

National Testing Agency

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Nano Science Nano Technology

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Nano Science Nano Technology

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Question Number : 1 Question Id : 61198730455 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the below property is shown by all ionic compound?

1. High volatility
2. Very poor electrical conductivity below the melting point
3. Low boiling point
4. High solubility in water

Options :

- 611987119801. 1
- 611987119802. 2
- 611987119803. 3
- 611987119804. 4

Question Number : 2 Question Id : 61198730456 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Give the symbol and name for the ion with 34 protons and 36 electrons?

1. Al^{3+}
2. Se^{2-}
3. Te^{2-}
4. Mg^{2+}

Options :

- 611987119805. 1
- 611987119806. 2

611987119807.3

611987119808.4

Question Number : 3 Question Id : 61198730457 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The gases deviate from the ideal gas law at high pressure because :

1. Molecules have finite volumes
2. Intermediate forces increases the actual gas volume from the ideal gas volume
3. Collision between molecule occur more frequently as pressure increases
4. Increasing pressure increases the temperature of the gas

Options :

611987119809.1

611987119810.2

611987119811.3

611987119812.4

Question Number : 4 Question Id : 61198730458 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Identify the compound that contains ionic bonds

1. MgF_2
2. CH_2Cl_2
3. CH_2FCOOH
4. SiCl_4

Options :

611987119813.1

611987119814.2

611987119815.3

611987119816.4

Question Number : 5 Question Id : 61198730459 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Count the number of σ and π bonds in $(\text{NC})_2\text{C} = \text{C}(\text{CN})_2$

1. 5,4
2. 6,6
3. 9,4
4. 9,9

Options :

611987119817.1

611987119818.2

611987119819.3

611987119820.4

Question Number : 6 Question Id : 61198730460 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Calculate the momentum and kinetic energy of a neutron with a wavelength of 1.8×10^{-10} m and a mass of 1.67×10^{-27} Kg.

1. $4.7 \times 10^{-24} \text{ Kg ms}^{-1}$, $3.0 \times 10^{-21} \text{ J}$
2. $5.7 \times 10^{-24} \text{ Kg ms}^{-1}$, $6.0 \times 10^{-21} \text{ J}$
3. $3.7 \times 10^{-24} \text{ Kg ms}^{-1}$, $4.0 \times 10^{-21} \text{ J}$
4. $7.7 \times 10^{-24} \text{ Kg ms}^{-1}$, $8.0 \times 10^{-21} \text{ J}$

Options :

611987119821.1

611987119822.2

611987119823.3

611987119824. 4

Question Number : 7 Question Id : 61198730461 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The molecular geometry of SF₄ according to VSEPR theory

1. Tetrahedral
2. Seasaw
3. Square planar
4. Trigonal bipyramidal

Options :

611987119825. 1
611987119826. 2
611987119827. 3
611987119828. 4

Question Number : 8 Question Id : 61198730462 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which complex is expected to be diamagnetic?

1. [Fe(H₂O)₆]²⁺
2. [CoF₆]³⁻
3. [Ni(CN)₄]²⁻
4. [Mn(H₂O)₆]²⁺

Options :

611987119829. 1
611987119830. 2
611987119831. 3
611987119832. 4

Question Number : 9 Question Id : 61198730463 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which compound contain both ionic and covalent bonds?

1. CH₃CH₂CHO
2. CH₃CH₂NH₂
3. CoCl₂
4. K₂CuCl₄

Options :

611987119833. 1
611987119834. 2
611987119835. 3
611987119836. 4

Question Number : 10 Question Id : 61198730464 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which two molecules have same linkage bonding in the monomers together?

1. Nylon and maltose
2. Nylon and protein
3. Terylene and maltose
4. Terylene and protein

Options :

611987119837. 1
611987119838. 2
611987119839. 3
611987119840. 4

Question Number : 11 Question Id : 61198730465 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: When a material is reduced to nanoscale, its surface area to volume ratio increases significantly.

Reason R: At the nanoscale, the size of the nanoparticles decrease, causing a larger fraction of atoms or molecules to be present on the surface compared to bulk.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987119841. 1

611987119842. 2

611987119843. 3

611987119844. 4

Question Number : 12 Question Id : 61198730466 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Carbenes are highly reactive neutral species containing a divalent carbon atom with six valence electrons.

