



CHEMISTRY

FOR IIT JEE ASPIRANTS OF CLASS 12 FOR CHEMISTRY

18TH GROUP ELEMENTS

WE 1

1. The s-block element present in zerogroup is _____.



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WE 2

1. The most appropriate name for zerogroup elements is _____.

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WE 3

1. Why Helium is totally inert ?

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WE 4

1. Liquid Helium is called superfluid. Why ?

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WE 5

1. Which inert gas obtained from monazite sand ?

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WE 6

1. Name the Fluoride of Xenon which undergoes thermal decomposition ?

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1. Noble gases are also known as

A. Chalcogens

B. Halogens

C. Aerogens

D. Transition elements

Answer:



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2. The valence shell configuration of noble gases (except He)

is

A. ns^2np^4

B. ns^2np^1

C. ns^2np^6

D. $ns^2np^6nd^{10}$

Answer: C



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3. The atomicity of noble gases is

A. Two

B. One

C. Six

D. Four

Answer: C



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4. The most abundant noble gas in the atmosphere is

A. Argon

B. Neon

C. Helium

D. Krypton

Answer: B



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5. The least abundant inert gas in the atmosphere is by volume

A. Ne

B. He

C. Ar

D. Xe

Answer: A



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6. Which of the following inert gas is available only as a product in the radioactive disintegrations ?

A. He

B. Ar

C. Rn

D. Kr

Answer: D



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7. The most abundant of helium is

A. Spring waters

B. Natural gas

C. Clevite

D. Sun

Answer: B



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8. The inert gas predicted from the solar spectrum is

A. Ne

B. Kr

C. Xe

D. He

Answer: D



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9. Which of the following is the correct sequence of the noble gases in their in the periodic table ?

A. Ar, He, Kr, Ne, Rn, Xe

B. He, Ar, Ne, Kr, Xe, Rn

C. He, Ne, Kr, Ar, Xe, Rn

D. He, Ne, Ar, Kr, Xe, Rn

Answer: D



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10. Which of the following is not a noble gas ?

A. N_2

B. He

C. Ne

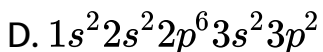
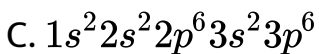
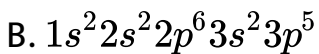
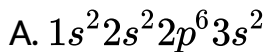
D. Ar

Answer: A



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11. Which one of the following configuration represents Ar. ?



Answer: C



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12. $1s^2 2s^2 2p^6$ is the electron configuration of

A. Nitrogen

B. Boron

C. Argon

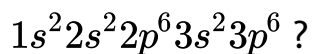
D. Neon

Answer: D



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13. Which of the following corresponds to the configuration



A. He

B. Na

C. Mg

D. Ar

Answer: D



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14. The forces of attraction operating between atoms of inert gases are

- A. Electrostatic forces
- B. Ion dipole forces
- C. Magnetic forces
- D. Vander Waals' forces

Answer: D

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15. Which of the following noble gas is least polarisable ?

- A. He
- B. Ne
- C. Kr
- D. Xe

Answer: A



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16. Boiling point is very high for

A. He

B. Ne

C. Kr

D. Xe

Answer: D



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17. Chemically least active element is

A. Kr

B. Ne

C. Xe

D. Ar

Answer: B



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18. The noble gas which can form more number of compounds is

A. Ne

B. He

C. Xe

D. Ar

Answer: C



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19. The last member of the family of inert gases is

A. Argon

B. Radon

C. Xenon

D. Neon

Answer: B



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20. The element having highest ionisation potential is

A. H

B. N

C. O

D. He

Answer: D



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21. Which is the lightest gas ?

- A. Helium
- B. Oxygen
- C. Hydrogen
- D. Nitrogen

Answer: C



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22. Which of the following gas is/are called inert gas ?

- A. He
- B. Ne

C. Kr

D. All of these

Answer: D



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23. Noble gases form compounds very easily with

A. Sulphur

B. Nitrogen

C. Oxygen

D. Fluorine

Answer: D

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24. Among noble gases, only xenon can form more number of compounds. This is due to its

- A. High I.P
- B. Low I.P
- C. Small size
- D. less than zero electron affinity

Answer: B

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25. The heat of vapourisation is very high for

A. He

B. Ne

C. Ar

D. Xe

Answer: D



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26. The M.P. and B.P. are very low for

A. Ne

B. He

C. Kr

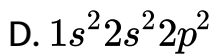
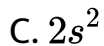
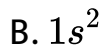
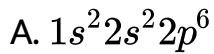
D. Ar

Answer: B



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27. The electronic configuration of neon is

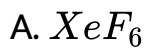


Answer: A



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28. Which of the following is a most explosive compound ?



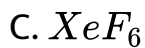
Answer: B



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29. The molecule with with linear structure is



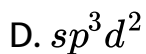
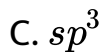
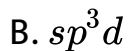
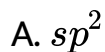


Answer: D



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30. The hybridisation of Xe in XeO_3 is



Answer: C

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31. The shape of XeF_4 molecule is

- A. Tetrahedron
- B. Square planar
- C. Square pyramidal
- D. Trigonal bipyramid

Answer: B

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32. Which of the following forms maximum number of compounds ?

A. Ne

B. Kr

C. Xe

D. Rn

Answer: C



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33. The hybridisation of Xe is sp^3d^2 in

A. XeF_2

B. XeO_4

C. XeF_4

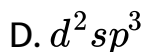
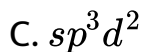
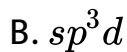
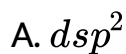
D. XeO_3

Answer: C



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34. XeF_4 is a square planar molecule. The hybridisation of xenon atom in this molecule is



Answer: C



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35. The element is used in locating defect in steel casting is

A. He

B. Kr

C. Xe

D. Rn

Answer: D



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36. The gas used for inflating the tyres of aeroplanes is

A. Ar

B. He

C. H_2

D. N_2

Answer: B



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37. The coloured discharge tubes for advertisement mainly contains

A. Xe

B. He

C. Ne

D. Ar

Answer: C



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38. Which gas is filled in element bulbs/tubes?

A. Ar

B. N_2

C. He

D. O_2

Answer: A



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39. The gas used in gas thermometer is

A. He

B. O_2

C. Xe

D. Ne

Answer: A



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Level I C W

1. The lightest noble gas atom contains the following particles in its nucleus

- A. 4 protons
- B. 3 neutrons
- C. 3 protons and 1 neutron
- D. 2 protons and 2 neutrons

Answer: D

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2. The order of abundance of inert gases in the atmosphere is

- A. $Ar < Ne < Xe$
- B. $Ar > Ne > Xe$
- C. $Ar > Xe > Ne$

D. $Ne > Ar > Xe$

Answer: B

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3. Which of the following is a false statement ?

A. radon is obtained by the decay of radium

B. helium is an inert gas

C. xenon is the most reacting among rare gases

D. the most abundant rare gas in the atmosphere is
helium

Answer: D

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4. Which of the following is non-existing ?

A. H_2

B. O_2

C. N_2

D. He_2

Answer: D

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5. Electronegativity of inert gases is

A. low

B. high

C. zero

D. abnormally high

Answer: C



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6. Ionisation potential is very low for

A. Xe

B. Ne

C. He

D. Ar

Answer: A



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7. The density is very high for

A. Ne

B. Ar

C. He

D. Xe

Answer: D



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8. which of the following gas does not have an octet or eight electrons in the outer shell?

A. Neon

B. Radon

C. Argon

D. Helium

Answer: D



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9. The value of ionisation energy for inert gases is _____.

A. Zero

B. Low

C. High

D. Negative

Answer: C



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10. The noble gas which behaves abnormally in liquid state is

A. Xe

B. Ne

C. He

D. Ar

Answer: C



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11. The noble gas with highest ionization energy is

A. He

B. Ar

C. Xe

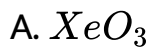
D. Kr

Answer: A



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12. Which of the following has SP^3 hybridization ?



Answer: A



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13. What is the atomic number (Z) of the noble gas that reacts with fluorine ?

A. 54

B. 10

C. 18

D. 2

Answer: A



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14. Maximum number of compounds are known in the case of:

A. Ne

B. Xe

C. Kr

D. Ar

Answer: B



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15. Among noble gases, only xenon reacts with fluorine to form stable xenon fluorides, because xenon

- A. has highest ionisation enthalpy
- B. has lowest ionisation enthalpy
- C. has highest heat of vapourisation
- D. is the most readily available noble gas

Answer: B



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16. The bond angle in XeF_2 molecule is

A. 120°

B. 109°

C. 180°

D. 90°

Answer: C



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17. The number of lone pairs of electrons on xenon atom in XeF_4 molecule is

A. 4

B. 3

C. 2

D. zero

Answer: C



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18. The number of s and p bonds in XeO_3 molecule are

A. 1s , 2p

B. 3s , 3p

C. 3s , 0p

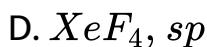
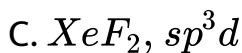
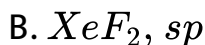
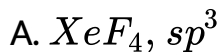
D. 2s , 1p

Answer: B



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19. Which one of the following is a correct pair with respect to molecular formula of xenon compound and hybridisation state of xenon in it ?



Answer: C



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20. The number of lone pairs of electrons present on Xe in XeF_2 ?

A. 3

B. 4

C. 2

D. 1

Answer: A



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21. The structure of XeF_6 is

A. distorted octahedral

B. trigonal pyramidal

C. tetrahedral

D. none of the above

Answer: A

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22. Which of the following is planar ?

A. XeO_2F_2

B. XeO_3

C. XeO_4

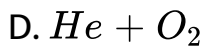
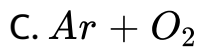
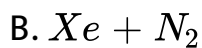
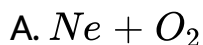
D. XeF_4

Answer: D



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23. The gas mixture used to provide relief for the asthma patients in their respiratory problems is



Answer: D



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24. Beacon lights are obtained from

- A. Neon lamps
- B. Tungston lamps
- C. Hydrogen lamps
- D. Xenon lamps

Answer: A



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25. In ordinary incadescent and fluorscen lamps the gas filled along with nitrogen is

- A. Ne

B. He

C. Xe

D. Ar

Answer: D

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26. Helium - oxygen mixture is used by deep sea divers in preference to nitrogen-oxygen mixture, because

A. helium is much less soluble in blood than nitrogen

B. nitrogen is much less soluble in blood than helium

C. due to high pressure nitrogen reacts with oxygen to give poisonous nitric oxide.

D. nitrogen is highly soluble in water.

Answer: A



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27. Which of the following noble gases is used in the treatment of cancer ?

A. Xe

B. Ar

C. Rn

D. Kr

Answer: C



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28. Which one of the following statements regarding helium is incorrect?

- A. It is used to produce and sustain powerful superconducting magnets
- B. It is used as a cryogenic agent for carrying out experiments at low temperatures
- C. It is not used to fill gas balloons instead of hydrogen because it is lighter and non-inflammable
- D. It is used in gas-cooled nuclear reactors

Answer: C

29. Statement I : Balloons made by nylon films are better for containing helium than the conventional rubber balloons.

Statement II : R.M.S. velocity of helium is very high. So helium atom can effuse out through rubber balloons.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: B



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30. Statement I : Compared to other noble gases 'Xe' is chemically active.

Statement II : 'Xe' has low IP value and vacant 'd' orbitals, available for the excitation of electrons from 'p' orbitals of valence shell.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: A



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31. Statement I : Noble gases have highest ionization energies in their respective periods.

Statement II : The ns-np of outermost shell of noble gases is completely filled.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: A

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32. Statement I : Deep sea divers use $He - O_2$ mixture for breathing

Statement II : Unlike N_2 , He is not soluble in blood even under high pressure.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: A



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33. Assertion :Solubility of noble gases in water decreases with increases in atomic size

Reason :Solubility of noble gases in water is due to instantaneous dipole induced dipole interaction

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: D



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34. Statement I : He - II has high viscosity and flows downward.

