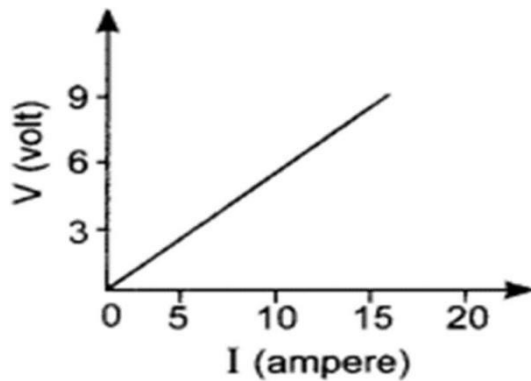


**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**PHYSICS**



The above graph (Figure-I) shows V-I characteristics of a material. Study the graph and answer the following questions-

Q1. This could be a graph for:

- A) Silicon
- B) Neon gas
- C) Silver
- D) Rubber

**Correct Option: C) Silver**

=====

Q2. The area under the curve will give:

- A) Energy
- B) Resistance
- C) Conductance
- D) Power

**Correct Option: D) Power**

=====

Q3. The graph is an experimental proof of:

- A) Joule's law
- B) Ohm's law
- C) Pascal's law
- D) Newton's law

**Correct Option: B) Ohm's law**

=====

Q4. If V and I are interchanged in the above graph, the slope of the graph will be:

- A) Reciprocal of energy
- B) Reciprocal of resistance
- C) Reciprocal of conductance
- D) Reciprocal of power

**Correct Option: B) Reciprocal of resistance**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q5. Consider the previous question where V and I are interchanged; the SI unit for the physical quantity obtained by taking the slope of the graph is:

- A)  $\text{Mho}^{-1}$
- B)  $\text{Joule}^{-1}$
- C)  $\text{Watt}^{-1}$
- D)  $\text{Ohm}^{-1}$

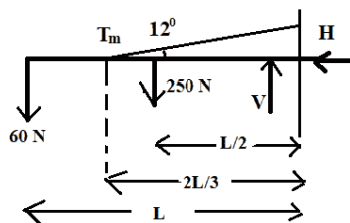
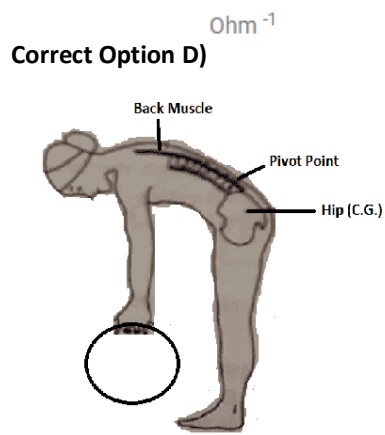


Figure-2

Q6. A woman is lifting a 60 N bowling ball as shown in Figure-2. Her back is in horizontal position. Assuming that the upper part of the body weighs 250 N from the center of gravity (CG), calculate the tension in her back muscle. [Given  $\sin 12^\circ = 0.208$  and  $\cos 12^\circ = 0.978$ ]

- A) 1300N
- B) 1305N
- C) 1334N
- D) 1350N

**Correct Option: C)1334N**

---

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q7. The compression force in her spine is:

- A) 1305 N
- B) 1300 N
- C) 1335 N
- D) 1350 N

**Correct Option: A) 1305 N**

=====

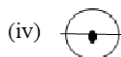
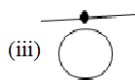
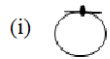
Q8. State the dimension of Tension:

- A)  $ML^{-1}T^{-2}$
- B)  $MLT^3$
- C)  $MLT^{-2}$
- D)  $ML^2T^{-2}$

**Answer:**

**C.  $MLT^{-2}$**

=====



Q9. Which diagram represents the centre of gravity for a bowling ball?

- A) (i)
- B) (ii)
- C) (iii)
- D) (iv)

**Correct Option: D) (iv)**

---

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q10. If a woman lifts the load in an upward direction at an acceleration of  $5 \text{ ms}^{-2}$ , the apparent weight of the load ( $g = 10 \text{ ms}^{-2}$ ) will be:

- A) 60 N
- B) 90 N
- C) 900 N
- D) 9 N

**Correct Option: B) 90 N**

=====

Q11. A person standing between two cliffs claps his hands. He hears echoes after 2 seconds and 2.5 seconds, respectively. If the speed of sound is 330 m/s, what is the distance between the cliffs?