Reason R: Carbenes are electron deficient species because the carbon atom does not complete its octet, making them unstable and highly reactive.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987119845. 1

611987119846. 2

611987119847. 3

611987119848. 4

Question Number : 13 Question Id : 61198730467 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Alkenes and alkynes undergo addition reaction readily.

Reason R: Alkenes and alkynes undergo addition reaction because all the bonds present in them are strong σ (sigma) bonds.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987119849. 1

611987119850. 2

611987119851. 3

611987119852. 4

Question Number : 14 Question Id : 61198730468 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a first order reaction, arrange the following in increasing time required for completion:

- A. 25%
- B. 50%
- C. 75%
- D. 90%

Choose the **correct** answer from the options given below:

1. $B < A < C < D$
2. $C < B < A < D$
3. $A < B < C < D$
4. $D < C < B < A$

Options :

611987119853. 1

611987119854. 2

611987119855. 3

611987119856. 4

Question Number : 15 Question Id : 61198730469 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following carbocations in increasing stability order

- A. CH_3^+
- B. 1°
- C. 2°
- D. 3°

Choose the **correct** answer from the options given below:

1. $B < A < C < D$
2. $A < B < C < D$
3. $D < C < B < A$
4. $C < B < A < D$

Options :

611987119857. 1

611987119858. 2

611987119859. 3

611987119860. 4

Question Number : 16 Question Id : 61198730470 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following steps in the correct sequence to calculate the electrode potential of a polymer electrolyte system using the Nernst equation.

- A. Substitute value into the Nernst equation
- B. Write the balanced electrode reaction
- C. Identify the ionic species and their concentration in polymer electrolyte
- D. Calculate the electrode potential under non-standard conditions.

Choose the **correct** answer from the options given below:

1. C→B→A→D
2. B→C→A→D
3. B→A→C→D
4. A→B→C→D

Options :

611987119861. 1

611987119862. 2

611987119863. 3

611987119864. 4

Question Number : 17 Question Id : 61198730471 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following in order of their increasing atomic number

- A. V
- B. Sc
- C. Mn
- D. Ni

Choose the **correct** answer from the options given below:

1. C < D < A < B
2. A < B < C < D
3. B < C < A < D
4. B < A < C < D

Options :

611987119865. 1

611987119866. 2

611987119867. 3

611987119868. 4

Question Number : 18 Question Id : 61198730472 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Identify the correct statements regarding organometallic compounds

- A. Organometallic compounds contain at least one direct metal- carbon bond
- B. Grignard reagents behave as strong nucleophiles and bases
- C. Organolithium compounds are generally more reactive than Grignard reagents
- D. Organometallic compounds are stable in the presence of moisture and air

Choose the **correct** answer from the options given below:

1. B, C & D Only
2. A, B, C & D Only
3. A, B & C Only
4. B & C Only

Options :

611987119869. 1

611987119870. 2

611987119871. 3

Question Number : 19 Question Id : 61198730473 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Choose the molecular compound only, from the following:

- A. KI
- B. H₂O₂
- C. CHCl₃
- D. Li₂CO₃

Choose the **correct** answer from the options given below:

- 1. A, B & C Only
- 2. B & C Only
- 3. B, C & D Only
- 4. A, B & D Only

Options :

- 611987119873. 1
- 611987119874. 2
- 611987119875. 3
- 611987119876. 4

Question Number : 20 Question Id : 61198730474 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Choose the correct statements

- A. Nanomaterials show tunable band gap energies
- B. Nanomaterials offers enhanced catalytic properties compared to their bulk counterparts
- C. Nanomaterials have fixed band gap energies
- D. At nanoscale, color will tell you the size or vice-versa

Choose the **correct** answer from the options given below:

- 1. A, B, C & D Only
- 2. A, B, & D Only
- 3. B, C & D Only
- 4. A & D Only

Options :

- 611987119877. 1
- 611987119878. 2
- 611987119879. 3
- 611987119880. 4

Question Number : 21 Question Id : 61198730475 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the correct statement about enthalpy