Statement II : Liquid helium is used as cryogenic liquid.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: D



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35. Statement I : In sea diver gases, the nitrogen of normal air is replaced by helium.

Statement II : Nitrogen becomes more soluble in the body fluids at high pressures and cases conditions similar to alcohol intoxication.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. I' is true but 'II' is false.
- D. I' is false but 'II' is true.

Answer: A



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36. Statement I : Xenon form fluorides.

Statement II : Because 5d orbitals are available for valence shell expansion.

- A. Both 'I' and 'II' are true. 'II' is correct explanation of 'I'.
- B. Both 'I' and 'II' are true. 'II' is not correct explanation of 'I'.
- C. 'I' is true but 'II' is false.
- D. 'I' is false but 'II' is true.

Answer: A



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37. Match the following.

List-I

List-II

(A) XeF_4 (1) Distorted octahedral

(B) XeF_6 (2) Tetrahedral

(C) XeO_3 (3) Square planar

(D) XeO_4 (4) Pyramidal

A.

	A	B	C	D
	1	2	3	4

B.

	A	B	C	D
	3	1	4	2

C.

	A	B	C	D
	1	3	2	4

D.

	A	B	C	D
	2	4	1	3

Answer: B



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38. Matrix Matching.

List-I

List-II

(A) Gas Thermometers (p) He

(B) Beacon lamp (q) Ne

(C) Electric bulbs (r) Xe

(D) Flash bulb (s) Kr



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Level II C W

1. Oxidation state of Xe in $Ba_2[XeO_6]$ is

A. 4

B. 6

C. 7

D. 8

Answer: D



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2. The elements which occupy the peaks of ionization energy curve are

A. Na,K,Rb,Cs

B. Na,Mg,Cl,I

C. Cl,Br,I,F

D. He,Ne,Ar,Kr

Answer: D



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3. The lowest boiling point of helium is due to its

A. inertness

B. Gaseous nature

C. High polarisability

D. Weak van der Waals forces between atoms

Answer: D



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4. Noble gases are group of elements which exhibit very :

- A. High chemical activity
- B. Much paramagnetic properties
- C. Maximum electronegativity
- D. Low chemical activity

Answer: D



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5. XeF_6 on complete hydrolysis gives.

- A. Xe
- B. XeO_2
- C. XeO_3
- D. XeO_4

Answer: C



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6. First stable compound of inert gas was prepared by

- A. Rayleigh and Ramsay
- B. Bartlett
- C. Frankland and Lockyer
- D. Cavendish

Answer: B



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7. The element which has not yet been reacted with F_2 is

A. Ar

B. Xe

C. Kr

D. Rn

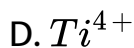
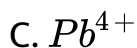
Answer: A



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8. Which has the same electronic configuration as of inert gas ?

A. Ag^{3+}

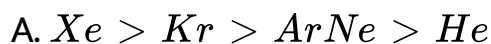


Answer: D



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9. The correct order of enthalpy of vaporisation of noble gases is

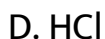


Answer: A



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10. Which of the following exhibits the weakest intermolecular forces?



Answer: C



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11. Which of the following noble gas is the most polarized ?

A. Radon

B. Krypton

C. Xenon

D. Helium

Answer: C



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12. Which of the noble gases is the least polarized?

A. Radon

B. Krypton

C. Xenon

D. Helium

Answer: D



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13. The reaction of Xe with an excess of F_2 at high pressure and 573 K yields

A. XeF_2

B. XeF_4

C. XeF_6

D. XeF_3

Answer: C



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14. The shape of XeF_5^+ Ion is

- A. Pentagonal
- B. Octahedral
- C. Square pyramidal
- D. Trigonal bipyramidal

Answer: C



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15. The number of ($p\pi - d\pi$) π -bonds present in XeO_3 and XeO_4 respectively are

A. 3, 4

B. 4, 2

C. 2, 3

D. 3, 2

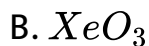
Answer: A



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16. The fluoride of Xenon with zero dipole moment is

A. XeF_6



Answer: C



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17. XeO_6^{4-} contains

A. Eight bond pairs and no lone pairs at Xe

B. Three bond pairs and three lone pairs at Xe

C. Two bond pairs and six lone pairs at Xe

D. Four bond pairs and four lone pairs at Xe

Answer: A



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18. How many lone pairs are associated with xenon in xenon difluoride ?

A. 1

B. 2

C. 3

D. 4

Answer: C



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19. XeO_3 has

- A. Three double bonded O-atoms
- B. Trigonal pyramidal geometry
- C. One lone pair and sp^3 hybridisation
- D. All of these

Answer: D

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Level Iii

1. When a radioactive substance is kept in a vessel, the atmosphere around it is rich with

A. Ne

B. Ar

C. Xe

D. He

Answer: D

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2. Which statement about noble gases is not correct ?

A. Xe forms XeF_6

B. Ar is used in electric bulbs

C. Kr is obtained during radioactive disintegration.

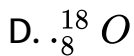
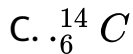
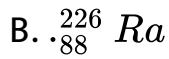
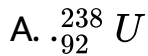
D. He has the lowest b.pt among all the noble gases

Answer: C



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3. A radioactive element X decays to give two inert gases X is



Answer: B



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4. In order to prevent the hot metal filament from getting burnt, when the electric current is switched on, the bulb is filled with

A. CH_4

B. An inert gas

C. CO_2

D. Cl_2

Answer: B



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5. The solubility of noble gases in water shows the order

A. $He > Ar > Kr > Ne > Xe$

B. $He > Ne > Ar > Kr > Xe$

C. $Xe > Kr > Ar > Ne > He$

D. None of these

Answer: C

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6. The ease of liquefaction of noble gases decreases in the order

A. $He > Ne > Ar > Kr > Xe$

B. $Xe > Kr > Ar > Ne > He$

C. $Kr > Xe > He > Ar > Ne$

D. $Ar > Kr > Xe > He > Ne$

Answer: B

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7. The increasing d-character in hybridisation of Xe in XeF_2 , XeF_4 , XeF_6 is

A. $XeF_2 < XeF_4 < XeF_6$

B. $XeF_4 < XeF_2 < XeF_6$

C. $XeF_6 < XeF_4 < XeF_2$

D. $XeF_2 < XeF_6 < XeF_4$

Answer: A

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8. Which of the following is a superfluid ?

A. Krypton

B. Argon II

C. Helium III

D. Helium I

Answer: C



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9. Which of the following statements is correct ?

A. Helium-5 helium-3 are radioactive nuclides with short half-lives

B. ${}^4_2\text{He}$ is obtained from the decay of ${}^3_1\text{H}$

C. Helium is the most abundant noble gas in the atmosphere

D. Helium-4 has a low molecular viscosity and a large mean free path

Answer: A



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10. Which of the following two are isostructural ?

A. $\text{XeF}_2, \text{IF}_2^-$

B. NH_3 , BF_3

C. NH_2 , BF_2

D. PCl_5 , ICl_5

Answer: A



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11. D_3 line observed in the yellow region of the sun's spectrum is due to

A. Na

B. Ne

C. Kr

D. He

Answer: D



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12. The wrong statement among the following is

A. Helium is used to fill observatory balloons because it is lighter than air and non-combustible

B. A mixture of 80 % helium and 20 % oxygen is used for respiration by deep sea divers.

C. The noble gas used in atomic reactors is argon for cooling.

D. Neon is used in discharge tubes and fluorescent bulbs for advertisement display purposes.

Answer: D



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Level Iv

1. In the preparation of compounds of Xe, Bartlett has taken

$O_2^+ PtF_6^-$ as a base compound. This is because

- A. both O_2 and Xe have same size.
- B. both O_2 Xe have same electron gain enthalpy.
- C. both O_2 and Xe have almost same ionisation enthalpy.
- D. both Xe and O_2 are gases.

Answer: C



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2. Which of the following statements are true ?

- A. Only type of interactions between particles of noble gases are due to weak dispersion forces.
- B. Ionisation enthalpy of molecular oxygen is very close to that of xenon.
- C. Hydrolysis of XeF_6 is a redox reaction.
- D. Xenon fluorides are not reactive.

Answer: A::B



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3. Which of the following statements(s) is/are true for XeF_6 ?

A. Its partial hydrolysis gives $XeOF_4$.

B. Its reaction with silica give $XeOF_4$.

C. It is prepared by the reaction of $XeOF_4$ and O_2F_2 .

D. Its reaction with XeO_3 gives $XeOF_4$.

Answer: A::B::C::D



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4. Match the compounds give in Column I with the hybridisation an shape given in Column II and mark the correct option.

Column I	Column II
A. XeF_6	1. sp^3d^3 - distorted octahedral
B. XeO_3	2. sp^3d^2 - square planar
C. XeOF_4	3. sp^3 - pyramidal
D. XeF_4	4. sp^3d^2 - square pyramidal

Codes

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

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

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

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

Answer: A



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5. Match the items of Columns I and II and mark the correct option.

Column I	Column II
A. Its partial hydrolysis does not change oxidation state of central atom.	1. He
B. It is used in modern diving apparatus.	2. XeF ₆
C. It is used to provide inert atmosphere for filling electrical bulbs.	3. XeF ₄
D. Its central atom is in sp ³ d ² hybridisation.	4. Ar

Codes

A. A B C D
1 4 2 3

B. A B C D
1 2 3 4

C. A B C D
2 1 4 3

D. A B C D
1 3 2 4

Answer: C



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Level I H W

1. The valency is zero for

- A. Neon
- B. Fluorine
- C. Oxygen
- D. Carbon

Answer: A



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2. Oxidation state of zero group elements is

A. -1

B. $+1$

C. 0

D. -2

Answer: C



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3. The atomicity of neon gas is

A. Two

B. One

C. Four

D. Three

Answer: B



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4. Which of the following gaseous molecules is monoatomic ?

A. Chlorine

B. Helium

C. Oxygen

D. Nitrogen.

Answer: B



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5. The number of electrons in the penultimate orbit of krypton atom are

A. 8

B. 2

C. 18

D. 32

Answer: C



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6. Which one of the following noble gases is not found in atmosphere?

A. Rn

B. Kr

C. Ne

D. Ar

Answer: A



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7. The first noble gas compound prepared by Bartlett is

A. XeF_2

B. KrF_2

C. $XePtF_6$

D. XeO_3

Answer: C



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8. Number of unpaired electrons in inert gas is

A. Zero

B. 8

C. 4

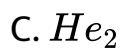
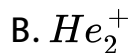
D. 18

Answer: A



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9. Helium is subjected to electrical discharge. The following species is not present in the discharge tube



Answer: C



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10. The spectrum of He is expected to be similar to that of



B. Be

C. Li^+

D. Ne

Answer: C



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11. The gas that gives superfluid on cooling at $2.2K$ is

A. Ar

B. Rn

C. Kr

D. He

Answer: D



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12. Viscosity is very low for

A. Ar

B. He(I)

C. He(II)

D. Kr

Answer: C



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13. Which of the following statement is not correct for a noble gas ?

A. Argon is used to fill the incandescent bulbs

B. Krypton is obtained in nuclear fission.

C. Radon is present in the atmosphere

D. Xenon cannot form XeF_3

Answer: C



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14. Inversion temperature of helium is very low. So when helium is allowed to expand into vacuum it gets

A. Cooled

B. Heated

C. Neither cooled, nor heated

D. Liquified

Answer: B

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15. Which of the following is a product in the explosion of hydrogen bomb ?

A. Kr

B. Ne

C. He

D. Xe

Answer: C



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16. The lightest, non-inflammable gas is

A. H_2

B. He

C. N_2

D. Ar

Answer: B



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17. Which of the following compound cannot be prepared ?



