CHEMISTRY

BOOKS - NAVNEET PUBLICATION

INSIDE THE ATOM

Question Bank

1. What is meant by matter ?

Watch Video Solution

2. What is an atom ?

Watch Video Solution

3. What is the smallest unit of matter ?

Watch Video Solution

4. Rewrite the sentence after filling the blank:

Electron, proton, neutron are the types of-----in an atom.

Watch Video Solution

5. Rewrite the sentence after filling the blank:

An electron carries a-----charge.

Watch Video Solution

6. Rewrite the sentence after filling the blank:

The electron shell-----is nearest to the nucleus.

Watch Video Solution

7. Rewrite the sentence after filling the blank:

The electronic configuration of magnesium is 2, 8, 2. From this it is understood that the valence shell of Magnesium is-----.

Watch Video Solution

8. Rewrite the sentence after filling the blank:

The valency of hydrogen is 'one' as per the molecular formula H_2O. Therefore valency of Fe turns out to be-----as per the formula Fe_2O_3

.

Watch Video Solution

9. Rewrite the sentence after filling the blank:

An atom is electrically-----.

Watch Video Solution

10. Rewrite the sentence after filling the blank:

Except hydrogen, the nuclei of all atoms contain-----.

Watch Video Solution

11. Rewrite the sentence after filling the blank:

$^{12}_{6}C$,-----and-----are isotopes of carbon.

Watch Video Solution

12. Rewrite the sentence after filling the blank:

An atom has 11 protons and-----neutrons and hence its atomic mass number is 23.

Watch Video Solution

13. Rewrite the sentence after filling the blank:

The element-----has two electrons in the K shell, but it is a noble gas.

Watch Video Solution

14. Rewrite the sentence after filling the blank:

Isotopes of the element have the same ----- properties.

Watch Video Solution

15. Rewrite the sentence after filling the blank:

Electrons must absorb-----to transit between orbits.

Watch Video Solution

16. Rewrite the sentence after filling the blank:

-----discovered the electron.

Watch Video Solution

17. Rewrite the sentence after filling the blank:

α-particles have-----charge.

Watch Video Solution

18. Rewrite the sentence after filling the blank:

Electrons revolve around the-----in certain discrete orbits.

Watch Video Solution

19. Rewrite the sentence after filling the blank:

The shell-wise distribution of electrons is called the-----

Watch Video Solution

20. Rewrite the sentence after filling the blank:

Democritus termed the smallest particles of matter as-----

Watch Video Solution

21. Rewrite the sentence after filling the blank:

-----discovered neutron.

Watch Video Solution

22. Rewrite the sentence after filling the blank:

Electrons revolve around the nucleus in paths called-----

Watch Video Solution

23. Rewrite the sentence after filling the blank:

The second shell has the capacity of -----

Watch Video Solution

24. Rewrite the sentence after filling the blank:

Electrons in the-----shell have minimum energy.

Watch Video Solution

25. Rewrite the sentence after filling the blank:

Electrons in an atom occupy shells in increasing order of-----

Watch Video Solution

26. Rewrite the sentence after filling the blank:

Atomic masses are measured in a unit called-----.

Watch Video Solution

27. Rewrite the sentence after filling the blank:

According to the atomic model of-----electrons are embedded in a gel of positive charge.

Watch Video Solution

28. Rewrite the sentence after filling the blank:

All atoms, except-----contain neutrons in their nuclei.

Watch Video Solution

29. Rewrite the sentence after filling the blank:

The maximum capacity of the M shell is------ electrons.

Watch Video Solution

30. Rewrite the sentence after filling the blank:

The atom of the element-----has eight electrons in the outermost shell.