- A. Enthalpy is a state function
- B. For a reaction carried out at a constant pressure, the heat absorbed or released is equal to the enthalpy change
- C. The enthalpy change of a reaction depend on the path followed by the reaction
- D. Breaking chemical bonds always requires absorption of energy

Choose the **correct** answer from the options given below:

- 1. B, C & D Only
- 2. A, B & D Only
- 3. A & B Only
- 4. A, C & D Only

Options :

611987119881. 1

611987119882. 2

611987119883. 3

611987119884. 4

Question Number : 22 Question Id : 61198730476 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Chlorine	I.	CHALCOGEN
B.	Calcium	II.	ALKALI METAL
C.	Sodium	III.	HALOGENS
D.	Sulfur	IV.	ALKALINE EARTH METALS

Choose the **correct** answer from the options given below:

1. A-IV, B-III, C-I, D-II

2. A-III, B-II, C-I, D-IV

3. A-III, B-IV, C-II, D-I

4. A-I, B-II, C-III, D-IV

Options :

611987119885. 1

611987119886. 2

611987119887. 3

611987119888. 4

Question Number : 23 Question Id : 61198730477 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Na ⁺	I.	1s ² 2s ² 2p ⁶ 3s ² 3p ⁶ 3d ⁶
B.	P ³⁻	II.	1s ² 2s ² 2p ⁶ 3s ¹
C.	Al ²⁺	III.	1s ² 2s ² 2p ⁶
D.	Fe ²⁺	IV.	1s ² 2s ² 2p ⁶ 3s ² 3p ⁶

Choose the **correct** answer from the options given below:

1. A-I, B-II, C-III, D-IV

2. A-IV, B-III, C-II, D-I

3. A-II, B-IV, C-III, D-I

4. A-III, B-IV, C-II, D-I

Options :

611987119889. 1

611987119890. 2

611987119891. 3

611987119892. 4

Question Number : 24 Question Id : 61198730478 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	α -rays (Alpha)	I.	Negative charged particles
B.	β -rays (Beta)	II.	Helium nuclei
C.	γ -rays (Gamma)	III.	High penetrating power
D.	Half Life	IV.	Time required for half of the radioactive nuclei to decay

Choose the **correct** answer from the options given below:

1. A-III, B-IV, C-I, D-II
2. A-II, B-I, C-III, D-IV
3. A-I, B-II, C-III, D-IV
4. A-IV, B-I, C-III, D-II

Options :

611987119893. 1
611987119894. 2
611987119895. 3
611987119896. 4

Question Number : 25 Question Id : 61198730479 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Mole concept	I.	6.023×10^{23}
B.	Percentage yield	II.	Reactant completely consumed first
C.	Limiting reagent	III.	Ratio of actual yield to theoretical yield
D.	Avogadro's number	IV.	Relate mass to number of particles

Choose the **correct** answer from the options given below:

1. A-IV, B-III, C-II, D-I
2. A-III, B-IV, C-II, D-I
3. A-I, B-IV, C-III, D-II
4. A-II, B-III, C-IV, D-I

Options :

611987119897. 1
611987119898. 2
611987119899. 3
611987119900. 4

Question Number : 26 Question Id : 61198730480 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In Young's double slit experiment, if the distance between the slits is halved and the distance to the screen is doubled, then the fringe width becomes

1. Halved
2. Doubled
3. Four times
4. Remain the same

Options :

611987119901. 1
611987119902. 2
611987119903. 3
611987119904. 4

Question Number : 27 Question Id : 61198730481 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the meaning of coherent sources of light ?