Answer: B



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18. The shape of XeO_3 molecule is



B. pyramid

C. linear

D. square planar

Answer: B



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19. XeF_2 molecule is

A. Trigonal planar

B. Square planar

C. Linear

D. Pyramidal

Answer: C



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20. If N_2 gas is dissolved in the blood, it causes

- A. Blindness
- B. Headache
- C. Bends
- D. All

Answer: C



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21. Sea divers go deep in the sea water with a mixture of which of the following gases

A. O_2 and He

B. O_2 and Ar

C. O_2 and CO_2

D. CO_2 and Ar

Answer: A



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22. Asthma patients use a mixture offor respiration

A. O_2 and H_2

B. O_2 and He

C. O_2 and Ar

D. O_2 and Ne

Answer: B



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23. Shape of $XeOF_4$ is

A. Octahedral

B. Square pyramidal

C. Pyramidal

D. T-Shaped

Answer: B



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24. Hybridization and shape of XeF_4 is

A. sp^3d , trigonal bipyramidal

B. sp^3 , tetrahedral

C. sp^3d^2 , square planar

D. sp^3d^2 , hexagonal

Answer: C



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25. Which of the following is formed by xenon ?



Answer: B



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26. The structure of XeO_2F_2 is

A. Square pyramidal

B. Trigonal pyramidal (see-saw)

C. Octahedral

D. Tetrahedral

Answer: B



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27. Why He and Ne do not form compounds

A. Due to their higher ionization energies

B. Absence of empty d-orbitals in their inner shells

C. Due to lower vander waal's force

D. Both A and B.

Answer: D

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Level II H W

1. 1/125th part of nitrogen gas isolated from atmosphere did not combine with any other substance due to

- A. The chemical inertness of N_2 gas
- B. The presence of Argon
- C. The presence of Argon & other noble gases
- D. The presence of O_2 .

Answer: C

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2. In solid argon , the atoms are held together by

- A. Ionic bonds
- B. Covalent bonds
- C. Hydrogen bonds
- D. Vanderwaal forces

Answer: D



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3. Liquid Helium at $2.2K$ and at 1 atm pressure flows in the upward direction. It is because of its low

- A. boiling point

B. heat of vapourisation

C. viscosity

D. surface tension

Answer: C



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4. The noble gases which do not form any clathrate

A. He

B. Ar

C. Kr

D. Xe

Answer: A



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5. Which of the possible following fluorides of xenon is impossible ?



Answer: B



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6. Which of the following fluorides of Xe has zero dipole moment ?



D. Both (1) & (3)

Answer: D



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7. Which of the following is formed when O_2F_2 reacts with Xe ?

A. XeF_2

B. XeF_4

C. XeF_6

D. None of these

Answer: A



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8. Which of the following noble gases do not react with function

A. Xe

B. He

C. Ar

D. Kr

Answer: D



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9. Helium mixed with oxygen is used in the treatment of

A. Beri beri

B. Burning feet

C. Joints burning

D. Asthma

Answer: D



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10. The compound in which the number of $d\pi - p\pi$ bonds are equal to those present in ClO_4 -



Answer: B



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11. Which statement is false ?

- A. 118th element is a noble gas called ununoctium
- B. Helium is light noble gas
- C. Xenon is the most reactive among the rare gases.
- D. Noble gases Ne, Kr and Xe were discovered by Ramsay and Rayleigh.

Answer: D



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Level V

1. Argon is used in arc welding because

- A. low reactivity with metal

B. ability to lower the melting point of metal

C. flammability

D. high calorific value

Answer: A

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2. XeF_2 on hydrolysis (in the presence of alkali) yield :

A. $XeOF_4$

B. XeO_3

C. XeO_2F_2

D. Xe

Answer: D



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3. XeF_6 can acts as

- A. Fluoride donor only
- B. Fluoride acceptor only
- C. Either fluoride donor or acceptor
- D. Catalyst in nuclear reactions

Answer: C



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4. Xenon tetrafluoride, XeF_4 is:

- A. tetrahedral and acts as a fluoride donor with SbF_5
- B. squareplanar and acts as a fluoride donor with PF_5
- C. Square planar and acts as fluoride donor with NaF
- D. See-saw shape and acts as a fluoride donor with AsF_5

Answer: B



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5. XeF_4 on partial hydrolysis produces

- A. XeF_2
- B. $XeOF_2$



Answer: B

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6. In XeF_4 molecule, xenon undergoes

A. sp^3d hybridisation in its second excited state

B. sp^3d^2 hybridisation in its second excited state

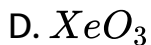
C. sp^3d^2 hybridisation in its third excited state

D. sp^3d hybridisation in its fourth excited state

Answer: B

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7. XeF_6 on complete hydrolysis gives



Answer: D

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8. Which of the following compound will not form during the hydrolysis of XeF_6 ?

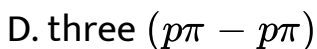
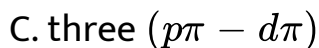
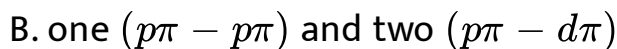
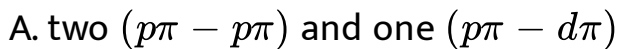


Answer: B



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9. The nature of π - bonds in XeO_3 :



Answer: C



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10. XeO_4 contains :

A. four π - bonds, and the remaining three electron pairs
form a pyramid

B. three π - bonds, and the remaining four electron pairs
form square planar structure

C. three π - bonds, and the remaining five electron pairs
form a trigonal bipyramid

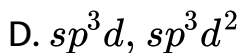
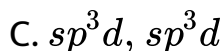
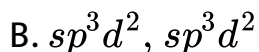
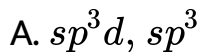
D. four π - bonds, and the remaining four electron pairs
form a tetrahedron

Answer: D



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11. When XeF_4 donates its fluoride to SbF_5 , then the states of hybridization of central atoms of cationic part and anionic part of the product formed are :

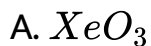


Answer: D



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12. Which of the following compound is formed when XeF_4 react with water ?



Answer: A



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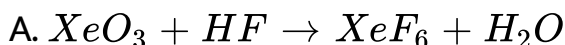
13. Which of the following statement is wrong ?

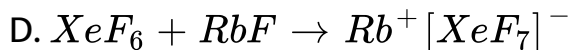
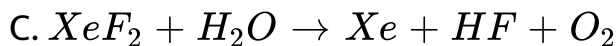
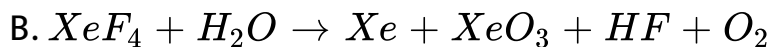
- A. Only type of interaction between particle of noble gases are due to weak dispersion forces
- B. Ionisation energy of molecular oxygen is very close to that of Xe
- C. Hydrolysis of XeF_6 is a redox reaction.
- D. Hydrolysis of XeF_4 is a redox reaction.

Answer: C

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14. Which one of the following reaction of xenon compounds is not Feasible?





Answer: A

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15. The hydrolysis of XeF_6 takes place in the following steps : $XeF_6 \rightarrow A \rightarrow B \rightarrow XeO_3$. Then the correct statement regarding A and B is :

A. In both A and B, Xe is in sp^3d hybridised state

B. A contains two π - bonds, and the remaining five electron pairs form a trigonal bipyramidal with one

equatorial position occupied by a lone pair

C. B contains one π -bond, and the remaining six electron pairs forming an octahedron with one position occupied by a lone pair

D. A is also obtained when XeF_6 reacts with silica

Answer: D



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16. Which of the following statement(s) is/are correct ?

A. The most abundant noble gas found in atmosphere is

Helium

B. XeF_6 attacks Pyrex glass

C. XeF_4 has square planar structure

D. Noble gases are paramagnetic in nature

Answer: B::C

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17. Which of the following are correctly matched ?

A. XeO_2F_2 : see saw shape

B. $XeOF_4$: octahedral shape

C. XeF_6 : distorted octahedral shape

D. XeO_3 : Pyramidal shape

Answer: C::D

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18. XeF_6 on hydrolysis gives



Answer: A::B::C

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19. White crystalline solid (A) reacts with H_2 to form a highly associated liquid (B) and a monoatomic, colourless gas (C).

The liquid (B) is used for etching glass. Compound (A) undergoes hydrolysis slowly to form (C), (B) and a diatomic gas (D) whose IE is almost similar to that of (C). (B) forms an addition compound with KF to form (E) which is electrolysed in the molten state to form a most reactive gas (F) which combines with (C) in 2:1 ratio of produce (A).

Which of the following is correct for the white crystalline solid (A) ?

A. linear, sp

B. triangular, sp^2

C. linear, sp^3d

D. V - shape, sp^3

Answer: C



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20. White crystalline solid (A) reacts with H_2 to form a highly associated liquid (B) and a monoatomic, colourless gas (C). The liquid (B) is used for etching glass. Compound (A) undergoes hydrolysis slowly to form (C), (B) and a diatomic gas (D) whose IE is almost similar to that of (C). (B) forms an addition compound with KF to form (E) which is electrolysed in the molten state to form a most reactive gas (F) which combines with (C) in 2:1 ratio to produce (A).

According to Molecular Orbital Theory, which of the following is correct about the molecule (D)?

A. only ionic bonds

B. only ionic and covalent bonds

C. ionic, covalent and metallic bonds

D. ionic, covalent and Hydrogen bonds

Answer: D

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21. White crystalline solid (A) reacts with H_2 to form a highly associated liquid (B) and a monoatomic, colourless gas (C).

The liquid (B) is used for etching glass. Compound (A) undergoes hydrolysis slowly to form (C), (B) and a diatomic gas (D) whose IE is almost similar to that of (C). (B) forms an addition compound with KF to form (E) which is electrolysed in the molten state to form a most reactive gas (F) which combines with (C) in 2:1 ratio to produce (A).

According to Molecular Orbital Theory, which of the following is correct about the molecule (D) ?

- A. Its bond order is 2
- B. It has two unpaired electrons in σ molecular orbital
- C. It is diamagnetic
- D. It has only unpaired electron in π molecular orbital.

Answer: A

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22. Among noble gases, Xe is quite reactive and form a number of fluorides and oxyfluorides. In these compounds the electrons, from 5p orbitals are excited to 5d orbitals. The predicted shapes of xenon fluorides are linear, square planar and distorted octahedron. The shapes of xenon oxyfluorides

can be predicted by VSEPR theory.

XeF_2 on alkaline hydrolysis yields



Answer: D

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23. Among noble gases, Xe is quite reactive and form a number of fluorides and oxyfluorides. In these compounds the electrons, from 5p orbitals are excited to 5d orbitals. The predicted shapes of xenon fluorides are linear, square planar

and distorted octahedron. The shapes of xenon oxyfluorides can be predicted by VSEPR theory.

- A. linear XeF_2 and pyramidal XeO_3
- B. bent XeF_2 and pyramidal XeO_3
- C. bent XeF_2 and pyramidal XeO_3
- D. linear XeF_2 and tetrahedral XeO_3

Answer: A

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24. Among noble gases, Xe is quite reactive and form a number of fluorides and oxyfluorides. In these compounds the electrons, from 5p orbitals are excited to 5d orbitals. The predicted shapes of xenon fluorides are linear, square planar

and distorted octahedron. The shapes of xenon oxyfluorides can be predicted by VSEPR theory.

- A. tetrahedral
- B. Square pyramid
- C. square planar
- D. octahedral

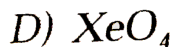
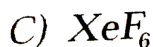
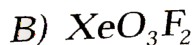
Answer: C



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25. Match the following :

Column I



Column II

p) Octahedral

q) Trigonal bipyramidal

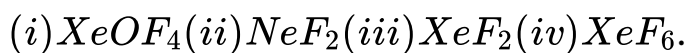
r) Distorted octahedral

s) Tetrahedral



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26. Which one of the following does not exist ?



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27. Assertion : XeF_6 cannot be stored in the dry glass bottles

Reason : XeF_6 attacks the glass

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28. The number of ($p\pi - p\pi$) bonds in XeO_4 is :

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29. The number of π bonds in perxenate ion is :

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30. In $XeOF_2$ number of lone pairs on central atom is 'a' and number of bond pairs around central atom is 'b'. What is 'b/a' ?



