraswati Puja.

• Durga: Goddess of war, strength, and protection, worshipped during the Navaratri festival for her victorious spirit over evil.

Q7. Answer: (b) B.R. Ambedkar

B.R. Ambedkar was the first Law Minister of India.

Important Points

• Dr. Babasaheb Ambedkar became 1st Law Minister of post-Independent India.

• Dr. Ambedkar served as law minister from 3 August 1947 till 27th September 1951.

• Dr. Ambedkar was appointed as the chairman of the constitution drafting committee on 29 August 1947.

• He was an Indian jurist, economist, politician, and social reformer, who inspired the Dalit Buddhist movement and campaigned against social discrimination towards the untouchables.

Q8. Answer: (b) Sikkim

The correct answer is Sikkim.

Key Points

• As per state census 2011, which of the Sikkim is the least populous state of India.

• The least populated state in the country was Sikkim with a population of 6.71 lakhs.

Additional Information

• According to Census 2011:

• C M Chandramauli was the Registrar General and Census Commissioner of India for the 2011 Indian Census.

• Uttar Pradesh is the most populous state.

• Maharashtra is the second most populous state in India.

• The sex ratio in the country was is 943 females per 1000 males.

• Haryana has the lowest sex ratio with just 877 women per 1000 males.

• Bihar has the highest population density.

• The overall literacy rate in India is 74% according to the 2011 census.

• Bihar is the least literate state in India, with a literacy of 63.82%.

• Goa was the most urbanized state with 62.17% of the population living in urban areas.

Q9. Answer: (c) Zakir Hussain

The Correct Answer is Zakir Hussain.

In News

• The 66th Grammy Awards took place in Los Angeles.

Key Points

• Best Global Music Performance: Béla Fleck, Edgar Meyer & Zakir Hussain ft. Rakesh Chaurasia - Pashto.

• Best Contemporary Instrumental Album: As We Speak — Béla Fleck, Zakir Hussain, Edgar Meyer, feat. Rakesh Chaurasia.

• India shone at the 2024 Grammy Awards with five Indian musicians, including tabla maestro Zakir Hussain and flautist Rakesh Chaurasia, picking up the coveted prize at a glittering ceremony in Los Angeles.

YourMockTest.com — Free Study Material

• While Hussain was India's big winner with three Grammys, Rakesh Chaurasia picked up two.

• Singer Shankar Mahadevan, violinist Ganesh Rajagopalan and percussionist Selvaganesh Vinayakram, Hussain's collaborators in the fusion group Shakti, won one Grammy each at the event held at the Crypto.com Arena.

Q10. Answer: (a) 2 : 3

The correct answer is 2 : 3.

Key Points

• The National Flag is a horizontal tricolour of India saffron (Kesari) at the top, white in the middle, and India green at the bottom in equal proportion.

• The ratio of the width of the flag to its length is 2 : 3.

• In the centre of the white band is a navy-blue wheel that represents the chakra.

• The top saffron colour indicates the strength and courage of the country.

• The white middle band indicates peace and truth with Dharma Chakra.

• The green shows the fertility, growth, and auspiciousness of the land.

Link: https://www.india.gov.in/india-glance/national-symbols#:~:text=The%20National%20Flag%20is%20a,length%20is%20two%20to%20three.

Additional Information

• The Indian National Flag was adopted by the Constituent Assembly of India on July 22, 1947.

• Pingali Venkaiya designed the present National Flag of India.

• "Chakra" between the National Flag had replaced Charkha(spinning wheel) in 1947.

• Under Article 19(i) Supreme Court declared the right to hoist the National Flag as the Fundamental Right.

Q11. Answer: (b) Odisha

The correct answer is Odisha.

Key Points

• Odisha is the largest patron of Iron ore in India. Orissa accounts for over half of India's iron ore product, producing 120 million tonnes during the 2019/ 2020 time.