1. Sources that emit light with high intensity
2. Sources that emit light at the same color only
3. Sources that maintain a constant phase difference between them
4. Sources that emit light continuously without interruption

Options :

- 611987119905. 1
- 611987119906. 2
- 611987119907. 3
- 611987119908. 4

Question Number : 28 Question Id : 61198730482 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The missing order in a double slit diffraction pattern occurs when

1. Slit width equal slit separation
2. The condition for interference maxima and diffraction minima coincide
3. The wavelength is very small
4. The screen is too far

Options :

- 611987119909. 1
- 611987119910. 2
- 611987119911. 3
- 611987119912. 4

Question Number : 29 Question Id : 61198730483 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a particle in a 1D infinite square well of width L, the energy levels are proportional to

1. n
2. n^2
3. $\frac{1}{n}$
4. $\frac{1}{n^2}$

Options :

- 611987119913. 1
- 611987119914. 2
- 611987119915. 3
- 611987119916. 4

Question Number : 30 Question Id : 61198730484 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The radial part of Hydrogen atom wavefunction depends on which quantum number

1. n Only
2. n and l
3. l and m_l
4. n , l and m_l

Options :

- 611987119917. 1
- 611987119918. 2
- 611987119919. 3
- 611987119920. 4

Question Number : 31 Question Id : 61198730485 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Find the ground state energy (in eV) of a harmonic oscillator with $\omega=10^{15}$ rad/s

1. 0.5 eV
2. 0.33 eV
3. 0.25 eV
4. 0.66 eV

Options :

- 611987119921. 1
- 611987119922. 2
- 611987119923. 3
- 611987119924. 4

Question Number : 32 Question Id : 61198730486 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Zero point energy is a direct consequence of

1. Pauli's exclusion principle
2. Heisenberg uncertainty principle
3. Conservation of energy
4. The Schrodinger Equations linearity

Options :

- 611987119925. 1
- 611987119926. 2
- 611987119927. 3
- 611987119928. 4

Question Number : 33 Question Id : 61198730487 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The Displacement current term was added to Ampere's law by Maxwell to ensure

1. Conservation of energy
2. Consistency with the continuity equation
3. The speed of light is constant
4. Magnetic fields are circular

Options :

- 611987119929. 1
- 611987119930. 2
- 611987119931. 3
- 611987119932. 4

Question Number : 34 Question Id : 61198730488 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The Poynting vector $S=E \times H$ represents

1. Charge density
2. Energy flow per unit area per unit time
3. Momentum density
4. Magnetic force

Options :

- 611987119933. 1
- 611987119934. 2
- 611987119935. 3
- 611987119936. 4

Question Number : 35 Question Id : 61198730489 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The first law of thermodynamics is a statement of

1. Conservation of momentum
2. Conservation of energy
3. Conservation of mass
4. The law of entropy

Options :

611987119937. 1
611987119938. 2
611987119939. 3
611987119940. 4

Question Number : 36 Question Id : 61198730490 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Superconductivity arises from electrons forming cooper pairs due to electron phonon interaction

Reason R: Cooper pairs have lower energy and move without scattering leading to zero resistance

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987119941. 1
611987119942. 2
611987119943. 3
611987119944. 4

Question Number : 37 Question Id : 61198730491 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Entropy is a state function

Reason R: Its value is independent of initial and final states and depends on path taken

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987119945. 1
611987119946. 2
611987119947. 3
611987119948. 4

Question Number : 38 Question Id : 61198730492 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Electrons exist in sharp and specific orbits

Reason R: The Schrodinger equation describes orbits as probability distributions.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987119949. 1

611987119950. 2

611987119951. 3

611987119952. 4

Question Number : 39 Question Id : 61198730493 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following in terms of increasing dimension of quantum confinement of electrons at nanoscale

- A. Quantum Dot
- B. Bulk Material
- C. Quantum Well
- D. Quantum wire

Choose the **correct** answer from the options given below:

1. $D < A < C < B$
2. $C < A < B < D$
3. $B < C < D < A$
4. $A < D < B < C$

Options :

611987119953. 1

611987119954. 2

611987119955. 3

611987119956. 4

Question Number : 40 Question Id : 61198730494 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following in terms of their increasing electrical resistance value

- A. Semiconductors
- B. Superconductors
- C. Metals
- D. Insulators

Choose the **correct** answer from the options given below:

1. $A < B < C < D$
2. $B < C < A < D$
3. $C < B < D < A$
4. $C < A < B < D$

Options :

611987119957. 1

611987119958. 2

611987119959. 3

611987119960. 4

Question Number : 41 Question Id : 61198730495 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Identify the correct order for electric field due to Electric dipole at a point P along the dipole axis at distance Z from dipole's midpoint when