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31. XeF_6 reacts with silica to form xenon compound X. The oxidation state of Xe in X is :



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32. In argon, find the number of electrons with spin value $+\frac{1}{2}$



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Level Vi

1. The xenon compounds that are isostructural with IBr_2^- and BrO_3^- respectively are:

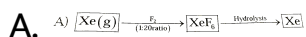
- A. Linear XeF_2 and pyramidal XeO_3
- B. Bent XeF_2 and pyramidal XeO_3
- C. bent XeF_2 and planar XeO_3
- D. linear XeF_2 and tetrahedral XeO_3

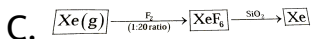
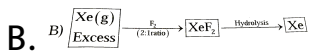
Answer: A



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2. Which of the following relations is correct





D. all are correct

Answer: B

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3. Which of the following xenon compound has the same number of lone pairs as in I_3^- ? (near central atom)



Answer: A

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4. $Mf + XeF_4 \rightarrow M^+ A^-$ (M^+ – alkali metal cation) The state of hybridisation of the central atom in A and sphere of the species are:

- A. sp^3d , TBP
- B. $sp^6(3)d^3$, distorted octahedral
- C. sp^3d^3 , pentagonal planar
- D. no compound formed at all

Answer: C

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5. XeF_6 dissolves in anhydrous HF to give a good conducting solution which contains:

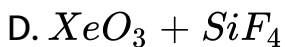
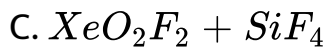
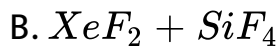
- A. H^+ and XeF_7^-
- B. HF_2^- and XeF_5^+ ions
- C. $HXeF_6^+$ and F^- ions
- D. none of these

Answer: B



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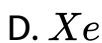
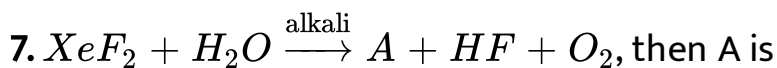
6. What are the products formed in the reaction of xenon hexafluoride with silicon dioxide?



Answer: D



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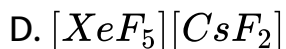
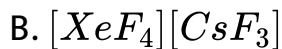
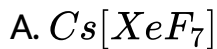


Answer: D



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8. XeF_6 on reaction with CsF gives:

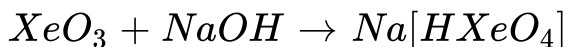


Answer: A

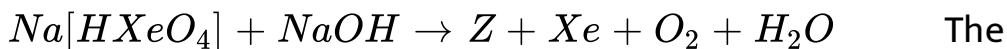


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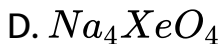
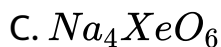
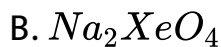
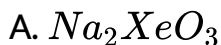
9. XeO_3 forms xenate ion in alkaline medium.



But the xenate ions slowly disproportionate in alkaline solution as



compound Z is expected to be:

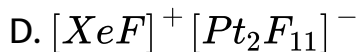
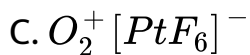
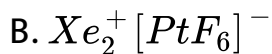
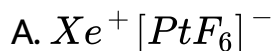


Answer: C



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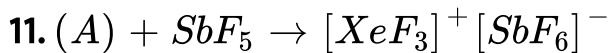
10. When PtF_6 vapour mixed with an equal volume of Xe, the gases combined immediately at room temperature and produces a yellow solid X at $66^\circ C$, the X is correctly represented as :



Answer: D



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Compound (A) is

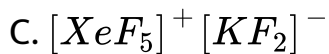
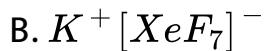
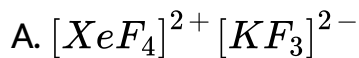
- A. II and III only
- B. I,II and IV only
- C. III and IV only
- D. I,II,III and IV

Answer: B



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12. Xenon hexa fluoride reacts with potassium fluoride to yield



Answer: B



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13. Total number of lone pairs on Xe in XeF_2 , XeO_3F_2 , XeF_4 , XeF_6 is t,u,v & w respectively. Then

A. $t + u = 3$

B. $v + w = 3$

C. $u = 0$

D. $w = 1$

Answer: A::B::C::D



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14. Which is/are hydrolysed by water ?



Answer: A::B::C::D



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15. Which of the following pairs of Xenon compounds and their structure, hybridisation are correctly matched ?

A. XeF_4 -square planar (sp^3d^2)

B. $XeOF_4$ – square pyramidal (sp^3d^2)

C. XeO_4 – tetrahedral (sp^3)

D. $[XeO_6]^{4-}$ octahedral (sp^3d^2)

Answer: A::B::C::D



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16. Thermal decomposition product(s) of XeF_2 are:

A. Xe

B. XeF_2

C. XeF_4

D. F_2

Answer: B::C::D



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17. In XeO_3 and XeF_6 the oxidation state of Xe is

A. sp^3d^2 to sp^3d

B. sp^3d^3 to sp^3

C. sp^3d^3 to sp^3d^2

D. sp^3d^3 to sp^3d

Answer: C::D



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18. Assertion: The first real compound of the noble gases in 1962 was $Xe^+ [PtF_6]^-$.

Reason: The discovery was based on the basis of comparable ionisation energy of O_2 and Xe and a compound $O_2^+ [PtF_6]^-$ was prepared by Bartlett which was later on reported to be $[XeF]^+ [Pt_2F_{11}]^-$.

- A. tetrahedral
- B. pyramidal
- C. octahedral
- D. angular

Answer: B



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19. Assertion: The first real compound of the noble gases in 1962 was $Xe^+ [PtF_6]^-$.

Reason: The discovery was based on the basis of comparable ionisation energy of O_2 and Xe and a compound $O_2^+ [PtF_6]^-$ was prepared by Bartlett which was later on reported to be $[XeF]^+ [Pt_2F_{11}]^-$.

A. $A > B$

B. $A < B$

C. $A \neq B = 90^\circ$

D. $A = B = 90^\circ$

Answer: B



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20. The noble gases have closed-shell electronic configuration and are monatomic gases under normal condition. The low boiling points of the lighter noble gases are due to the weak dispersion forces between the atoms and the absence of other interatomic interactions.

The direct reaction of xenon with fluorine leads to a series of compounds with water oxidation number +2, +4 and +6, XeF_4 reacts violently with water to give XeO_2 . The compound of deduced exhibit inorganic chemistry and their geometries can be deduced

considering the total number of electron pairs in the valence shell.

Argon is used in arc welding because of its

- A. low reactivity with metal
- B. ability to lower the melting point of metal
- C. flammability
- D. high calorific value

Answer: A

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21. The noble gases have closed-shell electronic configuration and are monatomic gases under normal condition. The low boiling points of the lighter noble gases

are due to the weak dispersion points of the lighter noble gases and due to the weak dispersion forces between the atoms and the absence of other interatomic interactions.

The direct reaction of xenon with fluorine leads to a series of compounds with water oxidation number +2, +4 and +6, XeF_4 reacts violently with water to give XeO_2 . The compound of deduced exhibits inorganic chemistry and their geometries can be deduced considering the total number of electron pairs in the valence shell.

The structure of XeO_3 is

- A. linear
- B. planar
- C. pyramidal
- D. T-shaped

Answer: C



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22. The noble gases have closed-shell electronic configuration and are monoatomic gases under normal conditions. The low boiling points of the lighter noble gases are due to weak dispersion forces between the atoms and the absence of other Interatomic Interactions.

The direct reaction of xenon with fluorine leads to a series of compounds with oxidation numbers +2,+4 and +6. XeF_4 reacts violently with water to give XeO_3 The compound of xenon exhibit rich stereochemistry and their geometries can be deduced considering the total number of electron pairs

in the valence shell.

XeF_4 and XeF_6 are expected to be:

- A. oxidising
- B. reducing
- C. unreactive
- D. strongly basic

Answer: A



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23. The chemical reactivity of noble gases involves the loss of electrons and hence it can form compounds with highly electronegative elements like F and O. Although Xe forms several fluorides, xenone tetrafluoride is the most important

among fluorides. The various compounds of xenon involve xenon in first, second or third excited states.

The type of hybridisation and shape of XeF_2 respectively are

A. zero

B. 2

C. 6

D. 8

Answer: C



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24. The chemical reactivity of noble gases involves the loss of electrons and hence it can form compounds with highly

electronegative elements like F and O. Although Xe forms several fluorides, xenone tetrafluoride is the most important among fluorides. The various compounds of xenon involve xenon in first, second or third excited states.

The type of hybridisation and number of lone pair (s) of electrons on Xe in $XeOF_2$ respectively are

A. sp^3d & 1

B. sp^3d & 2

C. sp^3d^2 & 1

D. sp^3d^2 & 2

Answer: B



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25. The chemical reactivity of noble gases involves the loss of electrons and hence it can form compounds with highly electronegative elements like F and O. Although Xe forms several fluorides, xenon tetrafluoride is the most important among fluorides. The various compounds of xenon involve xenon in first, second or third excited states.

The type of hybridisation and shape of XeF_2 respectively are

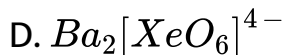
- A. sp^3d and angular
- B. sp^3d and pyramidal
- C. sp^3d and linear
- D. sp and linear

Answer: C



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26. If the electron pair forming a bond between two atoms and B is not in the center then the bond is ?



Answer: A::B::C::D



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27. Match the following :

Column I

- A) XeF_2
- B) XeO_4
- C) XeO_2F_2
- D) XeO_3

Column II

- p) sp^3
- q) sp^3d
- r) three lone pairs on xenon
- s) σ, π bond ratio 1:1

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28. XeF_n dissolves in HF according to the reaction $\text{XeF}_n + \text{HF} \rightarrow [\text{XeF}_{n-1}]^+ [\text{HF}_2]^-$. What is the value of n?

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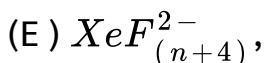
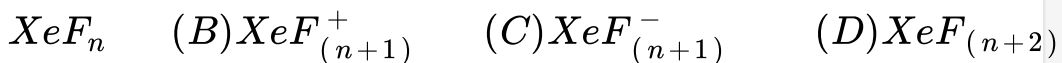
29. Number of lone pair of electrons in XeF_4 is

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30. Consider following compounds A to E :

(A)



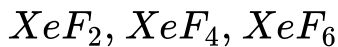
If value of n is 4, then calculate value of $p \div q$ here, 'p' is total number of bond pair and 'q' is total number of lone pair on central atoms of compounds (A) to (E).

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31. Find the number of unpaired electron in the fully excited xenon atom.

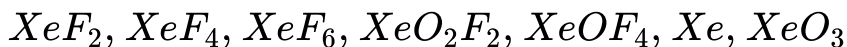
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32. Give the molecular structures of :

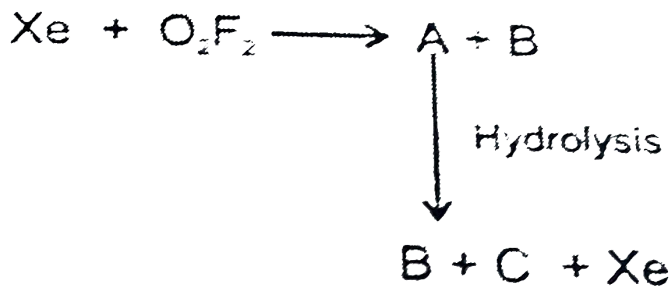


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33. Find the number of compounds among the following whose hydrolysis is a non-redox reaction.



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34.

The summation of total no. of lone pairs and σ bonds in in species (A,B and C) is

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WE

1. The s-block element present in zerogroup is _____.

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2. The most appropriate name for zerogroup elements is _____.

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3. Why Helium is totally inert ?