• Iron ore is the primary mineral commodity by value in Minnesota, which leads the country in iron ore products.

• Haematite and magnetite are the most important iron ores in India.

• About 79 haematite ore deposits are set up in the Eastern Sector (Assam, Bihar, Chhattisgarh, Jharkhand, Odisha & Uttar Pradesh) while about 93 magnetite ore deposits do in Southern Sector (Andhra Pradesh, Goa, Karnataka, Kerala, & Tamil Nadu).

• Rajasthan is the largest producer of lead in India.

Additional Information

• Karnataka(24) leads the pack of countries in iron- ore products in India followed by Odisha(22) and Chhattisgarh(20).

• Including the top three along with Goa, Jharkhand, and Madhya Pradesh produce around 95 of the total iron- ore in India.

• Canister ore is being produced only in Chhattisgarh among Indian countries. bitty minerals and precious nature gold also do in the State.

• West Singhbhum is the top iron- ore mining quarter of Jharkhand and Manoharpur is one of the key mining blocks of the quarter, besides Noamundi, Gua, Jhikpani, etc.

• According to the final information of the state mining department, the quarter produced about 16.3 million tonnes of iron ore 2017- 18.

Q12. Answer: (c) Economy

The correct answer is Economy.

Key Points

• NITI Aayog (National Institution for Transforming India) was established with the aim of fostering cooperative federalism and boosting national development, primarily focusing on the economy.

• It serves as the premier policy 'Think Tank' of the Government of India, providing both directional and policy inputs while designing strategic and long-term policies and programmes.

• NITI Aayog replaced the Planning Commission, intending to take a more dynamic approach towards the development of various sectors of the economy.

• Its objectives include fostering involvement and cooperation among the national and international community in economic policy-making.

YourMockTest.com — Free Study Material

Q13. Answer: (c) Haryana

The correct answer is Haryana.

Key Points

• Surajkund International Crafts Mela (Faridabad)

• Surajkund Mela is an annual crafts fair held in the state of Haryana, India.

• Celebrated from: March 19 to April 4, 2022.

• Key attractions: Rich display of regional and international crafts and traditions.

• The fair is organized by the Surajkund Mela Authority and Haryana Tourism in association with the Union Ministry of Tourism, Textiles, Culture and External Affairs.

• The Surajkund Mela is unique as it showcases the richness and diversity of India's handicrafts, handlooms and cultural fabrics, and is the largest crafts fair in the world.

Additional Information

State	Fair
Uttar Pradesh	Magh Fair, Rath Fair, Gau Charan Fair, Nauchandi Fair
Himachal Pradesh	Baisakhi, Naina Devi Fair, Kullu Dushehra, Renuka Fair
Haryana	Gugga Naumi, Kartik Fair, Mango Mela, Baisakhi Mela
Uttarakhand	Baurani Fair, Chaiti Fair, Chandrabadni Fair

Q14. Answer: (a) Digboi Refinery

The correct answer is Digboi Refinery.

Key Points

• The Digboi Oil Refinery is located in Assam, a northeast state of India.

• Digboi is the first oil refinery in India and Asia.

• It was obtained in the year 1901.

Additional Information

• List of oil refineries in India:

OIL REFINERY	LOCATION
Jamnagar Refinery (Reliance Industries Limited)	Jamnagar, Gujarat.
Nayara Energy Refinery	Vadinar, Gujarat.
Guru Gobind Singh Refinery	Bathinda, Panjab.
Manali Refinery (Chennai Petroleum Corporation Limited)	Chennai, Tamil Nadu.
Numaligarh Refinery	Numaligarh, Assam.
Barmer Refinery	Barmer, Rajasthan.
Mathura Refinery (Indian Oil Corporation Limited)	Mathura, Uttar Pradesh.
Barauni Refinery (Indian Oil Corporation Limited)	Barauni, Bihar.

• The Jamnagar Refinery (RIL) is the biggest oil refinery in India.

• It is currently the largest refinery in the world.