- A. Z is halved
- B. Z is doubled
- C. Z remains same
- D. Z is made three times

Choose the **correct** answer from the options given below:

- 1. $D < B < C < A$
- 2. $B < A < D < C$
- 3. $A < C < B < D$
- 4. $C < D < A < B$

Options :

- 611987119961. 1
- 611987119962. 2
- 611987119963. 3
- 611987119964. 4

Question Number : 42 Question Id : 61198730496 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange following electromagnetic radiations in increasing order of their frequency

- A. X-rays
- B. Infrared rays
- C. Visible rays
- D. Gamma rays

Choose the **correct** answer from the options given below:

- 1. $A < C < D < B$
- 2. $C < D < A < B$
- 3. $D < B < C < A$
- 4. $B < C < A < D$

Options :

- 611987119965. 1
- 611987119966. 2
- 611987119967. 3
- 611987119968. 4

Question Number : 43 Question Id : 61198730497 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

which statement correctly describes Gauss law for magnetism

- A. The net Magnetic flux through any closed surface is Zero
- B. Magnetic field lines always form closed loops
- C. Isolated magnetic monopole exists.
- D. The source of magnetic field are electric currents or changing electric fields.

Choose the **correct** answer from the options given below:

- 1. A & B Only
- 2. A, B & D Only
- 3. B, C & D Only
- 4. A, B & C Only

Options :

- 611987119969. 1
- 611987119970. 2

611987119971.3

611987119972.4

Question Number : 44 Question Id : 61198730498 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following quantities are thermodynamic state functions (ie value is independent of path taken between states)?

- A. Internal Energy (U)
- B. Heat (Q)
- C. Enthalpy (H)
- D. Work (W)

Choose the **correct** answer from the options given below:

- 1. B & D Only
- 2. A, B & D Only
- 3. B, C & D Only
- 4. A & C Only

Options :

611987119973.1

611987119974.2

611987119975.3

611987119976.4

Question Number : 45 Question Id : 61198730499 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following are valid consequences or applications of uncertainty principle?

- A. Non- Existence of electron inside the nucleus.
- B. Particles must have minimum (Ground state) energy.
- C. It defines the probabilistic nature (Orbital) of electrons in atoms.
- D. It limit the precision with which we can measure a football's position and speed simultaneously.

Choose the **correct** answer from the options given below:

- 1. B & D Only
- 2. A, B & D Only
- 3. A, B & C Only
- 4. A, B, C & D Only

Options :

611987119977.1

611987119978.2

611987119979.3

611987119980.4

Question Number : 46 Question Id : 61198730500 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following statements correctly describes the Biot Savart's law and its applications

- A. The magnetic field (dB) from a current element is directly proportional to the current (I)
- B. The magnetic field is inversely proportional to the square of the distance
- C. It helps to determine the electric field around a stationary charge
- D. It is used to find the magnetic field at the center of a circular current loop

Choose the **correct** answer from the options given below:

- 1. A, B & D Only
- 2. A, B, C & D Only
- 3. A, B & C Only
- 4. A & B Only

Options :

611987119981. 1
 611987119982. 2
 611987119983. 3
 611987119984. 4

Question Number : 47 Question Id : 61198730501 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Total Internal Reflection	I.	Quanta of Lattice Vibration
B.	LASER	II.	Cooper pair
C.	BCS Theory	III.	Optical Fibers
D.	Phonons	IV.	Stimulated Emission

Choose the **correct** answer from the options given below:

1. A-III, B-IV, C-II, D-I
2. A-II, B-I, C-IV, D-III
3. A-IV, B-III, C-I, D-II
4. A-III, B-II, C-IV, D-I

Options :

611987119985. 1
 611987119986. 2
 611987119987. 3
 611987119988. 4

Question Number : 48 Question Id : 61198730502 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	X-rays	I.	Intensive Property
B.	Volume	II.	Bound electron hole pair
C.	Temperature	III.	Crystal structure
D.	Exciton	IV.	Extensive property

Choose the **correct** answer from the options given below:

1. A-II, B-I, C-IV, D-III
2. A-IV, B-III, C-I, D-II
3. A-III, B-IV, C-I, D-II
4. A-I, B-IV, C-II, D-III

Options :