- A) 82.5 m
- B) 742.5 m
- C) 330 m
- D) 732.5 m

**Correct Option: B) 742.5 m**

=====

Q12. Match the following-

- |     |                      |   |                 |
|-----|----------------------|---|-----------------|
| i   | Pitch                | a | Radio Wave      |
| ii  | Loudness             | b | Ultrasonic Wave |
| iii | SONAR                | c | Amplitude       |
| iv  | Electromagnetic Wave | d | Frequency       |

- A) i – c, ii – d, iii - b, iv-- a
- B) i – c, ii – d, iii - a, iv-- b
- C) i – d, ii – c, iii - b, iv-- a
- D) i – d, ii – a, iii - b, iv—c

**Correct Option: C) i – d, ii – c, iii - b, iv-- a**

=====

Q13. A person is listening to a 500 Hz tune sitting at a distance of 450 m from the source of the sound. What is the time interval between successive compressions from the source? (Speed of sound in air = 330 m/s.)

- A) 0.002s
- B) 0.001s
- C) 2.7s
- D) 0.02s

**Correct Option : A) 0.002s**

---

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**CHEMISTRY**

Q1. Acid and Bases

According to Arrhenius's theory, compounds which ionize in water to produce hydrogen ions (H<sup>+</sup>) are acids and compounds which ionize in water to produce hydroxide ions (OH<sup>-</sup>) are bases. Salts when dissolved in water dissociate to form acidic, basic or neutral solutions. pH is the number which indicates the acidic, basic or neutral nature of the solution. The pH scale has values from 1 to 14. Different colours correspond to the values of pH.

The increasing order of basic character among the following oxides is:

- A) BaO > CaO > SrO > MgO.
- B) BaO > SrO > CaO > MgO.
- C) MgO > CaO > SrO > BaO .
- D) BaO > CaO > SrO > MgO.

**Correct Option : B) BaO > SrO > CaO > MgO.**

=====

Q2. Nisha added a few drops of universal indicator to a certain colourless solution, and the colour of the solution turned yellow. She wanted to change the yellow colour of the solution to violet colour. Which of the following compounds should she add to the solution?

- A) NaCl.
- B) NH<sub>4</sub>Cl.
- C) CH<sub>3</sub>COOH.
- D) NaOH.

**Correct Option : D) NaOH**

=====

Q3. Which of the following is not the salt of a strong acid and a strong base?

- A) NaCl.
- B) Na<sub>2</sub>SO<sub>4</sub>.
- C) NaNO<sub>3</sub>.
- D) Na<sub>2</sub>CO<sub>3</sub>.

**Correct Option: D) Na<sub>2</sub>CO<sub>3</sub>.**

=====

Q4. If HCl acid is added to the solution of Na<sub>2</sub>CO<sub>3</sub>, the pH of the solution will \_\_\_\_\_.

- A) increase
- B) decrease
- C) remain same
- D) pH=7

**Correct Option: B) decrease**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q5. Metal (X) when treated with cold water gives compound (Y). Metal (X) is always stored in kerosene for if kept open in air, it catches fire. When a blue-coloured solution of the salt (Z) is treated with a solution of (Y) blue precipitate (M) is obtained.

Identify X, Y, Z and M, respectively.

- A) Na, NaOH, CuSO<sub>4</sub>, Cu(OH)<sub>2</sub>.
- B) K, KOH, CuSO<sub>4</sub>, Cu(OH)<sub>2</sub>.
- C) Na, NaOH, PbSO<sub>4</sub>, Pb(OH)<sub>2</sub>.
- D) K, KOH, PbSO<sub>4</sub>, Pb(OH)<sub>2</sub>.

**Correct Option: A) Na, NaOH, CuSO<sub>4</sub>, Cu(OH)<sub>2</sub>.**

Q6. When a solute (dispersed phase) and a solvent (dispersion medium) are in a heterogeneous state the system is called a colloid solution or suspension. The solute particles present in the colloids are bigger than the particles present in the true solution, but smaller than the particles present in the suspension. Therefore, the particles of colloidal solutions are non-filterable. All particles in the colloidal solution carry the same charge. Colloids possess properties like scattering of light, electrophoresis, adsorption, and coagulation. Depending on the dispersion phase and dispersion medium, following are the types of colloids.