Q15. Answer: (c) fundamental duties

The correct answer is fundamental duties.

Key Points

• Article 51A of the Constitution of India is related to fundamental duties.

• Article 51A contains fundamental duties:

• to abide by the Constitution and respect its ideals and institutions, the National Flag, and the National Anthem.

• to cherish and follow the noble ideals which inspired our national struggle for freedom.

• to uphold and protect the sovereignty, unity, and integrity of India.

• to defend the country and render national service when called upon to do so.

YourMockTest.com — Free Study Material

• to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic, and regional or sectional diversities.

• to value and preserve the rich heritage of our composite culture.

• to protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion for living creatures.

• to develop the scientific temper, humanism, and the spirit of inquiry and reform.

• to safeguard public property and to abjure violence.

• to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavor and achievement.

• who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

Additional Information

• The right to property:

• It was deleted from the list of Fundamental Rights by the 44th Amendment Act, 1978.

• It is made a legal right under Article 300-A in Part XII of the Constitution. So at present, there are only six Fundamental Rights.

• Article 19 provided all citizens the right to acquire, hold, and dispose of the property whereas Article 31 provides that "no person shall be deprived of his property save by authority of law."

• Later, in 44th Amendment of 1978 deleted the right to property from the list of fundamental rights.

• Hence, the right to property is no longer a fundamental right, however, it is still a constitutional right.

• Fundamental Rights:

• The Fundamental Rights are enshrined in Part III of the Constitution (Articles 12-35). Part III of the Constitution is described as the Magna Carta of India.

• 'Magna Carta', the Charter of Rights issued by King John of England in 1215 was the first written document relating to the Fundamental Rights of citizens.

• The Fundamental Rights are justiciable because when violated the aggrieved individual can move the courts for their enforcement.

• The Supreme Court or High Courts have the power to issue directions or orders or writs for the enforcement of any of the Fundamental Rights.

• Directive Principles of State Policy:

• Articles 36-51 under Part-IV of the Indian Constitution deal with Directive Principles of State Policy (DPSP).

• They are borrowed from the Constitution of Ireland, which had copied it from the Spanish Constitution.

• It refers to the ideals that the State should keep in mind while formulating policies and enacting laws. e.g. the Government should try to ensure equal pay for equal work for men and women etc.

Q16. Answer: (c) Transpiration

The correct answer is Transpiration.

Key Points

• Transpiration is a biological process where the loss of water in the form of vapor takes place from aerial parts of the plants.

• Shedding leaves helps trees to conserve water and energy.

• Abscission is the shedding of various parts of an organism, such as a plant dropping a leaf, fruit, flower, or seed.

• Photosynthesis is the process by which plants use sunlight, water, and carbon dioxide to create oxygen and energy in the form of sugar.

• Respiration in Plants is a process in which plants absorb free oxygen molecules to produce water, carbon dioxide, and energy, required for plants to grow.

Additional Information

• Plants transpire for:

• Evaporative cooling

• Accessing nutrients from the soil

• Carbon dioxide entry

• Water uptake

• Factors affecting Transpiration:

• Humidity

• Temperature

• Soil Water

• Light
• Wind
• Respiration is a chain of chemical reactions that enables all living entities to synthesize the energy required to sustain.
• During respiration, in different plant parts, significantly less exchange of gas takes place.
• Hence, each part nourishes and fulfills its own energy requirements.
• Consequently, leaves, stems, and roots of plants separately exchange gases.
• Leaves possess stomata (tiny pores), for gaseous exchange.
• The oxygen consumed via stomata is used up by cells in the leaves to disintegrate glucose into water and carbon dioxide.