 [Watch Video Solution](#)

4. Liquid Helium is called superfluid. Why ?

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5. Which inert gas obtained from monazite sand ?

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6. Name the Fluoride of Xenon which undergoes thermal decomposition ?

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7. Xenon has closed shell configuration but is known to give compounds with fluorine because

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8. Why neon is used in warning signal illuminations?

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9. Assertion: A mixture of He and O_2 is used for respiration for deep sea divers.

Reason: He is soluble in blood.

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10. Answer the following with relevant reasons .

(i) The boiling of noble gases increase with increase in atomic number .

(ii) Why helium and neon do not form clathrate compounds with quinol ?

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11. The s-block element present in zerogroup is _____.

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12. The most appropriate name for zerogroup elements is _____.

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13. Why Helium is totally inert ?

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 [Watch Video Solution](#)

18. Why neon is used in warning signal illuminations?

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19. Assertion: A mixture of He and O_2 is used for respiration for deep sea divers.

Reason: He is soluble in blood.

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20. CLATHRATE COMPOUNDS

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1. The inert gas abundantly found in atmosphere is:

A. Ar

B. Kr

C. He

D. Xe

Answer: A



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2. The coloured discharge tubes for advertisement mainly contains

A. xenon

B. helium

C. neon

D. argon

Answer: C

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3. Helium is added to oxygen used by deep sea divers because :

A. it is less soluble in blood than nitrogen under high pressure

B. it is lighter than nitrogen

C. it is readily miscible with oxygen

D. it is less poisonous than nitrogen

Answer: A



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4. The inert gas abundantly found in atmosphere is:

A. Ar

B. Kr

C. He

D. Xe

Answer: A

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5. The coloured discharge tubes for advertisement mainly contains

A. xenon

B. helium

C. neon

D. argon

Answer: C

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6. Helium is added to oxygen used by deep sea divers because :

- A. it is less soluble in blood than nitrogen under high pressure
- B. it is lighter than nitrogen
- C. it is readily miscible with oxygen
- D. it is less poisonous than nitrogen

Answer: A



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Evaluate Your Self II

1. Number of lone pair of electrons in XeF_4 is

- A. 2
- B. 10
- C. 12
- D. 14

Answer: D



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2. The structure of XeO_2F_2 is

- A. 1:1
- B. 2:1

C. 1:2

D. 1:4

Answer: B



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3. The shape of XeF_4 molecule is

A. trigonal bi pyramid

B. octahedral

C. square pyramid

D. square planar

Answer: C

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4. Number of lone pair of electrons in XeF_4 is

- A. 2
- B. 10
- C. 12
- D. 14

Answer: D

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5. The number of s and p bonds in XeO_3 molecule are

A. 1:1

B. 2:1

C. 1:2

D. 1:4

Answer: B



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6. The shape of XeF_4 molecule is

A. trigonal bi pyramid

B. octahedral

C. square pyramid

D. square planar

Answer: C



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C U Q Electronic Configuration Discover Occurrence

1. Noble gases are also known as

A. chalcogens

B. halogens

C. aerogens

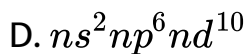
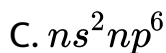
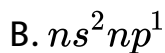
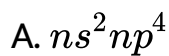
D. transition elements

Answer: C



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2. The valence shell electronic configuration of noble gases except helium is



Answer: C



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3. The atomicity of noble gases is

A. two

B. one

C. six

D. four

Answer: B



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4. The most abundant noble gas in the atmosphere is

A. argon

B. neon

C. helium

D. krypton

Answer: A



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5. The least abundant inert gas in the atmosphere is by volume

A. ne

B. he

C. ar

D. xe

Answer: D



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6. Which of the following inert gas is available only as a product in the radioactive disintegrations ?

A. he

B. ar

C. rn

D. kr

Answer: C



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7. Noble gases are also known as

A. chalcogens

B. halogens

C. aerogens

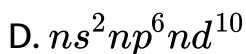
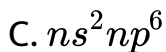
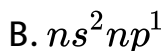
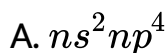
D. transition elements

Answer: C



Watch Video Solution

8. The valence shell electronic configuration of noble gases except helium is



Answer: C



Watch Video Solution

9. The atomicity of noble gases is

- A. two
- B. one
- C. six
- D. four

Answer: B



Watch Video Solution

10. The most abundant noble gas in the atmosphere is

A. argon

B. neon

C. helium

D. krypton

Answer: A



Watch Video Solution

11. The least abundant inert gas in the atmosphere is by volume

A. ne

B. he

C. ar

D. xe

Answer: D



Watch Video Solution

12. Which of the following inert gas is available only as a product in the radioactive disintegrations ?

A. he

B. ar

C. rn

D. kr

Answer: C



Watch Video Solution

C U Q Physical And Chemical Properties Of Noble Gases

1. The forces of attraction operating between atoms of inert gases are

- A. electrostatic forces
- B. ion dipole forces
- C. magnetic forces
- D. vander walls forces

Answer: D



[Watch Video Solution](#)

2. Which of the following noble gas is least polarisable ?

A. he

B. ne

C. kr

D. xe

Answer: A



[Watch Video Solution](#)

3. Boiling point is very high for

A. he

B. ne

C. kr

D. xe

Answer: D



Watch Video Solution

4. Chemically least active element is

A. kr

B. ne

C. xe

D. ar

Answer: B



Watch Video Solution

5. The noble gas which can form more number of compounds is

A. ne

B. he

C. xe

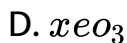
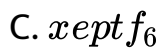
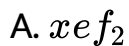
D. ar

Answer: C



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6. The first noble gas compound prepared by Bartlett is



Answer: C



Watch Video Solution

7. Number of unpaired electrons in inert gas is

A. zero

B. 8

C. 4

D. 18

Answer: A



Watch Video Solution

8. The last member of the family of inert gases is

A. argon

B. radon

C. xenon

D. neon

Answer: B

 [Watch Video Solution](#)

9. The element having highest ionisation potential is

A. h

B. n

C. o

D. he

Answer: D

 [Watch Video Solution](#)

10. Which of the following gas is/are called inert gas ?

A. helium

B. oxygen

C. hydrogen

D. nitrogen

Answer: C



Watch Video Solution

11. Which of the following gas is/are called inert gas ?

A. he

B. ne

C. kr

D. all of these

Answer: D



Watch Video Solution

12. The forces of attraction operating between atoms of inert gases are

A. electrostatic forces

B. ion dipole forces

C. magnetic forces

D. vander walls forces

Answer: D



Watch Video Solution

13. Which of the following noble gas is least polarisable ?

A. he

B. ne

C. kr

D. xe

Answer: A



Watch Video Solution

14. Boiling point is very high for

A. he

B. ne

C. kr

D. xe

Answer: D



Watch Video Solution

15. Chemically least active element is

A. kr

B. ne

C. xe

D. ar

Answer: B

 [Watch Video Solution](#)

16. The noble gas which can form more number of compounds is

A. ne

B. he

C. xe

D. ar

Answer: C

 [Watch Video Solution](#)

17. The first noble gas compound prepared by Bartlett is

A. $xe f_2$

B. $kr f_2$

C. $xep t f_6$

D. xeo_3

Answer: C



Watch Video Solution

18. Number of unpaired electrons in inert gas is

A. zero

B. 8

C. 4

D. 18

Answer: A



Watch Video Solution

19. The last member of the family of inert gases is

A. argon

B. radon

C. xenon

D. neon

Answer: B



Watch Video Solution

20. The element having highest ionisation potential is

A. h

B. n

C. o

D. he

Answer: D



Watch Video Solution

21. Which of the following gas is/are called inert gas ?

A. helium

B. oxygen

C. hydrogen

D. nitrogen

Answer: C



Watch Video Solution

22. Which of the following gas is/are called inert gas ?

A. he

B. ne

C. kr

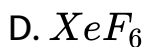
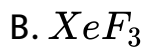
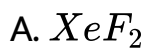
D. all of these

Answer: D

 [Watch Video Solution](#)

C U Q Flourides And Oxides Of Xenon And Their Structures

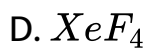
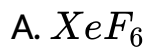
1. Which of the following compound cannot be prepared ?



Answer: B

 [Watch Video Solution](#)

2. Which of the following is a most explosive compound ?



Answer: C



Watch Video Solution

3. The molecule havi linear structure is



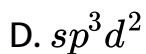
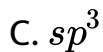
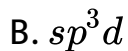
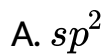


Answer: D



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4. The hybridisation of Xe in XeO_3 is



Answer: C

 [Watch Video Solution](#)

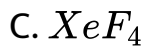
5. The shape of XeF_4 molecule is

- A. tetrahedron
- B. square planar
- C. square pyramidal
- D. trigonal bipyramid

Answer: B

 [Watch Video Solution](#)

6. Which of the following compound cannot be prepared ?

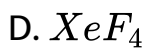
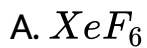


Answer: B



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7. Which of the following is a most explosive compound ?

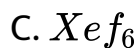


Answer: C



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8. The molecule with with linear structure is



Answer: D



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9. The hybridisation of Xe in XeO_3 is

A. sp^2

B. sp^3d

C. sp^3

D. sp^3d^2

Answer: C



Watch Video Solution

10. The shape of XeF_4 molecule is

A. tetrahedron

B. square planar

C. square pyramidal

D. trigonal bipyramid

Answer: B



Watch Video Solution

C U Q Uses Of Noble Gases

1. The element is used in locating defect in steel casting is

A. He

B. Kr

C. Xe

D. Rn

Answer: D



Watch Video Solution

2. The gas used for inflating the tyres of aeroplanes is

A. Ar

B. He

C. H_2

D. N_2

Answer: B



Watch Video Solution

3. The coloured discharge tubes for advertisement mainly contains

A. Xe

B. He

C. Ne

D. Ar

Answer: C



Watch Video Solution

4. The element is used in locating defect in steel casting is

A. He

B. Kr

C. Xe

D. Rn

Answer: D



Watch Video Solution

5. The gas used for inflating the tyres of aeroplanes is

A. Ar

B. He

C. H_2

D. N_2

Answer: B



Watch Video Solution

6. The coloured discharge tubes for advertisement mainly contains

A. Xe

B. He

C. Ne

D. Ar

Answer: C



Watch Video Solution

1. The most abundant of helium is

A. spring waters

B. natural gas

C. cleveite

D. sun

Answer: B



Watch Video Solution

2. The inert gas predicted from the solar spectrum is

A. ne

B. kr

C. xe

D. he

Answer: D

 [Watch Video Solution](#)

3. Which of the following is the correct sequence of the noble gases in their in the periodic table ?

A. Ar,He,Kr,Ne,Rn,Xe

B. He,Ar,Ne,Kr,Xe,Rn

C. He,Ne,Kr,Ar,Xe,Rn

D. He,Ne,Ar,Kr,Xe,Rn

Answer: D



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4. Which of the following is not a noble gas ?

A. N_2

B. He

C. Ne

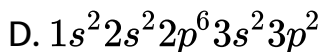
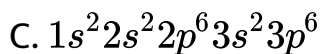
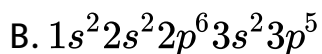
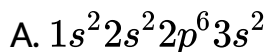
D. Ar

Answer: A



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5. Which one of the following configuration represents a noble gas ?



Answer: C



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6. $1s^2 2s^2 2p^6$ is the electron configuration of

A. nitrogen

B. boron

C. argon

D. neon

Answer: D



Watch Video Solution

7. The most abundant of helium is

A. spring waters

B. natural gas

C. cleveite

D. sun

Answer: B



Watch Video Solution

8. The inert gas predicted from the solar spectrum is

A. ne

B. kr

C. xe

D. he

Answer: D



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9. Which of the following is the correct sequence of the noble gases in their in the periodic table ?