Watch Video Solution

31. Rewrite the following statement selecting the correct option:

The symbol A is used to denote the-----

A. A. atomic number

B. B atomic radius

C. C. atomic mass number

D. D atomic mass

Answer: C

Watch Video Solution

32. Rewrite the following statement selecting the correct option:

The existence of isotopes is due to the presence of different number of-----

A. A. electrons

B. B. protons

C. C. neutrons

D. D. positrons

Answer: C

Watch Video Solution

33. Rewrite the following statement selecting the correct option:

In the nucleus of a sodium atom $\left({}^{23}_{11}Na\right)$, there are-----neutrons.

A. A.11

B. B.12

C. C. 10

D. D. 9

Answer: B

Watch Video Solution

34. Rewrite the following statement selecting the correct option:

Isotopes of an element have the same number of-----

A. A. neutrons

B. B.nucleons

C. C. electrons

D. D. atoms

Answer: C

35. Rewrite the following statement selecting the correct option:

The great Indian philosopher-----proposed that matter is made up of invisible tiny particles.

A. A. Aryabhatta

B. B. Kanad

C. C. Bhaskaracharya

D. D. Chanakya

Answer: B

Watch Video Solution

36. Rewrite the following statement selecting the correct option:

The maximum capacity of the M shell is----- electrons.

A. A. 2

B. B. 8

C. C. 18

D. 4. 32

Answer: C

Watch Video Solution

37. Rewrite the following statement selecting the correct option:

The mass of the electron is-----times less than that of a hydrogen atom.

A. A. 1800

B. B. 8100

C. C. 1550

D. D. 1600

Answer: A

38. Rewrite the following statement selecting the correct option:

The L shell is the valence shell in-----

A. A. hydrogen

B. B. chlorine

C. C. oxygen

D. D. sodium

Answer: C

Watch Video Solution

39. Rewrite the following statement selecting the correct option:

The M shell is the valence shell in -----

A. A. fluorine

B. B. neon

C. C. carbon

D. D. chlorine

Answer: D

Watch Video Solution

40. Rewrite the following statement selecting the correct option:

The N shell is the valence shell in -----

A. A. fluorine

B. B. chlorine

C. C. bromine

D. D. helium

Answer: C

41. Rewrite the following statement selecting the correct option:

The maximum capacity of the N shell is----- electrons.

A. A. 2

B. B. 32

C. C. 18

D. D. 8

Answer: B

Watch Video Solution

42. Rewrite the following statement selecting the correct option:

The maximum number of electrons that can be accommodated in the third orbit is------

A. A. 3

B. B. 8

C. C. 32

D. D. 18

Answer: D

 Watch Video Solution

43. Rewrite the following statement selecting the correct option:

Rutherford alpha-particle scattering experiment was responsible for the discovery of the------

A. A. atomic nucleus

B. B. proton

C. C. electron

D. D. atomic mass

Answer: A

Watch Video Solution

44. Rewrite the following statement selecting the correct option:

Isotopes of element have-----

A. A. different atomic number and different atomic mass

B. B. different atomic numbers but the same atomic mass number

C. C. the same atomic number but different atomic mass numbers

D. D. the same atomic number and the same same atomic mass number

Answer: C

45. Rewrite the following statement selecting the correct option:

The nucleus of an atom contains 19 protons

and 21 neutrons. The atomic mass number of the element is-----

A. A. 19

B. B. 21

C. C. 40

D. D. 39

Answer: C

Watch Video Solution

46. Rewrite the following statement selecting the correct option:

The nucleus of an atom contains 18 protons and 22 neutrons. The atomic number of the element is-----

A. A. 18

B. B. 40

C. C. 22

D. D. 4

Answer: A

Watch Video Solution

47. Rewrite the following statement selecting the correct option:

When writing the symbol of ${}_{6}^{12}C$ its -----and----- are written.

A. A. atomic number, atomic mass number

B. B. protons, electrons

C. C. protons, neutrons

D. D. atomic number, electrons

Answer: A

Watch Video Solution

48. Rewrite the following statement selecting the correct option:

The particles in the atomic nucleus are-----

A. A. protons and electrons

B. B. electrons

C. C. electrons and neutrons

D. D. protons and neutrons

Answer: D

49. State whether the following statement are True or False:

An atom as a whole is electrically neutral.