Types of colloidal systems		
Dispersion phase	Dispersion medium	Name of the colloid
Solid	Solid	Solid sol
Solid	Liquid	Sol
Solid	Gas	Solid aerosol
Liquid	Solid	Gel
Liquid	Liquid	Emulsion
Liquid	Gas	Liquid aerosol
Gas	Solid	Solid foam
Gas	Liquid	Foam

Comets have bright tails due to:

- A) Absorption of light
- B) Scattering of light
- C) Refraction of light
- D) Reflection of light

**Correct Option: B)**

**Scattering of light**

**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q7. Match the

following

P	Paints	i	Gel
Q	Cloud	ii	Emulsion
R	Boot polish	iii	Sol
S	Milk	iv	Liquid aerosol

- A) P-ii, Q-iv, R-i, S-iii .
- B) P-iii, Q-iv, R-i, S-ii.
- C) P-i, Q-ii, R-iii ,S-iv.
- D) P-i, Q-iv, R-iii, S-ii.

**Correct Option: B) P-iii, Q-iv, R-i, S-ii.**

=====

Q8. To purify muddy water small amount of alum is used. This is attributed to the following property of colloids:

- A) Electrophoresis
- B) Filterability
- C) Coagulation
- D) Adsorption

**Correct Option: C) Coagulation**

=====

Q9. Which of the following is not a colloid?

- A) Smoke
- B) Milk
- C) Alloy
- D) Syrup

**Correct Option: D) Syrup**

=====

Q10. Gelatine is used to make jellies and ice creams so as to:

- A) Solidify the mixture
- B) Improve the taste
- C) Stabilise the colloids present in the mixture
- D) Prevent the formation of colloids

**Correct Option: C) Stabilise the colloids present in the mixture**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q11. Atoms and Molecules

Atoms and molecules are the basis for the properties of matter. The number of atoms present in a molecule is called its atomicity. The combining capacity of atoms is its valency. The mass of atoms and molecules expressed in carbon-12 units is referred to as atomic and molecular mass respectively. Elements and compounds are represented by symbols and their formulae give an idea about their composition.

The formula of sulphurous acid is  $\text{H}_2\text{SO}_3$ . The formula of ammonium bisulphite is:

- A)  $(\text{NH}_4)_2\text{SO}_3$
- B)  $\text{NH}_4\text{HSO}_3$
- C)  $(\text{NH}_4)_2\text{HSO}_3$
- E)  $\text{NH}_4(\text{HSO}_3)_2$

B.  $\text{NH}_4\text{HSO}_3$

**Correct Option:**

=====

Q12. The atomicity of sodium phosphate is:

- A) 8
- B) 6
- C) 4
- D) 2

**Correct Option: A) 8**

=====

Q13. The correct molecular mass of  $\text{P}_2\text{QR}_4$  is (Atomic mass of  $\text{P}=39.1$ ,  $\text{Q}=32$ ,  $\text{R}=16$  in unified mass unit):

- A) 174.2 u
- B) 174.1u
- C) 174.1u
- D) 135u

**Correct Option:**

**A) 174.2 u**

=====

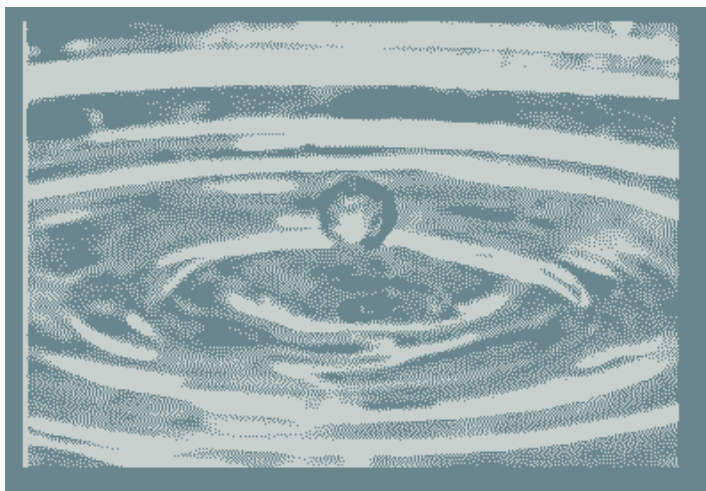
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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**MATHEMATICS**

**DAL LAKE**



Once Rohit was sitting on the bank of the Dal lake in Srinagar which is the second largest lake in Jammu and Kashmir. It is also the most visited place by tourists and locals and is variously known as the "Lake of Flowers", "Jewel in the crown of Kashmir" or "Srinagar's Jewel". The lake is also an important source for commercial operations in fishing and water plant harvesting. While enjoying the scenic beauty of the lake, Rohit noticed someone throwing stones into the lake. He was intrigued by the circular waves formed in the lake (as shown in the figure) which moved at the speed of 6 cm/s.