A. Ar,He,Kr,Ne,Rn,Xe

B. He,Ar,Ne,Kr,Xe,Rn

C. He,Ne,Kr,Ar,Xe,Rn

D. He,Ne,Ar,Kr,Xe,Rn

Answer: D

 [Watch Video Solution](#)

10. Which of the following is not a noble gas ?

A. N_2

B. He

C. Ne

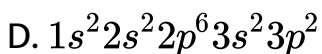
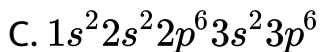
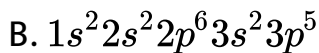
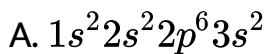
D. Ar

Answer: A



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11. Which one of the following configurations represents a noble gas?



Answer: C



Watch Video Solution

12. $1s^2 2s^2 2p^6$ is the electron configuration of

A. nitrogen

B. boron

C. argon

D. neon

Answer: D



Watch Video Solution

Exercise I C W Physical And Chemical Properties Of Noble Gases

1. Noble gases form compounds very easily with

A. sulphur

B. nitrogen

C. oxygen

D. fluorine

Answer: D



[Watch Video Solution](#)

2. Among noble gases, only xenon can form more number of compounds. This is due to its

A. high I.P

B. Low I.P

C. small size

D. less than zero electron affinity

Answer: B

 [Watch Video Solution](#)

3. Helium is subjected to electrical discharge. The following species is not present in the discharge tube

A. He^+

B. He_2^+

C. He_2

D. He

Answer: C



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4. The spectrum of He^+ is expected to be similar to that of

A. H

B. Be

C. Li^+

D. He

Answer: C



Watch Video Solution

5. The gas that gives superfluid on cooling at $2.2K$ is

A. Ar

B. Rn

C. kr

D. He

Answer: D



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6. Viscosity is very low for

A. Ar

B. He(I)

C. He(II)

D. Kr

Answer: C



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7. Which of the following statement is not correct for a noble gas ?

A. Argon is used to fill the incandescent bulbs

B. krypton is obtained in nuclear fission

C. radon is present in the air

D. xenon cannot form XeF_3

Answer: C



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8. Noble gases form compounds very easily with

A. sulphur

B. nitrogen

C. oxygen

D. fluorine

Answer: D



Watch Video Solution

9. Among noble gases, only xenon can form more number of compounds. This is due to its

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- B. Low I.P
- C. small size
- D. less than zero electron affinity

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B. He_2^+

C. He_2

D. He

Answer: C

 [Watch Video Solution](#)

11. The spectrum of He^+ is expected to be similar to that of

A. H

B. Be

C. Li^+

D. He

Answer: C



Watch Video Solution

12. The gas that gives superfluid on cooling at $2.2K$ is

A. Ar

B. Rn

C. kr

D. He

Answer: D



Watch Video Solution

13. Viscosity is very low for

A. Ar

B. He(I)

C. He(II)

D. Kr

Answer: C



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14. Which of the following statements is not correct for a noble gas ?

A. Argon is used to fill the incandescent bulbs

B. krypton is obtained in nuclear fission

C. radon is present in the air

D. xenon cannot form XeF_3

Answer: C

 [Watch Video Solution](#)

Exercise I C W Flourides And Oxides Of Xenon And Their Structures

1. Which of the following forms maximum number of compounds ?

A. Ne

B. Kr

C. Xe

D. Rn

Answer: C



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2. The hybridisation of Xe is sp^3d^2 in

A. XeF_2

B. XeO_4

C. XeF_4^2

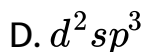
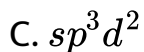
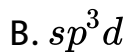
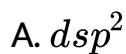
D. XeO_3

Answer: C



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3. XeF_4 is a square planar molecule. The hybridisation of xenon atom in this molecule is



Answer: C



Watch Video Solution

4. Which of the following forms maximum number of compounds ?

A. Ne

B. Kr

C. Xe

D. Rn

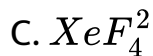
Answer: C



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5. The hybridisation of Xe is sp^3d^2 in

A. XeF_2

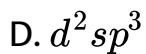
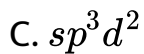
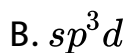
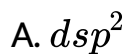


Answer: C



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6. XeF_4 is a square planar molecule. The hybridisation of xenon atom in this molecule is



Answer: C



Watch Video Solution

Exercise I C W Uses Of Noble Gases

1. Why is an electric light bulb not filled with air? Explain why argon or nitrogen is filled in an electric bulb.

A. Ar

B. N_2

C. He

D. O_2

Answer: A



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2. The gas used in gas thermometer is

A. He

B. O_2

C. Xe

D. neon

Answer: A



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3. If N_2 gas is dissolved in the blood, it causes

A. blindness

B. headache

C. bends

D. all

Answer: C



Watch Video Solution

4. Why is an electric light bulb not filled with air? Explain why argon or nitrogen is filled in an electric bulb.

A. Ar

B. N_2

C. He

D. O_2

Answer: A



Watch Video Solution

5. The gas used in gas thermometer is

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Watch Video Solution

6. If N_2 gas is dissolved in the blood, it causes

A. blindness

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C. bends

D. all

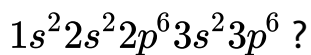
Answer: C



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Exercise I H W Electronic Configuration Discovery Occurrence

1. Which of the following corresponds to the configuration



A. he

B. na

C. mg

D. ar

Answer: D



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2. The valency is zero for

A. neon

B. fluorine

C. oxygen

D. carbon

Answer: A



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3. Oxidation state of zero group elements is

A. -1

B. $+1$

C. 0

D. -2

Answer: C



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4. The atomicity of neon gas is

- A. two
- B. one
- C. four
- D. three

Answer: B



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5. Which of the following gaseous molecules is monoatomic ?

A. chlorine

B. helium

C. oxygen

D. nitrogen

Answer: B



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6. The number of electrons in the penultimate orbit of krypton atom are

A. 8

B. 2

C. 18

D. 32

Answer:



Watch Video Solution

7. Which one of the following noble gases is not found in atmosphere ?

A. Rn

B. Kr

C. Ne

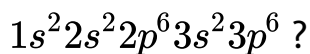
D. Ar

Answer: A



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8. Which of the following corresponds to the configuration



A. he

B. na

C. mg

D. ar

Answer: D



Watch Video Solution



[Watch Video Solution](#)

9. The valency is zero for

A. neon

B. fluorine

C. oxygen

D. carbon

Answer: A



[Watch Video Solution](#)

10. Oxidation state of zero group elements is

A. -1

B. $+1$

C. 0

D. -2

Answer: C



Watch Video Solution

11. The atomicity of neon gas is

A. two

B. one

C. four

D. three

Answer: B



Watch Video Solution

12. Which of the following gaseous molecules is monoatomic ?

A. chlorine

B. helium

C. oxygen

D. nitrogen

Answer: B



Watch Video Solution

13. The number of electrons in the penultimate orbit of krypton atom are

A. 8

B. 2

C. 18

D. 32

Answer:



[Watch Video Solution](#)

14. Which one of the following noble gases is not found in atmosphere ?

A. Rn

B. Kr

C. Ne

D. Ar

Answer: A

 [Watch Video Solution](#)

Exercise I H W Physical And Chemical Properties Of Noble Gases

1. Inversion temperature of helium is very low. So when helium is allowed to expand into vacuum it gets

A. cooled

B. heated

C. neither cooled nor heated

D. liquified

Answer: B



Watch Video Solution

2. The heat of vapourisation is very high for

A. he

B. ne

C. ar

D. xe

Answer: D



Watch Video Solution

3. The M.P. and B.P. are very low for

A. ne

B. he

C. kr

D. ar

Answer: B



Watch Video Solution

4. Which of the following is a product in the explosion of hydrogen bomb ?

A. kr

B. ne

C. he

D. xe

Answer: C



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5. The lightest metal is

A. H_2

B. He

C. N_2

D. Ar

Answer: B



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6. The electronic configuration of neon is

A. $1s^2 2s^2 2p^6$

B. $1s^2$

C. $2s^2$

D. $1s^2 2s^2 2p^2$

Answer: A



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7. Inversion temperature of helium is very low. So when helium is allowed to expand into vacuum it gets

- A. cooled
- B. heated
- C. neither cooled nor heated
- D. liquified

Answer: B



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8. The heat of vapourisation is very high for

A. he

B. ne

C. ar

D. xe

Answer: D



Watch Video Solution

9. The M.P. and B.P. are very low for

A. ne

B. he

C. kr

D. ar

Answer: B



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10. Which of the following is a product in the explosion of hydrogen bomb ?

A. kr

B. ne

C. he

D. xe

Answer: C



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11. The lightest metal is

A. H_2

B. He

C. N_2

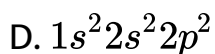
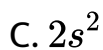
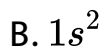
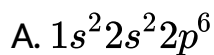
D. Ar

Answer: B



Watch Video Solution

12. The electronic configuration of neon is



Answer: A



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Exercise I H W Flourides And Oxides Of Xenon And Their Structure

1. The shape of XeO_3 molecule is

A. planar triangle

B. pyramid

C. linear

D. square planar

Answer: B



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2. XeF_2 molecule is

A. trigonal planar

B. square planar

C. linear

D. pyramidal

Answer: C



Watch Video Solution

3. The shape of XeO_3 molecule is

A. planar triangle

B. pyramid

C. linear

D. square planar

Answer: B



Watch Video Solution

4. XeF_2 molecule is

A. trigonal planar

B. square planar

C. linear

D. pyramidal

Answer: C



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Exercise I H W Uses Of Noble Gases

1. Sea divers go deep in the sea water with a mixture of which of the following gases

A. O_2 and He

B. O_2 and Ar

C. O_2 and CO_2

D. CO_2 and Ar

Answer: A



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2. Which mixture is used for respiration by deep sea divers?

A. O_2 and H_2

B. O_2 and He

C. O_2 and Ar

D. O_2 and Ne

Answer: B



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3. Sea divers go deep in the sea water with a mixture of which of the following gases

A. O_2 and He

B. O_2 and Ar

C. O_2 and CO_2

D. CO_2 and Ar

Answer: A



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4. ASTHMA

A. O_2 and H_2

B. O_2 and He

C. O_2 and Ar

D. O_2 and Ne

Answer: B



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Exercise II C W Electronic Configuration Discovery Occurrence

1. The lightest noble gas atom contains the following particles in its nucleus

A. 4 protons

B. 3 neutrons

C. 3 protons and 1 neutron

D. 2 protons and 2 neutrons

Answer: D



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2. The order of abundance of inert gases in the atmosphere is

A. $Ar < Ne < Xe$

B. $Ar > Ne > Xe$

C. $Ar > Xe > Ne$

D. $Ne > Ar > Xe$

Answer: B

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3. Which of the following is false fruit ?

A. radon is obtained by the decay of radium

B. helium is an inert gas

C. xenon is the most reacting among rare gases

D. the most abundant rare gas in the atomospher is

helium

Answer: D

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4. Which of the following is non-existing ?

A. H_2

B. O_2

C. N_2

D. He_2

Answer: D

 [Watch Video Solution](#)

5. The lightest noble gas atom contains the following particles in its nucleus

A. 4 protons

B. 3 neutrons

C. 3 protons and 1 neutron

D. 2 protons and 2 neutrons

Answer: D

 [Watch Video Solution](#)

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A. $Ar < Ne < Xe$

B. $Ar > Ne > Xe$

C. $Ar > Xe > Ne$

D. $Ne > Ar > Xe$

Answer: B



Watch Video Solution

7. Which of the following statement is false .

A. radon is obtained by the decay of radium

B. helium is an inert gas

C. xenon is the most reacting among rare gases

D. the most abundant rare gas in the atmosphere is

helium

Answer: D

 [Watch Video Solution](#)

8. Which of the following is non-existing ?

A. H_2

B. O_2

C. N_2

D. He_2

Answer: D

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Exercise II C W Physical And Chemical Properties Of Noble Gases

1. Electronegativity of inert gases is

A. low

B. high

C. zero

D. abnormally high

Answer: C



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2. Ionisation potential is very low for

A. Xe

B. Ne

C. He

D. Ar

Answer: A



Watch Video Solution

3. The density is very high for

A. ne

B. ar

C. he

D. xe

Answer: D

 [Watch Video Solution](#)

4. Which of the following noble gases does not have an octet of electrons in its outermost shell ?

A. neon

B. radon

C. argon

D. helium

Answer: D

 [Watch Video Solution](#)

5. The value of ionisation energy for inert gases is _____.

A. zero

B. low

C. high

D. negative

Answer: C



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6. The noble gas which behaves abnormally in liquid state is

A. xe

B. ne

C. he

D. ar

Answer: C



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7. The noble gas with highest ionization energy is

A. he

B. ar

C. xe

D. kr

Answer: A



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8. Which of the following has SP^3 hybridization ?