50. State whether the following statement are True or False:

The mass of an atom is distributed evenly within it.

Watch Video Solution

51. State whether the following statement are True or False:

The electron has the same mass as that of the proton.

Watch Video Solution

52. State whether the following statement are True or False:

The electron in the K shell has maximum energy.

Watch Video Solution

53. State whether the following statement are True or False:

Isotopes have same atomic number but different atomic mass number.

Watch Video Solution

54. State whether the following statement are True or False:

Matter is composed of molecules and molecules are made of atoms.

Watch Video Solution

55. State whether the following statement are True or False:

In India, total 22 nuclear reactors in eight places are functioning.

Watch Video Solution

56. State whether the following statement are True or False:

The number of electrons in a given orbit is given by the formula n^2

Watch Video Solution

57. State whether the following statement are True or False:

Atomic masses are measured in a unit called the dalton(u).

Watch Video Solution

58. State whether the following statement are True or False:

The chemical properties of isotopes are different.

Watch Video Solution

59. State whether the following statement are True or False:

The maximum capacity of the N shell is 18 electrons.

Watch Video Solution

60. State whether the following statement are True or False:

Deuterium is an isotope of hydrogen.

Watch Video Solution

61. State whether the following statement are True or False:

Isotopes are used in the treatment of cancer.

Watch Video Solution

62. State whether the following statement are True or False:

Atoms of all elements, except normal hydrogen contain neutrons.

Watch Video Solution

63. State whether the following statement are True or False:

Electrons moving in different orbits possess the same amount of energy.

Watch Video Solution

64. State whether the following statement are True or False:

Rutherford discovered the neutron.

Watch Video Solution

65. State whether the following statement are True or False:

The nth orbit contains at the most $2n^2$ electrons.

Watch Video Solution

66. State whether the following statement are True or False:

Electrons have different energies according to their orbits.

Watch Video Solution

67. State whether the following statement are True or False:

The capacity of the second orbit is 18 electrons.

Watch Video Solution

68. State whether the following statement are True or False:

The radioactive isotope Sodium-24 is used in the medical treatment of cancer.

Watch Video Solution

69. State whether the following statement are True or False:

Uranium-235 is used in the production of electricity.

Watch Video Solution

70. Consider the relation between the items in the first pair and write the correlation for the second pair:

K:2:M:-----

Watch Video Solution

71. Consider the relation between the items in the first pair and write the correlation for the

second pair:

Carbon : 2,4 : : Fluorine:-----

Watch Video Solution

72. Consider the relation between the items in the first pair and write the correlation for the second pair:

Nitrogen : Valency three : : Fluorine : -----

Watch Video Solution

73. Consider the relation between the items in the first pair and write the correlation for the second pair:

Atomic radius : pm : Atomic mass : -----

Watch Video Solution

74. Consider the relation between the items in the first pair and write the correlation for the second pair:

NaH : Valency of Na : 1 : : $MgCl_2$: Valency of Mg

Watch Video Solution

75. Consider the relation between the items in the first pair and write the correlation for the second pair:

"^35Cl : $\nu mberof \neq utrons18$: : "^37Cl` :-----

Watch Video Solution

76. Consider the relation between the items in the first pair and write the correlation for the

second pair:

Protons : Positive : : -----: Neutral

Watch Video Solution

77. Match the column:

*(1) Column I	Column II
(1) Proton	(a) Negatively charged
(2) Electron	(b) Neutral
(3) Neutron	(c) Positively charged

Watch Video Solution

78. Match the column:

(2) Column I	Column II
(1) Thomson	(a) Well defined orbits
(2) Rutherford	(b) Neutron
(3) Chadwick	(c) Scattering experiment
(4) Bohr	(d) Electron