Based on the given information, answer the following questions: -

Q1. What is the boundary of the circular wave if it's diameter is 12 cm?

- A)  $11 \pi$  cm
- B)  $12 \pi$  cm
- C)  $13 \pi$  cm
- D)  $14 \pi$  cm

**Correct Option: B)  $12 \pi$  cm**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q2. At what speed will the enclosed area increase when the radius of the circular wave is 7cm?

- A)  $82\pi \text{ cm}^2/\text{sec}$
- B)  $83 \pi \text{ cm}^2/\text{sec}$
- C)  $84\pi \text{ cm}^2/\text{sec}$
- D)  $85\pi \text{ cm}^2/\text{sec}$

C.  $84\pi \text{ cm}^2/\text{sec}$

**Correct Option:**

=====

Q3. Find the equation of the line joining the two points A (-2,5) and B (0,1) through which the circular wave passes?

- A)  $2x+y+1=0$
- B)  $2x+y-1=0$
- C)  $x+2y-1=0$
- D)  $x+2y+1=0$

**Correct Option: B)  $2x+y-1=0$**

=====

Q4. If length of the lake is 9 meters, width 6 meters and depth 110 centimetres how many liters of water can be filled into the lake?

- A) 59400 liters
- B) 49500 liters
- C) 95400 liters
- D) 45900 liters

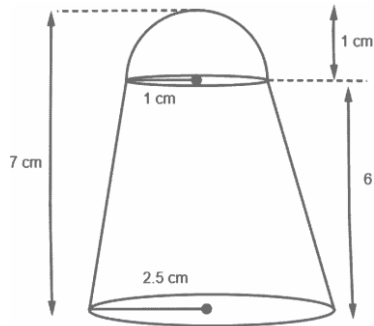
**Correct Option:A) 59400 liters**

---

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**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

The below given figure is a toy with a frustum over a hemisphere. The total height of the toy is 7cm and the external diameters of the frustum are 5cm and 2cm, respectively.



Now answer the following questions:

Q5. If sand is filled in the toy, what is the mass of the sand, if its density is  $1442 \text{ gm/cm}^3$ ?

- A) 91393.96
- B) 91493.96
- C) 92393.96
- D) 93393.96

**Correct Option: A) 91393.96**

=====

Q6. The toy is wrapped with a paper. The total cost of the paper is Rs 259.70. Find the rate of the paper per square cm.

- A) Rs.3.35
- B) Rs.3.40
- C) Rs.3.50
- D) Rs.3.55

**Correct Option: C) Rs.3.50**

=====

Q7. If the semi-spherical part is detached, melted and recast into small balls of diameter 1mm, find the number of balls.

- A) 800
- B) 850
- C) 1000
- D) 1020

**Correct Option: C) 1000**

=====

Q8. The lower and upper part of the frustum is covered with an iron lid. What is the total cost of iron used at the rate of Rs. 8/cm<sup>2</sup>?

- A) Rs.182.28
- B) Rs.160.50
- C) Rs.160.75
- D) Rs.161

**Correct Option: A) Rs.182.28**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**PLAYING CARDS**

In a party, different games are played, one of which is cards.. Ram and Shyam are playing with a well - shuffled pack of 52 cards. It has 4 suites-Diamond, Spade, Clubs, Hearts.

Q9. A card is drawn at random from the deck. What is the probability of getting a 'black card'?

- A)  $1/2$
- B)  $1/4$
- C)  $1/13$
- D)  $1/52$

**Correct Option:A)  $1/2$**

=====

Q10. A card is drawn at random from a deck of cards. Find the probability of getting a 'spade'?

- A)  $1/2$
- B)  $1/4$
- C)  $1/13$
- D)  $1/52$

**Correct Option:B)  $1/4$**

=====

Q11. A card is drawn at random from a deck of cards. Find the probability of getting a 'black heart'?

- A)  $1/2$
- B)  $1/4$
- C)  $1/13$
- D) 0

**Correct Option:D) 0**

=====

Q12. A card is drawn at random from a deck of cards. What is the probability of 'not getting a diamond'?

- A)  $1/2$
- B)  $3/4$
- C)  $4/3$
- D)  $1/4$

**Correct Option:B)  $3/4$**

---

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**BIOLOGY**

The neurons

The electric signals that pass along the dendrites to generate a nerve impulse or an action potential are referred to as nerve impulses. The movement of ions in and out of the cell causes an action potential. It is made up of sodium and potassium ions. They enter and exit the cell via sodium and potassium channels and a sodium-potassium pump. The presence of active and electronic potentials along the conductors causes nerve impulse conduction. Nerve conductors have low axial resistance and relatively high membrane resistance.

