



# CHEMISTRY

**BOOKS - MCGROW HILL EDUCATION**

**CHEMISTRY (HINGLISH)**

**STRUCTURE OF ATOMS**

**Elementry Questions The Correct Choice  
Amongst The Following**

**1. A proton is identical to**

- A. the nucleus of helium
- B. the nucleus of a hydrogen atom
- C. a molecule of a hydrogen
- D. an atom of hydrogen

**Answer: C**



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**2. An a particle is**

- A. a hydrogen molecule

B. a helium nucleu

C. an electron

D. a proton

**Answer: B**



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**3.** The atomic number of an element is determined by

A. the number of electrons in one atom

B. the number of neutrons in one ato

C. the valency of the element

D. the number of protons in one atom

**Answer: D**



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4. The value of  $e/m$  of an electron was measured by:

A. Millikan

B. J. Thomson

C. Dalton

D. Rutherford

**Answer: B**



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5. The atomic number of an element is 11 and its mass number is 23. The respective number of electrons, protons and neutrons in this atom will be

A. 11, 11, 12

B. 11,12, 11

C. 12, 11, 11

D. 23, 11,23

**Answer: D**



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**6.** The number of electrons in the outer shell of the most stable or inert atoms is

A. 1

B. 4

C. 6

D. 8

**Answer: D**



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7. Which of the following pairs are isotopes

A. oxygen and ozone

B. ice and steam

C. nitric oxide and nitrogen dioxide

D. hydrogen and deuterium

**Answer: D**



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**8.** An atom which has a mass number of 14 and has 8 neutrons is an:

A. isotope of oxygen



B. isobar of oxygen

C. isotope of carbon

D. isobar of carbon

**Answer: C**



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**9.** Which of the following has an equal number of neutrons and protons?

A. hydrogen

B. deuterium

C. fluorine

D. chlorine

**Answer: B**



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**10.** Members of which of the following have similar chemical properties?

A. isotope

B. isobars

C. allotropes

D. both isotopes and allotropes

**Answer: A**



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**11.** An atom of an element has 26 electrons and has a mass number 56. The nucleus of this atom contains neutrons.

A. 26

B. 36

C. 30

D. 56

**Answer: C**



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**12.** For an element with atomic number 19, the 19th electron will occupy

A. L-shell

B. M-shell

C. N-shell

D. K-shell

**Answer: C**



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**13.** The number of electrons in an element with atomic number  $X$  and mass number  $Y$  will be

A.  $X - Y$

B.  $Y - X$

C.  $X + Y$

D.  $X$

**Answer: D**



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**14.** A natural phenomenon that supports the experimental conclusion that atoms are divisible is

A. allotropy

B. radioactivity

C. cracking

D. none of these

**Answer: B**



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**15.** The relative atomic masses of many elements are not whole numbers because

A. they cannot be determined very accurately

B. the atoms ionize during the determinations

C. of the existence of isotopes

D. of the presence of impurities

**Answer: C**



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**16.** The valency of an element is

A. the mass of the element displacing 1 part by the mass of hydrogen

B. the mass of the element combining with 8 parts by mass of oxygen

C. the number of atoms of hydrogen combining with 1 atom of the given element

D. the number of atoms in 1 molecule of  
the given element

**Answer: C**



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**17.** The absolute charge on the electron is.

A.  $1.1 \times 10^{11} \text{ C}$

B.  $1.6 \times 10^{14} \text{ C}$

C.  $1.6 \times 10^{-19} \text{ C}$

D.  $6.0 \times 10^{21}$  C

**Answer: C**



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**18.** The fundamental particles not present in the nucleus of hydrogen atom is

A. electron

B. proton

C. neutron

D. none of these

**Answer: C**



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**19.** The number of valence electrons present in

*Ca* atom

A. 3

B. 2

C. 8

D. 6

**Answer: B**



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**20.** The maximum number of electrons that can be accommodated in M Shell of an atom are

A. 8

B. 32

C. 18

D. 25

**Answer: C**



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**21.** An atom has 16 neutrons in its nucleus. The Atomic no. of the element is 15 the mass number of the element is

A. 15

B. 16

C. 31

D. none of these

**Answer: C**



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22. The oil drop experiment by R. A. Mullikan was performed to find

A. charge on the neutron

B. charge on the electron

C. charge on the Proton

D. none of these

**Answer: B**



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**23.** The particle used by Rutherford in  $\alpha$ -ray scattering experiment was

A. neutron



B. electron

C. helium nucleus

D. X rays

**Answer: C**



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**24.** The experiment which led to the discovery of nucleus was performed by

A. Goldstein

B. J.J. Thomson

C. Dalton

D. Rutherford

**Answer: D**



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**25.** The size of the nucleus is approximately

A.  $10^{18}$  m

B.  $10^{-10}$  m

C.  $10^{-8}$  m

D. none of these

**Answer: D**



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**26.** The electronic configuration of the element with Atomic number 19 is

A. 2,8,7

B. 2,9,8

C. 2,8,8,1

D. 2,10,7

**Answer: C**



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**27.** The valence electrons of an element are responsible for

A. physical properties of an element

B. chemical properties of an element

C. both the properties

D. none of these

**Answer: B**



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**28.** An element has electronic configuration

2,8,4. It will be classified as

A. metal

B. non metal

C. metalloid

D. none of these

**Answer: B**



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**29.** Isotopes of an element do not have

A. same number of electron

B. same physical properties

C. same chemical properties

D. none of these

**Answer: B**



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**30.** Amongst element X (2,8,6) and Y (2,8,8) which is more reactive and why?