Watch Video Solution

79. Match the column:

(3) Column I	Column II
(1) Atom	(a) Treatment of goitre
(2) Isotopes of iodine	(b) Protons + Neutrons
(3) Atomic mass number	(c) Different number of neutrons
(4) Isotopes	(d) Electrically neutral

Watch Video Solution

80. Match the column:

View Text Solution

81. Distinguish between the following:

Proton and Neutron:

Watch Video Solution

82. Distinguish between the following:

Neutron and Electron:

Watch Video Solution

83. Distinguish between the following:

Proton and Electron:

Watch Video Solution

84. Distinguish between the following:

Atomic number and Atomic mass number :

Watch Video Solution

85. Answer the following questions in one sentence each :

Name the particles which are present in the nucleus of an atom.

Watch Video Solution

86. Answer the following questions in one sentence each :

State the relation between the number of protons, the number of neutrons and the atomic mass number (A) of an element.

Watch Video Solution

87. Answer the following questions in one sentence each :

Chlorine contains 17 protons and 18 neutrons. What is its atomic mass number ?

Watch Video Solution

88. Answer the following questions in one sentence each :

Carbon contains 6 protons and 6 neutrons.

State its atomic number and atomic mass number.

Watch Video Solution

89. Answer the following questions in one sentence each :

State one use of isotopes of cobalt.

Watch Video Solution

90. Answer the following questions in one sentence each :

State one use of isotopes of uranium.

Watch Video Solution

91. Answer the following questions in one sentence each :

Write the electronic configuration of oxygen.

Watch Video Solution

92. Answer the following questions in one sentence each :

Write the electronic configuration of chlorine.

Watch Video Solution

93. Answer the following questions in one sentence each :

State the number of electrons in the L shell of lithium.

Watch Video Solution

94. Answer the following questions in one sentence each :

State the number of electrons in the M shell of argon.

Watch Video Solution

95. Answer the following questions in one sentence each :

State the number of electrons in the K shell of helium.

Watch Video Solution

96. Answer the following questions in one sentence each :

Name isotopes of hydrogen.

Watch Video Solution

97. Answer the following questions in one sentence each :

Name two isotopes of carbon.

Watch Video Solution

98. Answer the following questions in one sentence each :

Name two elements in which the K and L shells of an atom are completely filled with electrons.

Watch Video Solution

99. Answer the following questions in one sentence each :

From the symbol $^{16}_{8}O$, state the electronic configuration of oxygen and the atomic mass number of isotope oxygen.

Watch Video Solution

100. Answer the following questions in one sentence each :

The atomic mass number of an element is 18, and the element contains 8 electrons. What is the number of protons and neutrons in it ?

Watch Video Solution

101. Answer the following questions in one sentence each :

An atom contains 2 protons, 2 electrons and 3 neutrons. State its atomic number and atomic mass number.

Watch Video Solution

102. Answer the following questions in one sentence each :

How many electrons could there be in the outermost orbit of an element whose valency is 3 ?

Watch Video Solution

103. Answer the following questions in one sentence each :

Which element is used as fuel in atomic reactors ?

Watch Video Solution

104. Answer the following questions in one sentence each :

Name the place and the first nuclear reactor in India.

Watch Video Solution

105. Answer the following questions :

Explain Dalton's atomic theory.

Watch Video Solution

106. Answer the following questions :

Write the postulates of Dalton's atomic theory.

Watch Video Solution

107. Take a solid ball and a Bundi Laddu. Press both these spheres with your palms. What did you find ?

Watch Video Solution

108. Cut the solid ball with a sharp knife. What did you find ?

Watch Video Solution

109. Answer the following questions :

Describe Thomson's model.

Watch Video Solution

110. Answer the following questions :

How will you think about atomic mass distribution according to Thomson's model ? Whether this distribution is uniform or non uniform as per Dalton's atomic theory ?