611987119989. 1
 611987119990. 2
 611987119991. 3
 611987119992. 4

Question Number : 49 Question Id : 61198730503 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Davison and Germer	I.	Statistical interpretation of wave function
B.	Werner Heisenberg	II.	Wave equation for quantum mechanics
C.	Max Born	III.	Electron diffraction (wave- particular duality)
D.	Erwin Schrodinger	IV.	Uncertainty principle

Choose the **correct** answer from the options given below:

1. A-I, B-III, C-IV, D-II
2. A-II, B-I, C-III, D-IV
3. A-III, B-IV, C-I, D-II
4. A-III, B-IV, C-II, D-I

Options :

611987119993. 1
611987119994. 2
611987119995. 3
611987119996. 4

Question Number : 50 Question Id : 61198730504 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Isochoric	I.	Change in temperature = 0
B.	Isothermal	II.	Change in pressure = 0
C.	Isobaric	III.	Change in heat = 0
D.	Adiabatic	IV.	Change in volume = 0

Choose the **correct** answer from the options given below:

1. A-II, B-I, C-IV, D-III
2. A-I, B-II, C-IV, D-III
3. A-III, B-I, C-IV, D-II
4. A-IV, B-I, C-II, D-III

Options :

611987119997. 1
611987119998. 2
611987119999. 3
611987120000. 4

Question Number : 51 Question Id : 61198730505 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Choose the linkage in cellulose

1. $\beta(1-6)$
2. $\beta(1-4)$
3. $\alpha(1-4)$
4. $\alpha(1-6)$

Options :

611987120001. 1
611987120002. 2
611987120003. 3
611987120004. 4

Question Number : 52 Question Id : 61198730506 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the best reason of difference between endocrine gland from exocrine glands.

1. Secrete Harmons into blood
2. Have ducts
3. They are differ in their structures
4. One secrete enzyme the other secrete mucus

Options :

- 611987120005. 1
- 611987120006. 2
- 611987120007. 3
- 611987120008. 4

Question Number : 53 Question Id : 61198730507 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the best explanation of Mendel's law of segregation.

1. Gene Linkage
2. Mutation
3. Gene separation
4. Allele separation

Options :

- 611987120009. 1
- 611987120010. 2
- 611987120011. 3
- 611987120012. 4

Question Number : 54 Question Id : 61198730508 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the activated form of oncogenes.

1. Proto oncogenes
2. House keeping genes
3. Tumor Suppressor genes
4. Repair genes

Options :

- 611987120013. 1
- 611987120014. 2
- 611987120015. 3
- 611987120016. 4

Question Number : 55 Question Id : 61198730509 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the right reason why antibodies not effective against the virus.

1. Viruses lacks DNA
2. Viruses lacks RNA
3. Viruses lacks host
4. Viruses lacks ribosomes

Options :

- 611987120017. 1
- 611987120018. 2
- 611987120019. 3
- 611987120020. 4

Question Number : 56 Question Id : 61198730510 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If a man with blood group AB marries a woman with type O, point out the blood group of their children ?

1. All Children will have blood group A
2. All children will have blood group B
3. Half of the Children have blood group A and half type B blood
4. All have blood group type O

Options :

- 611987120021. 1
- 611987120022. 2
- 611987120023. 3
- 611987120024. 4

Question Number : 57 Question Id : 61198730511 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Write down the complimentary strand of 5'-TAGGCCT-3' clearly indicating the 5' and 3' order of complimentary strand.

1. 3' - ATCCGGA - 5'
2. 5' - ATCCGGA - 3'
3. 3' - UTCCGGA - 5'
4. 5' - UTCCGGA - 3'

Options :

- 611987120025. 1
- 611987120026. 2
- 611987120027. 3
- 611987120028. 4

Question Number : 58 Question Id : 61198730512 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Why lipids are not considered to be a polymer or macromolecules?