Q1. The chemical signal is established between:

- A) dendrite-cyton
- B) cyton-axon
- C) cyton-cyton
- D) axon-axon

**Correct Option:A) dendrite-cyton**

=====

Q2. The connection between axon and dendrite is called:

- A) cartilage
- B) synapse
- C) tendon
- D) blood brain barrier

**Correct Option:B) synapse**

=====

Q3. Jumping movement of nerve conduction is:

- A) active phase
- B) recovery phase
- C) saltatory conduction
- D) neurotransmission

**Correct Option: C) saltatory conduction**

=====

Q4. Conduction of nerve impulse is a:

- A) biochemical process
- B) physical process
- C) electro-chemical process
- D) chemical process

**Correct Option:C) electro-chemical process**

---

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**EVOLUTION**

Evolution is a constant process occurring in nature. The basics of evolution lie in the changes in the hereditary material of organisms. To study these, molecular phylogenetic techniques can be used. To understand past events in evolution, fossils and organism structures play a significant role.

Q5. A fossil is:

- A) full or partial remains of a previously existing organism
- B) remnants of non-living things
- C) a celestial body
- D) a prediction model by which future organisms can be predicted

**Correct Option: A) full or partial remains of a previously existing organism**

---

Q6. Molecular phylogeny is the study of:

- A) DNA to understand the evolution
- B) metabolic constituents to understand the evolution
- C) anatomical features at the minute level to understand the evolution
- D) morphological features at the minute level to understand the evolution

**Correct Option: A) DNA to understand the evolution**

=====

Q7. The wings of the bat and the wings of the bird are examples of:

- A) homologous organ
- B) analogous organ
- C) orthologous organ
- D) heterologous organ

**Correct Option: B) analogous organ**

=====

Q8. Which of the following is necessary for evolution in living organisms to happen?

- A) Changes in DNA
- B) Changes in RNA
- C) Changes in Protein
- D) Changes in Carbohydrates

**Correct Option: A) Changes in DNA**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**WATER POTENTIAL**

A greater water potential ( $\Psi_w$ ) essentially ensures proper movement of water. The addition of solutes leads to changes in solute potential ( $\Psi_s$ ) while the entry/exit of water in a cell affects the pressure potential ( $\Psi_p$ ). Thus, water potential, solute potential and pressure potential are important with reference to water movement between cells.

Q9. Dilution of a solution with water will:

- A) increase the water potential
- B) have no effect on water potential
- C) decrease the pressure potential
- D) have no effect on solute potential

**Correct Option: A) increase the water potential**

=====

Q10. Which of the following statements is incorrect?

- A) Pure water in standard conditions has zero water potential.
- B) Pure water has the highest water potential.
- C) Water potential is the difference between solute potential and pressure potential.
- D) All of the above are incorrect.

**Correct Option: C. Water potential is the difference between solute potential and pressure potential.**

=====

Q11. A rapid influx of solutes into a solution will:

- A) decrease the solute potential
- B) increase the free energy of water
- C) decreases the kinetic energy of water
- D) none of the above

**Correct Option: A) decrease the solute potential**

=====

Q12. When water diffuses across a semi-permeable membrane, the process is called:

- A) transpiration
- B) imbibition
- C) active transport
- D) Osmosis

**Correct Option: D) osmosis**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**LIFE STORY(IES) OF INDIAN SCIENTIST(S)**

Q1. Raman had been examiner for the PhD thesis of

- A) Devendra Sharma
- B) P R Pisharoty
- C) Dr. G Venkataraman
- D) Dr. S Bhagavantam

**Correct Option:A)Devendra Sharma**

=====

Q2. Who offered the Palit Chair to C.V. Raman?

- A) Mahendralal Sircar
- B) J R D Tata
- C) Sir Asutosh Mookerjee
- D) Jagdish Chandra Bose

**Correct Option:C)Sir Asutosh Mookerjee**

=====

Q3. Raman stated that presence of

- A) green colour reduces the visibility of other colours
- B) red colour reduces the visibility of other colours
- C) yellow colour reduces the visibility of other colours
- D) indigo colour enhances the visibility of other colours

**Correct Option:C) yellow colour reduces the visibility of other colours**

=====

Q4. Raman said that all instruments of percussion known to European science were

- A) non-musical
- B) unscientific
- C) non-spiritual
- D) useless

**Correct Option:A)non-musical**

=====

Q5. Why did Raman start the Proceedings of the Academy?