Watch Video Solution

111. Answer the following questions :

If the striker flicked by you misses the coin that you aimed at, where would the striker go ?

View Text Solution

112. Answer the following questions :

If the striker hits the coin, in which direction would it go ? Straight forward to a side or in the reverse direction ?

View Text Solution

113. Draw a neat labelled diagram of Thomson's atomic model.

Watch Video Solution

114. Answer the following questions :

What were the observations of the experiment of scattering of alpha particles ?

Watch Video Solution

115. Answer the following questions :

Explain Rutherford's scattering experiment.

Watch Video Solution

116. Answer the following questions :

What were the conclusions drawn from the alpha particle experiment performed by Rutherford ?

Watch Video Solution

117. Draw a neat labelled diagram of Rutherford's scattering experiment.

Watch Video Solution

118. Explain Rutherford's atomic model.

Watch Video Solution

119. Which discovery did point out that an atom has internal structure ?

Watch Video Solution

120. What is the difference between the solid atom in Dalton's atomic theory and Thomson's atomic model ?

Watch Video Solution

121. Explain the difference between the distribution of positive charge in Thomson's atomic model and Rutherford's atomic model.

Watch Video Solution

122. What is the point difference between the place of electron in the atomic models of Thomson and Rutherford ?

Watch Video Solution

123. What is the thing which is present in Rutherford's atomic model and not present in Dalton's and Thomson's atomic models ?

Watch Video Solution

124. What is the difference in the atomic models of Thomson and Rutherford ?

Watch Video Solution

125. Explain Niels Bohr's atomic model.

Watch Video Solution

126. Write the postulates of Bohr's atomic model.

Watch Video Solution

127. What is meant by subatomic particle ? Give brief information of three subatomic particles with reference to electrical charge, mass and location.

Watch Video Solution

128. Define the term:

Atom

Watch Video Solution

129. Define the term:

Atomic number

Watch Video Solution

130. Define the term:

Atomic mass number

Watch Video Solution

131. How many types of subatomic particles are found in atom ?

Watch Video Solution

132. Which subatomic particles are electrically charged ?

Watch Video Solution

133. Which subatomic particles are present revolving around the nucleus placed ?

Watch Video Solution

134. where are the electrons revolving around the nucleus placed ?

Watch Video Solution

135. State the characteristics of the neutron.

Watch Video Solution

136. State the characteristics of the protons.

Watch Video Solution

137. State the characteristics of the electrons.

Watch Video Solution

138. What is meant by atomic mass number ? Explain how the atomic number and mass

number of carbon are 6 and 12 respectively.

Watch Video Solution

139. The symbol used for oxygen is 'O' . There are 8 protons and 8 neutrons in its nucleus. From this determine the atomic number (Z) and mass number (A) of oxygen and arrange these in a conventional symbol.

Watch Video Solution

140. Atomic number of carbon is 6. How many electrons are there in a carbon atom ?

Watch Video Solution

141. A sodium atom contains 11 electrons. What is the atomic number of sodium ?

Watch Video Solution

142. The atomic number and mass number of magnesium are 12 and 24 respectively. How will you show this by the convention symbol ?

Watch Video Solution

143. The atomic number and mass number of calcium are 20 and 40 respectively. Deduce the number of neutron present in the calcium nucleus.

Watch Video Solution

144. Deduce from the datum provided.

Datum	To deduce
(1) $^{23}_{11}Na$	Neutron number
(2) $^{14}_{6}C$	Mass number
(3) $^{37}_{17}Cl$	Proton number

Watch Video Solution

145. Write a note on distribution of electrons in orbits.

Watch Video Solution

146. What is the maximum number of electrons that can be accomodated in each of the orbits (shells) K,L,M,N,..., etc. ?

Watch Video Solution

147. There is a similarity in atomic structure and solar system. The planets revolve around the sun due to the gravitational force. Which force might be acting in the atomic structure ?