Q17. Answer: (a) Hydra

• Hydra can reproduce by regeneration and budding.
• In budding, initially buds appear as a small bulge. They further grow, and within 2-4 days they become fully-formed hydra. Then it detaches from the parent body.
• In regeneration, regrowth of damaged or lost part takes place.
• Hydra belongs to Phylum Coelenterata.
• Yeast is a fungi and it reproduces asexually through budding.
• Plasmodium is a protozoan and it has sexual cycle in mosquito and asexual cycle in humans. In asexual cycle it undergoes multiple fission.
• Planaria reproduces asexually through regeneration. In fact it possess the highest power of regeneration.

Q18. Answer: (d) fallopian tube

The correct answer is fallopian tube.

Explanation-

Fertilization is a multistep process that begins with the release of the egg (ovum) from the ovaries and ends with the fusion of the egg and sperm. Here's a more detailed look at what happens, centered around the role of the fallopian tubes:

Ovulation: The process starts with the release of a mature ovum from the ovary into the abdominal cavity, a phase of the menstrual cycle known as ovulation. This typically occurs about midway through the menstrual cycle.

Pick-Up by the Fallopian Tube: The egg, upon release, is 'caught' by the fimbriae, fringe-like extensions at the end of the fallopian tube. The egg then enters the tube, beginning its journey toward the uterus.

Fertilization: Sperm and egg meet in the ampulla of the fallopian tube. The sperm penetrates the egg, causing a reaction that makes the egg's outer layer impenetrable to other sperm. The nuclei of the sperm and egg fuse, creating a single cell with mixed parental genetic material – a process known as fertilization, and the fertilized egg is now referred to as a 'zygote'.

Additional Information

The fallopian tubes, also known as oviducts, are paired tubes in the female reproductive system that transport the egg (ovum) from the ovary to the uterus.

Here are the main parts of each fallopian tube, from the end nearest the ovary to the end nearest the uterus:

• Infundibulum: This is the wide, funnel-shaped end near the ovary. It features finger-like projections known as fimbriae which help capture the egg once it is released by the ovary during ovulation.
• Ampulla: This is the longest part of the fallopian tube and is typically where fertilization of the egg by sperm occurs. It has a wider diameter and its walls are folded into many complex ridges.
• Isthmus: The isthmus is the narrower, thicker-walled section of the tube that communicates with the uterus. It aids in the transport of the fertilized egg, or zygote, to the uterus.
• -

These sections do not have distinct boundaries but rather transition from one to the next.

Uterus (Womb): This is a small, muscular organ located in the lower abdomen. If a sperm fertilizes an egg, the fertilized egg (zygote) will implant itself into the uterine wall and develop into an embryo. The uterus houses and protects the fetus during pregnancy.

Cervix: This is the lower part of the uterus that connects the uterus to the vagina. It allows for the passage of menstrual blood from the uterus and can dilate to allow for childbirth.

Vagina: Often referred to as the birth canal, the vagina is a tube-like structure that extends from the cervix to the external part of the female genitalia. It serves several purposes: receiving sperm during sexual intercourse, providing a passage for menstrual flow from the uterus, and serving as the birth canal for childbirth.

Conclusion-

Fertilization occurs in the fallopian tube in human females.

Q19. Answer: (a) 206

The correct answer is 206.

Key Points

• The body's internal structure is the human skeleton.

• This is made up of 300 bones at birth-this number falls by adulthood to 206 bones as certain bones have fused together. In the skeleton, the bone mass reaches maximum density around age 30.

• Many factors work together to ensure the strength and health of bones. Bone density relies on:

• A steady supply of dietary calcium

• Adequate vitamin D from sunshine and food

• A healthy diet with plenty of vitamins and minerals

• Various hormones including parathyroid hormone, growth hormone, calcitonin, estrogen, and testosterone

• Regular weight-bearing exercise.

Additional Information

The human skeleton is made up of 206 bones, including bones of the:

• Skull: including the jaw bone

• Spine: cervical, thoracic and lumbar vertebrae, sacrum and tailbone (coccyx)

• Chest: ribs and breastbone (sternum)

• Arms: the shoulder blade (scapula), collar bone (clavicle), humerus, radius and ulna

• Hands: wrist bones (carpals), metacarpals and phalanges

• Pelvis: hip bones

• Legs: the thigh bone (femur), the kneecap (patella), shin bone (tibia) and fibula

• Feet: tarsals, metatarsals, and phalanges.