1. Lipids do not exist as a chain of linked monomer and they are not very big like protein, nucleic acid
2. Lipids are very polar and remain in folded form
3. Lipids found on surface and not fully exposed
4. Lipids formed with simple molecules and they stay in globular form

Options :

- 611987120029. 1
- 611987120030. 2
- 611987120031. 3
- 611987120032. 4

Question Number : 59 Question Id : 61198730513 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Competitive inhibitor increases

1. V_{max}
2. Enzyme concentration
3. Product formation
4. K_m

Options :

- 611987120033. 1
- 611987120034. 2
- 611987120035. 3
- 611987120036. 4

Question Number : 60 Question Id : 61198730514 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Name the vitamin responsible for the disease Rickets.

1. Vitamin A
2. Vitamin B
3. Vitamin D
4. Vitamin C

Options :

611987120037. 1

611987120038. 2

611987120039. 3

611987120040. 4

Question Number : 61 Question Id : 61198730515 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : Prion disease considered to be infectious

Reason R : The misfolded protein induce misfolding of normal proteins

In the light of the above statements, choose the **correct** answer from the options given below

1. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

611987120041. 1

611987120042. 2

611987120043. 3

611987120044. 4

Question Number : 62 Question Id : 61198730516 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : Multiple alleles can exist in populations

Reason R : More than two alleles is possible in an individual

In the light of the above statements, choose the **correct** answer from the options given below

1. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

611987120045. 1

611987120046. 2

611987120047. 3

611987120048. 4

Question Number : 63 Question Id : 61198730517 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : Calcium ions are essential for blood coagulation

Reason R : Clotting factors required calcium ions for their activation

In the light of the above statements, choose the **correct** answer from the options given below

1. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

- 611987120049. 1
- 611987120050. 2
- 611987120051. 3
- 611987120052. 4

Question Number : 64 Question Id : 61198730518 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Sequence how enzyme converts substrate into products

- A. Substrate held in the active site by weak interaction
- B. The active site lower E_A and speed up the reaction
- C. Substrate enters into active site, enzyme changes shape
- D. Substrate are converted to products

Choose the **correct** answer from the options given below:

1. $C \rightarrow A \rightarrow B \rightarrow D$
2. $D \rightarrow A \rightarrow B \rightarrow C$
3. $B \rightarrow C \rightarrow D \rightarrow A$
4. $A \rightarrow B \rightarrow C \rightarrow D$

Options :

- 611987120053. 1
- 611987120054. 2
- 611987120055. 3
- 611987120056. 4

Question Number : 65 Question Id : 61198730519 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange mitosis is in animal cell

- A. Metaphase
- B. Prophase
- C. Anaphase
- D. Telophase

Choose the **correct** answer from the options given below:

1. $A \rightarrow B \rightarrow C \rightarrow D$
2. $C \rightarrow D \rightarrow B \rightarrow A$
3. $B \rightarrow A \rightarrow C \rightarrow D$
4. $D \rightarrow B \rightarrow C \rightarrow A$

Options :

- 611987120057. 1
- 611987120058. 2
- 611987120059. 3
- 611987120060. 4

Question Number : 66 Question Id : 61198730520 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Bacterial cell division by binary phase

- A. Cell elongation
- B. Chromosome replication
- C. New cell wall deposition
- D. Two daughter cells result

Choose the **correct** answer from the options given below:

- 1. A→B→C→D
- 2. B→A→C→D
- 3. C→B→D→A
- 4. D→A→B→C

Options :

- 611987120061. 1
- 611987120062. 2
- 611987120063. 3
- 611987120064. 4

Question Number : 67 Question Id : 61198730521 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange common antigens as per their molecular weight

- A. Bovine gamma globulin (BGG)
- B. Oval Bumin (OVA)
- C. Bovine serum albumin (BSA)
- D. Sperm whale myoglobin (SWM)

Choose the **correct** answer from the options given below:

- 1. A→B→C→D
- 2. A→C→B→D
- 3. B→C→A→D
- 4. C→D→B→A

Options :

- 611987120065. 1
- 611987120066. 2
- 611987120067. 3
- 611987120068. 4

Question Number : 68 Question Id : 61198730522 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Process of DNA replication involves

- A. DNA polymerase synthesis
- B. Semi conservative
- C. In eukaryotes occur in cytoplasm
- D. Require RNA primer