Answer: A



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9. Electronegativity of inert gases is

A. low

B. high

C. zero

D. abnormally high

Answer: C



Watch Video Solution

10. Ionisation potential is very low for

A. Xe

B. Ne

C. He

D. Ar

Answer: A

 [Watch Video Solution](#)

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A. ne

B. ar

C. he

D. xe

Answer: D

 [Watch Video Solution](#)

12. Which of the following noble gases does not have an octet of electrons in its outermost shell ?

A. neon

B. radon

C. argon

D. helium

Answer: D



Watch Video Solution

13. The value of ionisation energy for inert gases is _____.

A. zero

B. low

C. high

D. negative

Answer: C



Watch Video Solution

14. The noble gas which behaves abnormally in liquid state is

A. xe

B. ne

C. he

D. ar

Answer: C



Watch Video Solution

15. The noble gas with highest ionization energy is

A. he

B. ar

C. xe

D. kr

Answer: A



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16. Which of the following has SP^3 hybridization ?

A. XeO_3

B. BCl_3



Answer: A



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Exercise II C W Fluorides And Oxides Of Xenon Their Structure

1. What is the atomic number (Z) of the noble gas that reacts with fluorine ?

A. 54

B. 10

C. 18

D. 2

Answer: A



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2. Maximum number of compound are known in the case of :

A. Ne

B. Xe

C. kr

D. Ar

Answer: B



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3. Among noble gases, only xenon reacts with fluorine to form stable xenon fluorides, because xenon

A. has highest ionisation enthalpy

B. has lowest ionisation enthalpy

C. has highest heat of vapourisation

D. is the most readily available

Answer: B



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4. The bond angle in XeF_2 molecule is

A. 120°

B. 109°

C. 28°

D. 180°

Answer: C



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5. The number of lone pairs of electrons on xenon atom in

XeF_4 molecule is

A. 4

B. 3

C. 2

D. zero

Answer: C



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6. The number of s and p bonds in XeO_3 molecule are

A. 1 s, 2p

B. 3s,3p

C. 3s,0p

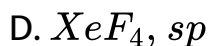
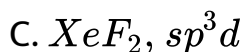
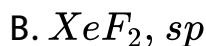
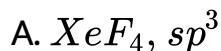
D. 2s,1p

Answer: B



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7. Which one of the following is a correct pair with respect to molecular formula of xenon compound and hybridisation state of xenon in it ?



Answer: C



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8. The number of lone pairs of electrons present on Xe in XeF_2 ?

A. 3

B. 4

C. 2

D. 1

Answer: A



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9. The structure of XeF_6 is

A. distorted octahedral

B. trigonal pyramidal

C. tetrahedral

D. none of the above

Answer: A

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10. Which of the following is planar molecule ?

A. XeO_2F_2

B. XeO_3

C. XeO_4

D. XeF_4

Answer: D



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11. Shape of $XeOF_4$ is

- A. octahedral
- B. square pyramidal
- C. pyramidal
- D. T-shaped

Answer: B



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12. Hybridization and shape of XeF_4 is

A. $sp^3 d$ trigonal bipyramidal

B. sp^3 tetrahedral

C. $sp^3 d^2$ square planar

D. sp^3, d^2 hexagonal

Answer: C



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13. Which of the following is formed by xenon ?

A. XeF_7

B. XeF_4



Answer: B



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14. The structure of XeO_2F_2 is

A. Square pyramidal

B. trigonal pyramidal (see -sea)

C. octahedral

D. tetrahedral

Answer: B

 [Watch Video Solution](#)

15. What is the atomic number (Z) of the noble gas that reacts with fluorine ?

A. 54

B. 10

C. 18

D. 2

Answer: A

 [Watch Video Solution](#)

16. Maximum number of compounds are known in the case of:

A. Ne

B. Xe

C. Kr

D. Ar

Answer: B



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17. Among noble gases, only xenon reacts with fluorine to form stable xenon fluorides, because xenon

- A. has highest ionisation enthalpy
- B. has lowest ionisation enthalpy
- C. has highest heat of vapourisation
- D. is the most readily available

Answer: B



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18. The bond angle in XeF_2 molecule is

- A. 120°
- B. 109°
- C. 28°
- D. 180°

Answer: C



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19. The number of lone pairs of electrons on xenon atom in XeF_4 molecule is

A. 4

B. 3

C. 2

D. zero

Answer: C



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20. The number of s and p bonds in XeO_3 molecule are

A. 1 s, 2p

B. 3s,3p

C. 3s,0p

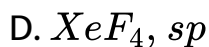
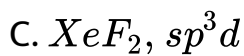
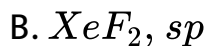
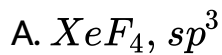
D. 2s,1p

Answer: B



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21. Which one of the following is a correct pair with respect to molecular formula of xenon compound and hybridisation state of xenon in it ?



Answer: C

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22. The number of lone pairs of electrons on xenon atom in XeF_4 molecule is

A. 3

B. 4

C. 2

D. 1

Answer: A



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23. The structure of XeF_6 is

A. distorted octahedral

B. trigonal pyramidal

C. tetrahedral

D. none of the above

Answer: A



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24. Which of the following is planar molecule ?



Answer: D



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25. Shape of $XeOF_4$ is

A. octahedral

B. square pyramidal

C. pyramidal

D. T-shaped

Answer: B



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26. Hybridization and shape of XeF_4 is

A. $sp^3 d$ trigonal bipyramidal

B. sp^3 tetrahedral

C. $sp^3 d^2$ square planar

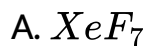
D. sp^3, d^2 hexagonal

Answer: C



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27. Which of the following is formed by xenon ?



Answer: B



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28. The structure of XeO_2F_2 is

- A. Square pyramidal
- B. trigonal pyramidal (see -sea)
- C. octahedral
- D. tetrahedral

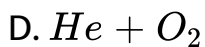
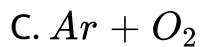
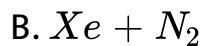
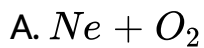
Answer: B



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Exercise II C W Uses

1. The gas mixture used to provide relief for the asthma patients in their respiratory problems is



Answer: D

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2. Beacon lights are obtained from

A. neon lamps

B. tungston lamps

C. hydrogen lamps

D. xenon lamps

Answer: A



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3. In ordinary incandescent and fluorescent lamps the gas filled along with nitrogen is

A. Ne

B. He

C. Xe

D. Ar

Answer: D



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4. Helium - oxygen mixture is used by deep sea divers in preference to nitrogen-oxygen mixture, because

- A. helium is much less soluble in blood than nitrogen
- B. nitrogen is much less soluble in blood than helium
- C. due to high pressure nitrogen reacts with oxygen to give poisonous nitric oxide
- D. nitrogen is highly soluble in water

Answer: A



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5. Which of the following noble gases is used in the treatment of cancer ?

A. Xe

B. ar

C. Rn

D. Kr

Answer: C



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6. Which one of the following statements regarding helium is incorrect ?

A. it is used to produce and sustain powerful superconducting magnets

B. it is used as cryogenic agent for carrying out experiments at low temperatures

C. it is used to fill balloons instead of hydrogen because it is lighter and non inflammable

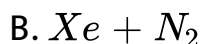
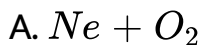
D. it is used in gas cooled nuclear reactors

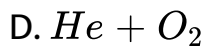
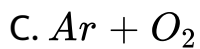
Answer: C



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- D. nitrogen is highly soluble in water

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- B. it is used as cryogenic agent for carrying out experiments at low temperatures
- C. it is used to fill gas balloons instead of hydrogen because it is lighter and non inflammable
- D. it is used in gas cooled nuclear reactors

Answer: C



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Exercise 11 C W Properties

1. Oxidation state of Xe in $Ba_2[XeO_6]$ is

A. 4

B. 6

C. 7

D. 8

Answer: D



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2. The elements which occupy the peaks of ionization energy curve are

A. Na, KRb, Cs

B. Na,MMg,Cl,I

C. Cl,Br,I,F

D. He,Ne,Ar,Kr

Answer: D



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3. The lowest boiling point of helium is due to its

A. inertness

B. gaseous nature

C. high polarisability

D. weak van der waals forces between atoms

Answer: D



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4. Noble gases are group of elements which exhibit very :

- A. high chemical activity
- B. much paramagnetic properties
- C. maximum electronegativity
- D. low chemical activity

Answer: C



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5. XeF_6 on complete hydrolysis gives

A. Xe

B. XeO_2

C. XeO_3

D. XeO_4

Answer: B



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6. First stable compound of inert gas was prepared by

A. Rayleigh and Ramsay

B. Bartlett

C. frankland and lockyer

D. cavendish

Answer: A



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7. The element which has not yet been reacted with F_2 is

A. Ar

B. Cu^{2+}

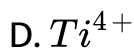
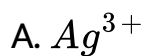
C. Kr

D. Rn

Answer: D

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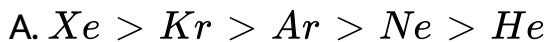
8. Which has the same electronic configuration as of inert gas ?



Answer: A

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9. The correct order of enthalpy of vaporisation of noble gases is



Answer: C



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10. Which of the following exhibits the weakest intermolecular forces?

A. H_2O

B. NH_3

C. He

D. HCl

Answer: C

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11. Which of the following noble gas is the most polarized ?

A. radon

B. krypton

C. xenon is the most reacting among rare gases

D. helium

Answer: D



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12. Which of the following noble gas is least polarisable ?

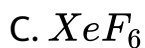
- A. radon
- B. krypton
- C. xenon
- D. helium

Answer: C



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13. The reaction of Xe with an excess of F_2 at high pressure and 573 K yields



Answer: C



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14. Oxidation state of Xe in $Ba_2[XeO_6]$ is

A. 4

B. 6

C. 7

D. 8

Answer: D



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15. The elements which occupy the peaks of ionization energy curve are

A. Na, KRb, Cs

B. Na, Mg, Cl, I

C. Cl, Br, I, F

D. He, Ne, Ar, Kr

Answer: D



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16. The lowest boiling point of helium is due to its

A. inertness

B. gaseous nature

C. high polarisability

D. weak van der waals forces between atoms

Answer: D



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17. Noble gases are group of elements which exhibit very :

- A. high chemical activity
- B. much paramagnetic proeprities
- C. maximum electronegativity
- D. low chemical activity

Answer: C



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18. XeF_6 on complete hydroloysis gives

- A. Xe
- B. XeO_2

C. XeO_3

D. XeO_4

Answer: B



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19. First stable compound of inert gas was prepared by

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B. bartlett

C. frankland and lockyer

D. cavendish

Answer: A

 [Watch Video Solution](#)

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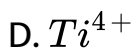
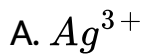
C. Kr

D. Rn

Answer: D

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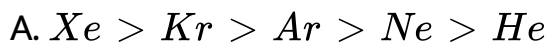
21. Which has the same electronic configuration as of inert gas ?



Answer: A

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22. The correct order of enthalpy of vaporisation of noble gases is



D. $Ne > Xe > Kr > He > Ar$

Answer: C



Watch Video Solution

23. Which of the following exhibits the weakest intermolecular forces?

A. H_2O

B. NH_3

C. He

D. HCl

Answer: C



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24. Which of the following noble gas is the most polarized ?