Watch Video Solution

148. Positively charged proton are together in the nucleus. What might be, one of the function of the neutrons in the nucleus ?

Watch Video Solution

149. What do you understand by electronic configuration ?

Watch Video Solution

150. Write the electronic configuration of the following element:

Hydrogen

Watch Video Solution

151. Write the electronic configuration of the following element:

Magnesium

Watch Video Solution

152. Write the electronic configuration of the following element:

Aluminium

153. Write the electronic configuration of the following element:

Phosphorus

154. Write the electronic configuration of the following element:

Sulphur

Watch Video Solution

155. Use the following molecular formula to determine the valencies of H, Cl, O, S, N, C, Br, I, Na

Molecular formulae-

$H_2, HCl, H_2O, H_2S, NH_3, CH_4, HBr, HI, NaH$

.

Watch Video Solution

156. Draw suitable diagrams to show the electronic configuration of the atoms of the following elements: Hydrogen, helium, carbon, neon, sodium, chlorine.

Watch Video Solution

157. Diagrammatic sketch of electronic configuration of magnesium(Atomic number 12).

Watch Video Solution

158. Diagrammatic sketch of electronic configuration of argon(Atomic number 18).

Watch Video Solution

159. What are the symbols used for the shells which accommodate the electrons in various atoms ?

Watch Video Solution

160. What is the symbols and ordinal number of the innermost shell ?

Watch Video Solution

161. Write symbol of electron distribution in shell of fluorine atom ?

Watch Video Solution

162. Which is the outermost shell of fluorine atom ?

Watch Video Solution

163. Which is the outermost shell of sodium atom ?

Watch Video Solution

164. Which is the outermost shell of hydrogen atom ?

Watch Video Solution

165. What is meant by valency of an element ? What is the relationship between the number of valence electron and valency ?

Watch Video Solution

166. What is meant by the atomic number (Z) of an element ?

Watch Video Solution

167. Atomic number (Z) of some elements are given here.Write down the number of electron present in the outermost shell of each of them.

View Text Solution

168. The number of electrons of some elements is given here. By using it write the electronic configuration, number of valence electron and valency of the respective elements.

View Text Solution

169. Why are the atomic numbers and atomic mass numbers always in whole numbers ?

Watch Video Solution

170. Sulphur contains 16 protons and 16 neutrons. What would be its atomic number and mass number ?

Watch Video Solution

171. Define: Isotopes

Watch Video Solution

172. State the uses of isotopes

Watch Video Solution

173. Define : Moderator.

Watch Video Solution

174. Write a note on nuclear reactor.

Watch Video Solution

175. Give the scientific reason :

All the mass of an atom is concentrated in the

nucleus.

Watch Video Solution

176. Give the scientific reason :

Atom is electrically neutral.

Watch Video Solution

177. Give the scientific reason :

Atomic mass number is a whole number.

Watch Video Solution

178. Give the scientific reason :

Atoms are stable through negatively charged electron are revolving within it.

Watch Video Solution

179. Give the scientific reason :

In Rutherford's experiment, some alpha particles colliding with the thin gold foil are turned back.

Watch Video Solution

180. Give the scientific reason :

Two electrons in helium atom are placed in only one shell while three electrons in lithium atom occupy two shells.

Watch Video Solution

181. Complete the following :

Complete the table by putting tick mark in appropriate box.

View Text Solution

182. Complete the table:

View Text Solution

183. Complete the table:

View Text Solution

184. Complete the following table:

View Text Solution

185. 

In the table you have written identified valency from its molecular formulae. When the number of the valence electrons in an element 'x' is 4 or less than 4, does 'x' matches with the valency of that element ?

View Text Solution

186. When the number of the valence electrons in an element 'x' is 4 or more than 4, does '(8-x)' matches with the valency of that element ? How many electrons are used to complete the octet ?

Watch Video Solution