Q20. Answer: (b) Pancreas

The correct answer is Pancreas.

Key Points

• The pancreas is the second-largest gland in the human body measuring around 6-10 inches in length. It is located in the upper left abdomen, behind the stomach.

• The pancreas functions has 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.

• Trypsin and chymotrypsin are the enzymes secreted by the pancreas that is useful for digesting proteins.

• The amylase enzyme is useful for the digestion of carbohydrates.

• Lipase is used to break down fats.

• The endocrine cells are the cells of Islet of Langerhans which secrete endocrine hormones like insulin and glucagon.

Additional Information

Liver	**• The liver is the largest gland in the body. - It is also the largest (internal) organ in our body and can weigh up to 1.5-1.6 kg for a human adult.**
Thyroid	• The thyroid gland is an endocrine gland located in the neck. - The thyroid gland secretes three hormones, namely the two thyroid hormones (thyroxine/T4 and triiodothyronine/T3), and calcitonin.
Pineal	• Pineal Gland is the smallest gland in the human body. - It is located near the centre of the brain.

Q21. Answer: (c) Scurvy

The correct answer is Scurvy.

Key Points

• Scurvy is caused by vitamin C deficiency or ascorbic acid.

• It can lead to anemia, exhaustion, spontaneous bleeding, pain in the limbs, swelling in some parts of the body such as legs and ulceration of gums, and loss of teeth.

• The risk factors of Vitamin C deficiency are poor diet, illness such as anorexia and mental health issues, old age, and excessive

YourMockTest.com — Free Study Material

consumption of alcohol or substance abuse.

Additional Information

• Beri-Beri: It is caused by the deficiency of vitamin B1 or Thiamine. Beri-Beri is of two types:

• Wet beriberi which affects the heart and circulatory system

• Dry beriberi damages the nerves and causes decreased muscle strength and may also lead to paralysis.

• The deficiency of Vitamin B1 may also lead to Wernicke-Kroskoff syndrome, muscle weakness, and ophthalmoplegia.

• Night blindness is a condition in which it becomes difficult or impossible to see in relatively low light. It can be caused by Vitamin A deficiency, congenital night blindness, pathological myopia, and advanced primary open-angle glaucoma.

• Rickets: it is caused by a lack of vitamin D, calcium, or phosphate which leads to softening and weakening of the bones. Rickets is a result of nutritional malabsorption, renal disease, etc.

Q22. Answer: (c) 6.8

The correct answer is 6.8.

Key Points

• The Saliva is slightly acidic in nature with a pH of 6.8 on average.

• The normal pH range for saliva is considered to be 5.6 to 7.9.

• Saliva is a secretion in the mouth produced by salivary glands that discharge into the oral cavity.

• These secretions moisten mucous membranes in the oral cavity and upper digestive tract, facilitate speech and control bacterial flora in the mouth.

Additional Information

• Salivary Amylase(also called Ptyalin) breaks down the starch in the food into maltose. Salivary Amylase is the first enzyme to mix with the food.

• Fats are broken down by lipases with the help of bile into diglycerides and monoglycerides.

• Trypsin breaks down Proteins, proteases, and peptones into Dipeptides.

Q23. Answer: (a) NaCl

The correct answer is Nacl.

Key Points

• Sodium Chloride is also known as Salt.

• It is an ionic compound with the chemical formula NaCl.

• It has a ratio of 1:1 of sodium and chloride ions, With molar masses of 22.99 and 35.45 g/mol respectively.

• 100 g of NaCl contains 39.34 g Na and 60.66 g Cl.

• Sodium chloride is used in the Solvay process to produce sodium carbonate and calcium chloride.