Choose the **correct** answer from the options given below:

- 1. A & B Only
- 2. A, B & C Only
- 3. B, C & D Only
- 4. A, B & D Only

Options :

- 611987120069. 1
- 611987120070. 2
- 611987120071. 3
- 611987120072. 4

Question Number : 69 Question Id : 61198730523 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Among these statement about the cell cycle

- A. G is growth phase
- B. DNA replication in S phase
- C. Mitosis included cytokinesis
- D. G_0 is dividing phase

Choose the **correct** answer from the options given below:

- 1. A & B Only
- 2. A, B, C & D Only
- 3. A, B & C Only
- 4. B & C Only

Options :

- 611987120073. 1
- 611987120074. 2
- 611987120075. 3
- 611987120076. 4

Question Number : 70 Question Id : 61198730524 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Enzyme inhibition

- A. Irreversible inhibitor increase V_{max}
- B. Inhibition can regulate metabolism
- C. Competitive inhibitors bind active site
- D. Non competitive inhibitors bind allosteric site

Choose the **correct** answer from the options given below:

- 1. B & D Only
- 2. B, C & D Only
- 3. A, C & D Only
- 4. A, B & C Only

Options :

- 611987120077. 1
- 611987120078. 2
- 611987120079. 3
- 611987120080. 4

Question Number : 71 Question Id : 61198730525 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the nonpolar side chain amino acid

- A. Methionine
- B. Glutamine
- C. Proline
- D. Phenylalanine

Choose the **correct** answer from the options given below:

- 1. A, C & D Only
- 2. A, B & D Only
- 3. A, C, B & D Only
- 4. C, B & D Only

Options :

- 611987120081. 1
- 611987120082. 2
- 611987120083. 3

Question Number : 72 Question Id : 61198730526 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	m-RNA	I.	Serve as translator molecule in protein synthesis
B.	t-RNA	II.	Catalyzes peptide bond formation
C.	rRNA	III.	Carries information specifying amino acid sequence
D.	Small RNA in spliceosome	IV.	The complex of protein and RNA that splice pre m-RNA

Choose the **correct** answer from the options given below:

1. A-III, B-I, C-IV, D-II
2. A-III, B-I, C-II, D-IV
3. A-I, B-III, C-II, D-IV
4. A-II, B-III, C-I, D-IV

Options :

611987120085. 1
 611987120086. 2
 611987120087. 3
 611987120088. 4

Question Number : 73 Question Id : 61198730527 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Thyroid	I.	Insulin
B.	Pancreas	II.	Master gland
C.	Adrenal	III.	Thyroxine
D.	Pituitary	IV.	Adrenaline

Choose the **correct** answer from the options given below:

1. A-IV, B-I, C-II, D-III
2. A-III, B-IV, C-I, D-II
3. A-III, B-II, C-I, D-IV
4. A-III, B-I, C-IV, D-II

Options :

611987120089. 1
 611987120090. 2
 611987120091. 3
 611987120092. 4

Question Number : 74 Question Id : 61198730528 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Ribosome	I.	Breakdown of ingested substrate
B.	Golgi apparatus	II.	Digestion, storage, waste dispose
C.	Lysosome	III.	Protein synthesis
D.	Vacuole	IV.	Modification of proteins

Choose the **correct** answer from the options given below:

1. A-III, B-I, C-IV, D-II
2. A-III, B-IV, C-I, D-II
3. A-I, B-II, C-III, D-IV
4. A-IV, B-III, C-I, D-II

Options :

611987120093. 1

611987120094. 2

611987120095. 3

611987120096. 4

Question Number : 75 Question Id : 61198730529 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Hexo kinase	I.	NADPH formation
B.	Phosphofructo kinase	II.	ATP generation
C.	Pyruvate Kinase	III.	Rate limiting step
D.	GADPH	IV.	Glucose phosphorylation

Choose the **correct** answer from the options given below:

1. A-IV, B-I, C-II-, D-III
2. A-IV, B-II, C-III, D-I
3. A-IV, B-III, C-II, D-I
4. A-III, B-IV, C-II, D-I

Options :

611987120097. 1

611987120098. 2

611987120099. 3

611987120100. 4