- A) to generate fund for Indian Academy of Sciences
- B) to popularize science for common man
- C) to educate politicians
- D) to prevent loss of proper credit to Indian science publication results

**Correct Option:D) to prevent loss of proper credit to Indian science**

**publication results**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q6. What is the full form of LASER?

- A) Light Amplification by Science Emission of Radiation
- B) Light Amplification by Stimulated Emission of Radiation
- C) Light Amplified by Scientific Emission of Radiation
- D) Light Amplification by Stimulated Emission of Radiator

**Correct Option: B) Light Amplification by Stimulated Emission of Radiation**

=====

Q7. In the discovery of the Raman Effect, who played a very significant role ?

- A) Ramanathan Chandrasekharan
- B) K. Seshagiri Rao
- C) K.S. Krishnan
- D) S. V. Bose

**Correct Option: C) K.S. Krishnan**

=====

Q8. Which city was capital of India before 1922?

- A) Chennai
- B) Madras
- C) Calcutta
- D) Delhi

**Correct Option: C) Calcutta**

=====

Q9. Who ranked the Raman Effect among the best three or four discoveries in experimental Physics in that decade?

- A) Rutherford
- B) Sir JJ Thomson
- C) Rayleigh
- D) KS Krishnan

**Correct Option: A) Rutherford**

=====

Q10. Meteorites have a class known as chondrite that generally contains somewhat rounded but small components (typically mm-sized), called \_\_\_\_\_

- A) Chondrules
- B) Achondrites
- C) Both A & B
- D) None of these

**Correct Option: A) Chondrules**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q11. Anti-malaria drug Artemisinin is obtained from the plant \_\_\_\_\_

- A) Artemisia annua (sweet wormwood tree)
- B) Artemisia absinthium (common wormwood)
- C) Artemisia vulgaris (common mugwort)
- D) Artemisia tridentata (Great Basin sagebrush)

**Correct Option: A) Artemisia annua (sweet wormwood tree)**

=====

Q12. According to ancient Sanskrit work on techniques in agriculture, following activity was NOT included in the definition of agriculture

- A) production of milk and ghee from cow
- B) extraction of salt from sea
- C) extraction of precious stones from earth
- D) selling of clothes

**Correct Option: D) selling of clothes**

=====

Q13. The \_\_\_\_\_ Acts (1700, 1721) banned the import of most cotton textiles from India into Britain to revive the British wool and silk industry, followed by restriction on the use and sale of most cotton items.

- A) Charter
- B) Pitt's India
- C) Calico
- D) Rowlatt

**Correct Option: C) Calico**

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Q14. The statue of Gautam Buddha (5th century) excavated from Sultanganj (in Bihar) and currently in Birmingham Museum describes the expertise of Indians in making pure (99.7%) \_\_\_\_\_

- A) Bronze
- B) Copper
- C) Brass
- D) Iron

**Correct Option: B) Copper**

=====

Q15. \_\_\_\_\_ was a revolt by the farmers cultivating Indigo in the form of a non-cooperation movement against the planters.

- A) Santhal hool
- B) Swadeshi Movement
- C) Paika Rebellion
- D) Neel Vidroh

**Correct Option: D) Neel Vidroh**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q16. \_\_\_\_\_ was elected as the Founder Director of Maharashtra Association for the Cultivation of Science in 1946.

- A) Prof S. P. Agharkar
- B) Prof S. L. Ajrekar
- C) Prof P. J. Deoras
- D) Prof N. V. Joshi

**Correct Option:A)Prof S. P. Agharkar**

=====

Q17. \_\_\_\_\_ has been correlated as the carrier of human dignity and epicenter of psycho-social afflictions.

- A) Brain
- B) Skin Color
- C) Nose
- D) Mouth

**Correct Option:C) Nose**

=====

Q18. First formal recognition of Ayurveda was given by \_\_\_\_\_ and a separate register of practitioners of Indian Systems of Medicine (ISM) was created.

- A) Bombay Medical Practitioners Act, 1938
- B) Madras Indigenous Committee, 1923
- C) Health Survey and Development Committee, 1946
- D) Mudaliar Committee, 1959

**Correct Option:A) Bombay Medical Practitioners Act, 1938**

=====

Q19. In ancient India, the textile products of villages of \_\_\_\_\_ were highly valued, sought after and enjoyed by people in many parts of the world.