• In the Mannheim process and in the Hargreaves process, sodium chloride is used for the production of sodium sulfate and hydrochloric acid.

Additional Information

• Potassium permanganate is an inorganic compound with the chemical formula KMnO4.

• It is composed of K+ and MnO4.

• Potassium permanganate is widely used in the chemical industry and laboratories as a strong oxidizing agent, and also as a medication for dermatitis, for cleaning wounds, and general disinfection.

• It is on the WHO Model List of Essential Medicines, the safest and most effective medicines needed in a health system.

Q24. Answer: (c) Oxidation

Concept:-

• Rust is basically iron oxide.

• It is of reddish-brown color.

• During rusting of iron, the red-brown powder is formed.

• During rusting, iron and oxygen react in the presence of water or air moisture.

• Hydrous iron oxide and iron oxide hydroxide are present in the rust.

• Generally, refined iron goes through corrosion.

• Rust is an iron oxide, usually red oxide formed by the redox reaction of iron and oxygen in the presence of water or air moisture. Rust consists of hydrated iron oxides Fe2O.

• An entire iron can be converted into rust with time.

• During rusting in iron, Red-brown powder is coated on the iron.

Explanation: -

The chemical reaction is :

There is an anodic dissolution or oxidation of iron going into aqueous (water) solution:

$2Fe \rightarrow 2Fe^{2+} + 4e^-$

Cathodic reduction of oxygen that is dissolved into the water also occurs:

$O_2 + 2H_2O + 4e^- \rightarrow 4OH^-$

The iron ion and the hydroxide ion react to form iron hydroxide:

$2Fe^{2+} + 4OH^- \rightarrow 2Fe(OH)_2$

The iron oxide reacts with oxygen to yield red rust, $Fe_2O_3.H_2O$.

Conclusion: -

As the Iron oxidation state is changing from 0 to +3 hence, it is an oxidation reaction.

So, the correct option is (3).

Additional Information

• Many other metals are corroded but rusting of these metals is not called rust.

• The most familiar form of rust is the reddish coating that forms flakes on iron and steel (Fe_2O_3), but rust also comes in other colors, including yellow, brown, orange, and green. The different colors reflect various chemical compositions of rust.

• Galvanization is used to prevent the rusting of iron.

• In galvanization:-

• a layer of zinc is coated on iron.

• Special weathering steel alloys can be used, in which rusting takes place slowly.

Q25. Answer: (a) Titanium

The correct answer is Titanium.

CONCEPT:

• Titanium: It is a chemical element with the symbol Ti and atomic number 22.

• It is a lustrous transition metal with a silver color, low density, and high strength.

• Titanium is resistant to corrosion in seawater, aqua regia, and chlorine.

• Titanium was discovered in Cornwall, Great Britain, by William Gregor in 1791.

• Titanium can be alloyed with iron, aluminum, vanadium, and molybdenum, among other elements, to produce strong, lightweight alloys for aerospace, military, industrial processes, automotive, agriculture (farming), medical prostheses, orthopedic implants, dental and endodontic instruments, and files, dental implants, sporting goods, jewelry, mobile phones, and other applications.

• Titanium is being increasingly used in our modern society. It is light, strong, and corrosion-resistant.

• It is wondrous because it is as strong as steel and 45% lighter also it is corrosion-resistant.

• Titanium is approximately three to four times stronger than stainless steel, which means its lifespan over generations is slightly longer.

EXPLANATION:

• As per the above discussion titanium is the metal of the future because it is comparatively more useful and efficient compared to steel, copper, iron, etc.

• Titanium is also called the metal of hope.

• The correct option is 1.

Additional Information

• | ELEMENT | GROUP | ATOMIC NUMBER |

Ti	**4**	**22**
Ni	10	28
Fe	8	26
Cu	11	29

Q26. Answer: (a) K_2SO_4

The correct answer is K_2SO_4.