A. X because it is a metal

B. Y because it is non metal

C. X because it has 6 valence electrons

D. same electrical charge on the nucleus

**Answer: C**



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**31. Cathode rays have**

A. mass only

B. charge only

C. both mass and charge

D. because it is gas

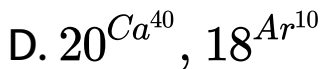
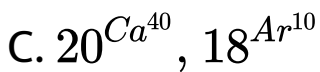
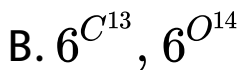
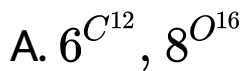


**Answer: C**



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**32. Which of these is a pairs of isobar**



**Answer: C**



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33.  $7N^{15}$  and  $8O^{16}$  are a pair of

A. isotopes

B. isobars

C. isotones

D. None of these

**Answer: C**



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**34.** The nucleus of the hydrogen atom is called

a

A. neutron

B. electron

C. proton

D. none of them

**Answer: C**



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**35.** The  $e/m$  value for cathode rays

A. varies with the nature of the gas

B. does not vary with the nature of gas

C. could not be determined by J J . Thomson

D. nucleons

**Answer: B**



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**36.** Cathode rays get deflected in an electric field towards

- A. positive Plat
- B. negative plate
- C. no deflection takes place
- D. both (b) and (c) are correct

**Answer: A**



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**37.** Isotopes differ in

A. no. of electrons

B. no. of protons

C. no. of neutrons

D. first towards negative plate and then towards positive plate

**Answer: C**



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**38.** The atomic number of an element 'y' is 20.

The electronic configuration of the ion having inert gas configuration is

A. 2,8,10

B. 2,18

C. 2,10,8

D. 2,8,8

**Answer: D**



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**39.** Which amongst the following statement is true?

- A. all rays are cathode rays
- B. Electrons make up the cathode ray
- C. Protons make up the cathode rays
- D. configuration of Ca is 2,8,8

**Answer: B**



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40. The isotope of hydrogen that contains the same number of protons and neutrons in its nucleus is called

A. protium

B. deuterium

C. tritium

D. Electro magnetic radiations make up the cathode rays

**Answer: B**



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41. C-14 has a half life of

A. 11520 yrs

B. 2880 yrs

C. 5760 yrs

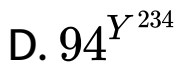
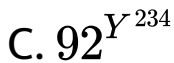
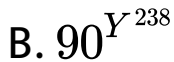
D. none of these

**Answer: C**



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42.  $\alpha$  particle is emitted by  $92X^{238}$  during radioactivity. The new specie Y should be:



**Answer: A**



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43. When an  $\alpha$ -particle is emitted

A. element moves 2 places to the right in the periodic table

B. element moves one place to the left

C. element moves 2 places to the left in the periodic table

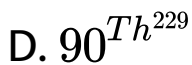
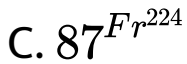
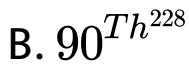
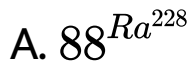
D. elements maintains its positions

**Answer: C**



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44. If the nuclide of actinium  $89\text{Ac}^{228}$ , emits  $\beta$  particle, the daughter nuclide will be



**Answer: B**



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45. The relative atomic masses of many elements are not whole numbers because

A. they can't be determined very accurately

B. the atoms ionize during the determination

C. of the existence of isotopes

D. of the presence of impurities

**Answer: C**



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## Higher Order Thinking Questions

1. Rutherford scattering formula fails for very small scattering angles because

A. the kinetic energy of alpha particles is larger

B. the gold foil is very thin

C. the full nuclear charge of the target atom is partially screened by its

electrons

D. all of these

**Answer: C**



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2. From the discharge tube experiment it was concluded that

A. mass of proton is in fraction

B. matter contains electron



C. nucleus contains positive charge

D. positive rays are heavier than protons

**Answer: C**



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**3. Who modified Bohr's theory of introducing elliptical orbits for electron path?**

A. Hund

B. homson

C. Rutherford

D. ommerfield

**Answer: D**



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**4. Cathode rays can be deflected by**

A. magnetic field only

B. electric field only

C. both types of fields

D. none of these

**Answer: C**



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5. As electron moves away from the nucleus,  
its potential energy

A. increases

B. decreases

C. remains constant

D. none of these

**Answer: A**



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**6.** A p-orbital can accommodate a maximum of electrons

A. 2

B. 6

C. 8

D. 10

**Answer: A**



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7. The discovery of neutron became very late because

- A. it is present in nucleus
- B. it is a fundamental particle
- C. it does not move

D. it does not carry any charge

**Answer: D**



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**8. Meson was discovered by:**

A. Powell

B. Seaborg

C. Anderson

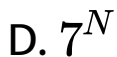
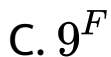
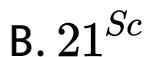
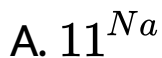
D. Yukawa

**Answer: D**



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9. Which of the following contains only one unpaired electron in the valence shell?



**Answer: A**



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**10.** Compared to the mass of lightest nuclei, the mass of an electron is only (approximately)

A.  $\frac{1}{80}$

B.  $\frac{1}{800}$

C.  $\frac{1}{1800}$

D.  $\frac{1}{2800}$



**Answer: C**



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