- A) Bihar
- B) Assam
- C) Bengal
- D) Madras

**Correct Option:C)Bengal**

=====

Q20. Under the British Raj, Indian peasants or farmers were called \_\_\_\_\_.

- A) Ryots
- B) Pradhan
- C) Gomastha
- D) Dadon

**Correct Option :A)Ryots**

=====

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

**INDIAN CONTRIBUTIONS TO SCIENCE**

Q1. The \_\_\_\_\_ yantra was used for sublimation or distillation of substances.

- A) Patana
- B) Svedani
- C) Dola
- D) Koshti

**Correct Option :A)Patana**

=====

Q2. Why is the green revolution supposed to have saved lives of people?

- A) It increased the agricultural production, and thus food supply.
- B) It increased the cattle population, thus the milk supply.
- C) It improved animal husbandry and increased the meat supply.
- D) It increased the agroforestry production.

**Correct Option:A.It increased the agricultural production, and thus food supply.**

=====

Q3. Hayayurveda, an ancient textbook of veterinary medicine was written by \_\_\_\_\_.

- A) Surapala
- B) Sarngdhara
- C) Salihotra
- D) Varahmihira

**Correct Option:C) Salihotra**

=====

Q4. The correct full form of LIGO is \_\_\_\_\_.

- A) Laser Interferometer Gravitational -Wave Observatory
- B) Light Interferometer Gravitational -Wave Observatory
- C) Laser Indian Gravitational -Wave Observatory
- D) Laser Interferometer Gravitational -Wave Organization

**Correct Option:A.Laser Interferometer Gravitational -Wave Observatory**

=====

Q5. Bija - Bījabhāga -bījabhāgāvayava is the journey of reproductive elements and their importance as explained by Caraka. Which branch of modern biological science can we correlate it with?

- A) Reproduction in plants
- B) Cell biology and Cell division
- C) Genetics and genetic disorders
- D) Seed germination

**Correct Option:C)Genetics and genetic disorders**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q6. CSIR was established in India due to the initiative of \_\_\_\_\_.

- A) C. V. Raman
- B) Dr. Homi Bhabha
- C) J. R. D. Tata
- D) Shantiswarup Bhatnagar

**Correct Option: D) Shantiswarup Bhatnagar**

=====

Q7. Which document has described various kinds of astronomical instruments?

- A) Suryasiddhanta
- B) Yavanjataka
- C) Vedanga Jyotisha
- D) Brahmasphuta Siddhanta

**Correct Option: D) Brahmasphuta Siddhanta**

=====

Q8. Identify the image :



- A) Susruta
- B) Man who underwent rhinoplasty
- C) Kasyapa
- D) Man who underwent cataract surgery

**Correct Option: B) Man who underwent rhinoplasty**

=====

Q9. Which of the following is regarded as the universal language of science?

- A) Mathematics
- B) Geography
- C) Physics
- D) Earth science

**Correct Option: A) Mathematics**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q10. Aryabhata and Brahmagupta are mathematicians of the \_\_\_\_\_ period.

- A) Ancient
- B) Classical
- C) Medieval
- D) Modern

**Correct Option: B) Classical**

=====

Q11. Which of the following statements is true in every ancient culture?

- A) Astronomy was born before mathematics.
- B) Mathematics was born before astronomy.
- C) Astronomy and mathematics were born together.
- D) There is no connection between astronomy and mathematics.

**Correct Option: A) Astronomy was born before mathematics.**

=====

Q12. EDUSAT, a satellite dedicated to the field of education, is also called \_\_\_\_\_.

- A) INSAT I
- B) GSAT-3
- C) GSAT – 8
- D) SKYLAB

**Correct Option: B) GSAT-3**

=====

Q13. Which of the following establishes beyond doubt that the Harappans could not only multiply a quantity by certain factors, but they also had an inclination for a decimal system of multiples?

- A) Construction work
- B) System of weights
- C) Astronomical calculations
- D) Counting system

**Correct Option: B) System of weights**

=====

Q14. India has a well-developed, indigenous nuclear power programme and considerable amounts of fuels in the form of \_\_\_\_\_ sands for the breeder reactors.

- A) Platinum
- B) Thorium
- C) Uranium
- D) Calcium

**Correct Option: B) Thorium**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q15. Gold, copper, silver, lead, tin, iron and mercury are known as metals of \_\_\_\_\_.

- A) Currency
- B) Obsolescence
- C) Eternity
- D) Antiquity

**Correct Option:D.Antiquity**

=====

Q16. Aseem was told that his body functions on the basis of 'kapha dosa'. Aseem now understood that his body works on the principles of \_\_\_\_\_.