Key Points

• The chemical formula for Potassium Sulphate is K_2SO_4.

• This compound consists of two potassium ions (K^+) and one sulphate ion (SO4^(2-)).

• It is commonly used as a fertilizer because it provides both potassium and sulfur, essential nutrients for plant growth.

• Potassium Sulphate is soluble in water, making it readily available to plants when applied to soil.

Additional Information

• K2CO3: Potassium carbonate, is used in glass manufacturing, soap making, and as a drying agent.

• KMnO4: Potassium permanganate, a strong oxidizing agent used in water treatment and as an antiseptic.

• KOH: Potassium hydroxide, known as caustic potash, is used in soap making, as an electrolyte in batteries, and in various manufacturing processes.

Q27. Answer: (a) Newton

The correct answer is Newton.

Key Points

• The 'Laws of Motion' were first compiled by Isaac Newton in 1687.

• There are three laws of motion given in the theory by Newton.

• According to Newton's first law of motion, an object will remain at rest or in uniform motion in a straight line unless acted upon by an external force.

• Newton's second law of motion states that for a constant mass, force is equal to the product of mass and acceleration.

• Newton's Third Law: To every action, there is always an equal (in magnitude) and opposite (in direction) reaction.

Q28. Answer: (a) 29.8 km/s

The correct answer is option 1) i.e. 29.8 km/s.

• The orbital velocity of the Earth is the speed with which the Earth moves around the Sun.

Some of the other important specifics of the Earth:

• Mean distance from Sun : 149,598,262 km (1.0 Astronomical Unit)

• Equatorial radius : 6,378.14 km

• Polar radius : 6,356.78 km

• Mass : 5.972 × 1024 kg

• Inclination of Equator to orbit : 23.44°

Q29. Answer: (b) At the poles

CONCEPT:

Acceleration Due to Gravity:

• The force of attraction exerted by the earth on a body is called gravitational pull or gravity.

• We know that when a force acts on a body, it produces acceleration. Therefore, a body under the effect of gravitational pull must accelerate.

• The acceleration produced in the motion of a body under the effect of gravity is called acceleration due to gravity, it is denoted by g.

• If g is the acceleration due to gravity, then

$g = GM/(R^2)$

Where G = universal gravitational constant, M = mass of the earth and R = radius of the earth

EXPLANATION:

• The distance from the center of the earth to its poles is lesser-than the distance to the equator region.

• Therefore g value is slightly greater at poles and its value is 9.83m/s². Option (2) is correct.

NOTE

• The value of g at the equator is 9.78m/s2.

• The difference between gravity and gravitation is Gravity is the force between a body and earth while gravitation is the force acting between two bodies.

Q30. Answer: (a) Force

CONCEPT:

• Force: It is any interaction that, when unopposed, will change the motion of an object.

• A force can cause an object with mass to change its velocity, i.e., to accelerate.

• Force can also be described as a push or a pull.

• A force has both magnitude and direction, making it a vector quantity.

• In SI base units: kg·m/s2 / Newton

Formula:

F = mass × acceleration = m × a

• Energy(E): It is the quantitative property that must be transferred to an object in order to perform work on, or to heat, the object.

• Energy is a conserved quantity; the law of conservation of energy states that energy can be converted in form, but not created or destroyed.

• S.I unit of energy is Joules

Formula:

E = power × time

• Power(P): It is the amount of energy transferred or converted per unit of time.

• In the International System of Units, the unit of power is the watt, equal to one joule per second.

• In older works, power is sometimes called activity.

• Power is a scalar quantity.

Formula:

P = energy/time

• Momentum(p): It is the product of the mass of a particle and its velocity.

• Momentum is a vector quantity; i.e., it has both magnitude and direction.

• Isaac Newton's second law of motion states that the time rate of change of momentum is equal to the force acting on the particle.