A. radon

B. krypton

C. xenon is the most reacting among rare gases

D. helium

Answer: D



[Watch Video Solution](#)

25. Which of the following noble gas is least polarisable ?

- A. radon
- B. krypton
- C. xenon
- D. helium

Answer: C

 [Watch Video Solution](#)

26. The reaction of Xe with an excess of F_2 at high pressure and 573 K yields

- A. XeF_2
- B. XeF_4
- C. XeF_6

D. XeF_3

Answer: C



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Exercise II C W Structure Uses

1. The shape of XeF_5^+ ion is

- A. pentagonal
- B. octahedral
- C. square pyramidal
- D. trigonal bipyramidal

Answer: D



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2. Number of $p\pi - d\pi$ bonds present in XeO_4 are

A. zero

B. two

C. three

D. four

Answer: C



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3. The fluoride of Xenon with zero dipole moment is



Answer: A



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4. XeO_6^{4-} contains

A. Eight electron pairs and no lone pairs at Xe

B. three electron pairs and three lone pairs at Xe

C. two electron paris and six lone paris at xe

D. four electron paris and four lone pairs at xe

Answer: C



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5. How many lone pairs are associated with xenon in xenon difluoride ?

A. 1

B. 2

C. 3

D. 4

Answer: D



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6. XeO_3 has

- A. three double bonded O atoms
- B. trigonal pyramidal geometry
- C. one lone pair and sp^3 hybridisation
- D. all of these

Answer: D



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7. The shape of XeF_5^+ ion is

- A. pentagonal
- B. octahedral
- C. square pyramidal
- D. trigonal bipyramidal

Answer: D



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8. Number of $p\pi - d\pi$ bonds present in XeO_4 are

- A. zero
- B. two

C. three

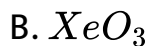
D. four

Answer: C



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9. The fluoride of Xenon with zero dipole moment is



Answer: A

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10. XeO_6^{4-} contains

- A. Eight electron pairs and no lone pairs at Xe
- B. three electron pairs and three lone pairs at Xe
- C. two electron pairs and six lone pairs at Xe
- D. four electron pairs and four lone pairs at Xe

Answer: C

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11. How many lone pairs are associated with xenon in xenon difluoride ?

A. 1

B. 2

C. 3

D. 4

Answer: D



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12. XeO_3 has

A. three double bonded O atoms

B. trigonal pyramidal geometry

C. one lone pair and sp^3 hybridisation

D. all of these

Answer: D



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Exercise Iii C W Properties

1. The atomicity of noble gases is

A. atomic weight = equivalent weight \times valency

B. atomic weight = equivalent weight / valency

C. at weight = valency / equivalent weight

D. $2x V.D = \text{molecular weight} = \text{atomic weight}$

Answer: C



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2. Which statement about noble gases is not correct ?

A. Xe forms XeF_6

B. Ar is used in electric bulbs

C. Kr is obtained during radioactive disintegration

D. He has the lowest b.pt among all the nobles gases

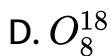
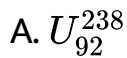
Answer: B



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3. A radioactive element X -decays to give two inert gases. X

is



Answer: B



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4. In order to prevent the hot metal filament from getting burnt, when the electric current is switched on, the bulb is filled with



B. An inert gas

C. CO_2

D. Cl_2

Answer: C

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5. The solubility of noble gases in water shows the order

A. $He > Ar > Kr > Ne > Xe$

B. $He > Ne > Ar > Kr > Xe$

C. $Xe > Kr > Ar > Ne > He$

D. none of these

Answer: B

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6. The ease of liquefaction of noble gases decreases in the order

A. $He > Ne > Ar > Kr > Xe$

B. $Xe > Kr > Ar > Ne > He$

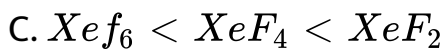
C. $Kr > Ar > Ne > He$

D. $Ar > Kr > NeHe > Ne$

Answer: A

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7. The increasing d-character in hybridisation of Xe in XeF_2 , XeF_4 , XeF_6 is



Answer: C



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8. Which of the following is a "super acid "

A. krypton

B. argon II

C. helium II

D. helium I

Answer: A



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9. Which of the following statement is correct ?

A. helium 5 and helium 3 are radioactive nuclides with short half lives

B. H_2^4 is obtained from the decay of H_1^3

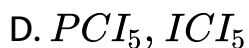
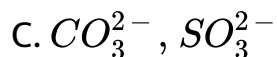
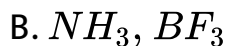
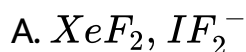
C. Helium is the most abundant noble gas in the atmosphere

D. helium 4 has a low molecular viscosity and a large mean free path

Answer: A

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10. Which of the following two are isostructural ?



Answer: B

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11. Noble gases are sparingly soluble in water due to

A. Ar

B. Ne

C. Xe

D. Kr

Answer: B

 [Watch Video Solution](#)

12. When electric discharge is pressed through neon at low pressure, the colour of the glow is

A. red

B. green

C. yellow

D. light orange

Answer: A



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13. Which mixture is used for respiration by deep sea divers?

A. $O_2 + He$

B. $O_2 + Xe$

C. $O_2 + Ar$

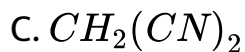
D. $O_2 + N_2$

Answer: A



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14. Which of the following species contains equal number of pi and pi bonds ?



Answer: B



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15. The atomic mass of noble gases is determined with the help of the following relationship

- A. atomic weight = equivalent weight \times valency
- B. atomic weight = equivalent weight / valency
- C. at weight = valency / equivalent weight
- D. $2x \text{ V.D} = \text{molecular weight} = \text{atomic weight}$

Answer: C



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16. Which statement about noble gases is not correct ?

- A. Xe forms XeF_6

B. Ar is used in electric bulbs

C. Kr is obtained during radioactive disintegration

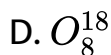
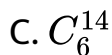
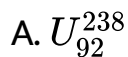
D. He has the lowest b.pt among all the nobles gases

Answer: B



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17. A radioactive element X decays to give two inert gases X is



Answer: B



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18. In order to prevent the hot metal filament from getting burnt, when the electric current is switched on, the bulb is filled with

A. CH_4

B. An inert gas

C. CO_2

D. CI_2

Answer: C



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19. The solubility of noble gases in water shows the order

A. $He > Ar > Kr > Ne > Xe$

B. $He > Ne > Ar > Kr > Xe$

C. $Xe > Kr > Ar > Ne > He$

D. none of these

Answer: B



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20. The ease of liquefaction of noble gases decreases in the order

A. $He > Ne > Ar > Kr > Xe$

B. $Xe > Kr > Ar > Ne > He$

C. $Kr > Ar > Ne > He$

D. $Ar > Kr > NeHe > Ne$

Answer: A



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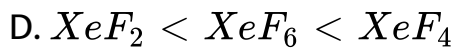
21. The increasing d-character in hybridisation of Xe in

XeF_2, XeF_4, XeF_6 is

A. $XeF_2 < XeF_4 < XeF_6$

B. $XeF_4 < XeF_2 < XeF_6$

C. $XeF_6 < XeF_4 < XeF_2$



Answer: C



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22. Which of the following is a "super acid "

A. krypton

B. argon II

C. helium II

D. helium I

Answer: A



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23. Which of the following statement is correct

A. helium 5 and helium 3 are radioactive nuclides with short half lives

B. H_2^4 is obtained from the decay of H_1^3

C. Helium is the most abundant noble gas in the atmosphere

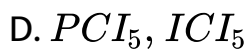
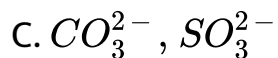
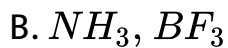
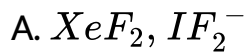
D. helium 4 has a low molecular viscosity and a large mean free path

Answer: A



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24. Which of the following two are isostructural ?



Answer: B



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25. Glow in discharge tube is due to

A. Ar

B. Ne

C. Xe

D. Kr

Answer: B



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26. When electric discharge is passed through neon at low pressure, the colour of the glow is

A. red

B. green

C. yellow

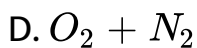
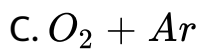
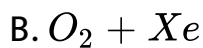
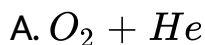
D. light orange

Answer: A



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27. The gaseous mixture used by deep sea divers for respiration is

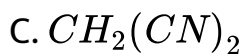


Answer: A



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28. Which of the following species contains equal number of pi and pi bonds ?



Answer: B



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Exercise Iv

1. Statement I : Balloons made by nylon films are better for containing helium than the conventional rubber balloons.

Statement II : R.M.S. velocity of helium is very high. So helium atom can effuse out through rubber balloons.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: A



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2. Statement I : Compared to other noble gases 'Xe' is chemically active.

Statement II : 'Xe' has low IP value and vacant 'd' orbitals, available for the excitation of electrons from 'p' orbitals of valence shell.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: A



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3. Statement I : Noble gases have highest ionization energies in their respective periods.

Statement II : The ns-np of outermost shell of noble gases is completely filled.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: A



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4. Statement I : Deep sea divers use $He - O_2$ mixture for breathing

Statement II : Unlike N_2 , He is not soluble in blood even under high pressure.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: D



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5. Assertion :Solubility of noble gases in water decreases with increases in atomic size

Reason :Solubility of noble gases in water is due to instantaneous dipole induced dipole interaction

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: D



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6. Statement I : He - II has high viscosity and flows downward.

Statement II : Liquid helium is used as cryogenic liquid.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: D



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7. Statement I : In sea diver gases, the nitrogen of normal air is replaced by helium.

Statement II : Nitrogen becomes more soluble in the body fluids at high pressures and cases conditions similar to alcohol intoxication.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: A



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8. Statement I : Xenon form fluorides.

Statement II : Because 5d orbitals are available for valence shell expansion.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
- B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'
- C. I' is true but 'II' is false
- D. I' is flase but 'II' is true

Answer: B



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9. Match the following

List-I

List-II

A) XeF_4 1) Distorted octahedral

B) XeF_6 2) Tetrahedral

C) XeO_3 3) Square planar

D) XeO_4 4) Pyramidal

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



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10. Matrix matching :

List-I

A) Gas Thermometers

B) Beacon lamp

C) Electric bulbs

D) Flash bulb

List-II

p) *He*

q) *Ne*

r) *Xe*

s) *Kr*



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11. Statement I : Balloons made by nylon films are better for containing helium than the conventional rubber balloons.

Statement II : R.M.S. velocity of helium is very high. So helium atom can effuse out through rubber balloons.

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Answer: A



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12. Statement I : Compared to other noble gases 'Xe' is chemically active.

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Answer: A



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13. Statement I : Noble gases have highest ionization energies in their respective periods.

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Answer: A



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14. Statement I : Deep sea divers use $He - O_2$ mixture for breathing

Statement II : Unlike N_2 , He is not soluble in blood even under high pressure.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
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Answer: D



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16. Statement I : He - II has high viscosity and flows downward.

Statement II : Liquid helium is used as cryogenic liquid.

- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'

B. Both 'I' and 'II' are true 'II' is not correct explanation of 'I'

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Answer: D

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- A. Both 'I' and 'II' are true 'II' is correct explanation of 'I'
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- C. 'I' is true but 'II' is false
- D. 'I' is false but 'II' is true

Answer: A



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B. Both 'I' and 'II' are true 'II' is not correct explanation of

'I'

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D. I' is false but 'II' is true

Answer: B



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19. Match the following

List-I

List-II

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B) XeF_6 2) Tetrahedral

C) XeO_3 3) Square planar

D) XeO_4 4) Pyramidal

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



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20. Matrix matching :

List-I

- A) Gas Thermometers
- B) Beacon lamp
- C) Electric bulbs
- D) Flash bulb

List-II

- p) *He*
- q) *Ne*
- r) *Xe*
- s) *Kr*



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