- A) Earth and water
- B) Water and fire
- C) Wind and water
- D) Wind and space

**Correct Option:A) Earth and water**

=====

Q17. Choose the correct option for 'Nirbhay':

- A) A missile carrier
- B) An anti-tank missile
- C) A sub-sonic missile
- D) A combat exercise

**Correct Option:C)A sub-sonic missile**

=====

Q18. Virecanam eliminates toxins from which of these organs?

- A) Kidneys
- B) Urinary Bladder
- C) Intestine
- D) Pancreas

**Correct Option:C) Intestine**

---

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Q19. Which of these is not a name of the tree Ficus religiosa?

- A) Boddhi
- B) Pipal
- C) Asvattha
- D) Padma

**Correct Option:D)Padma**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q20. Which of the following suits the laureate Vikram Sarabhai exclusively ?

- A) Set up India's first rocket launching station
- B) He received Ramon Magsaysay Award
- C) He worked as aerospace engineer with DRDO
- D) He served as Chairman of National Knowledge Commission

**Correct Option: A) Set up India's first rocket launching station**

=====

**LOGIC & REASONING**

**Sitting Arrangement**

Answer the following questions based on the information given below:

In a class, eight students (1 girl and 7 boys) sit on four different benches, Bench  $\alpha$ , Bench  $\beta$ , Bench  $\gamma$  and Bench  $\delta$ , in such a manner that each bench is occupied alternately by an intelligent student followed by a weak student.

- Aayush, who is an intelligent student, does not sit with Sita, Mayank and Taksh.
- Shubham is an intelligent boy.
- Deepak sits only with a girl.
- Manish is a weak student, sits on Bench  $\beta$  with Mayank.
- Garv does not sit with Shubham.
- Sita does not sit on  $\alpha$  and  $\gamma$  benches.
- Taksh sits on bench  $\alpha$ .

Q1. On which of the following benches, will Shubham and his partner sit?

- A)  $\gamma$
- B)  $\beta$
- C)  $\alpha$
- D)  $\delta$

**Correct Option: C)  $\alpha$**

=====

Q2. Taksh is a/an:

- A) Intelligent boy
- B) Weak boy
- C) Strong boy
- D) Smart boy

**Correct Option: B) Weak boy**

=====

Q3. Who will be the partner of Aayush?

- A) Shubham
- B) Manish
- C) Sita
- D) Garv

**Correct Option: D) Garv**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q4. Which of the following pair of students will sit on Bench  $\delta$ ?

- A) Aayush, Shubham
- B) Deepak, Sita
- C) Manish, Taksh
- D) Deepak, Taksh

**Correct Option: B) Deepak, Sita**

=====

**Study of a 3-D structure Cube**

A cube of side 24cm is painted green on one pair of opposite surfaces, red on another pair of opposite surfaces and black on the remaining pair of opposite surfaces. The cube is now divided into smaller cubes of equal sides of 6cm each.

Q5. How many smaller cubes will have three surfaces painted?

- A) 16
- B) 12
- C) 8
- D) 4

**Correct Option: C) 8**

=====

Q6. How many smaller cubes will have only two surfaces painted with green and red?

- A) 2
- B) 4
- C) 6
- D) 8

**Correct Option: D) 8**

=====

Q7. How many smaller cubes will have two surfaces painted?

- A) 12
- B) 18
- C) 24
- D) 32

**Correct Option: C) 24**

=====

Q8. How many smaller cubes will have only one surface painted with green colour?

- A) 8
- B) 12
- C) 24
- D) 48

**Correct Option: A) 8**

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**VIDYARTHI VIGYAN MANTHAN 2023-24**  
**MOCK-2 QUESTION PAPER WITH ANSWER KEY**  
**(SENIOR GROUP)**

Q9. Flight Tickets Advance Discounts

0-29 Days advance	10%
30-59 Days advance	30%
60 or more days advance	45%

Mohan bought a ticket for Rs. 176. If he had bought it 1 day later, he would have paid Rs. 224 How many days in advance did he buy the ticket?

- A) 29
- B) 30
- C) 59
- D) 60

**Correct Option: D) 60**

=====

Q10. Each student selected at least one of the following 3 sports: chess, hockey, and kabaddi. 50 selected chess, 26 selected hockey, and 30 selected kabaddi. 2 students selected exactly 2 sports and 2 students selected all the 3 sports. Find the total number of students.

- A) 90
- B) 100
- C) 120
- D) 145

**Correct Option: B)100**

=====