• SI unit: kilogram meter per second kg?m/s

Formula :

p = mass × velocity

Q31. Answer: (c) 5/3

Solution will be available later

Q32. Answer: (b) 81

Solution will be available later

Q33. Answer: (a) 9

Concept used:

The divisibility rule for 9 states that a number is divisible by 9 if the sum of its digits is divisible by 9. This means you can add up all the digits in a number, and if that sum is a multiple of 9 then the original number is divisible by 9.

Calculation:

Sum of digits 1422 = (1 + 4 + 2 + 2) = 9

The sum of digits is 9 which is divisible by 9.

So, the 1422 is also divisible by 9.

Therefore The correct answer is 9.

Additional InformationDivisible by 3 : The sum of all the digits of the number should be divisible by 3.

Divisible by 4 : The number formed by the last two digits of the number should be divisible by 4 or should be 00.

Divisible by 5 : Numbers having 0 or 5 as their ones place digit.

Q34. Answer: (d) 540

Solution will be available later

Q35. Answer: (c) 420

Solution will be available later

Q36. Answer: (a) 155

Solution will be available later

Q37. Answer: (a) 4

Solution will be available later

YourMockTest.com — Free Study Material

Q38. Answer: (d) 50 m/s

Solution will be available later

Q39. Answer: (b) 3

Given:

$x^3 - 27 = 0$

Formula used:

If $x^3 = a^3$, then x = a (for real root)

Calculations:

$x^3 - 27 = 0$

$\Rightarrow x^3 = 27$

$\Rightarrow x = \sqrt[3]{27}$

$\Rightarrow x = 3$

Therefore The real root of $x^3 - 27 = 0$ is x = 3

Q40. Answer: (d) 0.007

Concept used:

1% = 1/100

Calculation:

7/10 % = 7/10 × 1/100 = 7/1000 = 0.007

Therefore The correct answer is option (4).

Q41. Answer: (d) 10 : 18 : 33

Solution will be available later

Q42. Answer: (a) 8 cm

Solution will be available later

Q43. Answer: (c) 90

Given:

If 2/5 of a certain number is subtracted from itself, the result is 54.

Calculation:

Let the certain number be 'x'.

According to the problem:

$x - 2/5\ x = 54$

$\Rightarrow (5x - 2x)/5 = 54$

$\Rightarrow 3x/5 = 54$

$\Rightarrow 3x = 54 \times 5$

$\Rightarrow 3x = 270$

$\Rightarrow x = 270/3$

$\Rightarrow x = 90$

Therefore The number is 90.

Q44. Answer: (b) 2/5

Solution will be available later

Q45. Answer: (a) 7

Solution will be available later

Q46. Answer: (d) S

According to the given information, arrange all the alphabets from right end which means reverse order of alphabets.

Left ← Z Y X W V U T S R Q P O N M L K J I H G F E D C B A → Right

So, 8th letter in this series is "S".

YourMockTest.com — Free Study Material

Q47. Answer: (b) 5

Total number of students in the class is 16. X's got 12^(th) rank that means 11 students are ahead of X.

No. of people behind X = 16 – (11 + X) = 16 – 12 = 4

4 students got ranks after X. So from bottom X rank would be 5^(th).

Q48. Answer: (c) 40

The logic followed here is:

Logic: Sum of the place value of all numbers = Code of the word.

'CARE' is written as '27'

=> 3 + 1 + 18 + 5 = 27.

Similarly, for 'BLUE'

=> 2 + 12 + 21 + 5 = 40.

So, 'BLUE' will be coded as '40'.

Hence, the correct answer is "Option 3".

Q49. Answer: (a) I

The positions of the letters according to the English alphabet series:

The pattern for this is as follows;

Hence, the correct answer is "I".

Q50. Answer: (c) 48

Given Series: 48, 96, 24, _____, 12

The logic followed here is:

Hence, the correct answer is "48".

More previous year papers and mock tests: **www.yourmocktest.com/pyq**

YourMockTest.com — Free Study Material