

(255. How many neutrons are present in C- 12 and C -13?

Ans. In C— 12 there are six neutrons present and in C-13 there are seven neutrons present in the nucleus.

Q56. Which of the isotopes of hydrogen contains greater number of neutrons?

Ans. Isotopes of hydrogen tritium has greater number of neutrons. It has 2 neutrons.

(257 Give one example each of the use of radioactive isotope in medicine and radiotherapy.

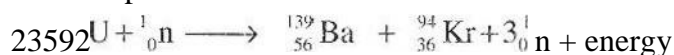
Ans. A radioactive Isotope uscd in medicine IS Iodine-131. Radioactive Isotope used in Radiotherapy is P-32, Sr-9() and Co-6().

(258. How is the goiter in thyroid gland detected?

Ans. Isotope of Iodine- 131 is used for diagnosis of goiter in the thyroid gland.

Q59. Define nuclear fission reaction.

Ans. Nuclear fission is the type of nuclear reaction in which an isotopic element is bombarded with slow moving neutrons that isotope of element emits three neutrons and split into same other isotopic elements.



Q6(). When U-235 breaks up, it produces a large amount of energy. How is this energy used?

Ans.  ${}_{92}^{235}\text{U} + \text{n} \longrightarrow \text{1st B a} + \text{+30 n} + \text{energy.}$

During this reaction, a large amount of energy is released which may be used to convert water into steam in boilers. The steam then drives the turbines to generate electricity. In this way, this energy is used for peacetill development of a nation.

Q61. How many neutrons are produced in the fission reaction of U-235. Ans.

${}_{92}^{235}\text{U} + {}_0^1\text{n} \longrightarrow {}_{56}^{139}\text{Ba} + 3{}_0^1\text{n} + \text{energy}$  During this reaction three neutrons are produced.

(262. U-235 fusion produces two atoms of which elements? .

Ans.  ${}_{92}^{235}\text{U} + {}_0^1\text{n} \longrightarrow {}_{56}^{139}\text{Ba} + {}_{36}^{94}\text{Kr} + 30{}_0^1\text{n} + \text{energy}$

The isotopes of barium and krypton are produce by the fission of U-235.

# Multiple Choice

## Questions

- Which one of the following results in the discovery of proton?  
(a) Cathode rays (b) Canal rays  
(c) X-rays (d) Alpha rays
- Which one of the following is the most penetrating?  
(a) Protons (b) Electrons  
(c) Neutrons (d) Alpha particles
- The concept of orbit was used by  
(a) J J. Thomson (b) Rutherford  
(c) Bohr (d) Planck
- Which one of the following consists of three subshells.  
(a) O shell (b) N shell  
(c) L shell (d) M shell
- Which radio isotope is used for the diagnosis of tumor in the body?  
(a) Cobalt-60 (b) Iodine- 131  
(c) Strontium-90 (d) Phosphorous-32
- When U-235 breaks up, it produces:  
(a) Electrons (b) Neutrons  
(c) Protons (d) Nothing
- The p subshell has  
(a) One orbital (b) Two orbitals  
(c) Three orbitals (d) Four orbitals
- Deuterium is used to make (a) Light water (b) Heavy water  
(c) Soft water (d) Hard water
- The isotope C-12 is present in abundance of  
(a) 96.9% (b) 97.6%  
(c) 99.7% (d) None of these
- Who discovered the proton?  
(a) Gold stein (b) J.J. Thomson  
(c) Neil Bohr (d) Rutherford
- The name atom was derived from the Latin word 'Atomos' meaning  
(a) Divisible (b) Indivisible  
(c) Reactive (d) Stable
- John Dalton put forward his atomic theory in the beginning of  
(a) 16<sup>th</sup> century (b) 17<sup>th</sup> century  
(c) 18<sup>th</sup> century (d) 19<sup>th</sup> century
- In 1897, who found electrons in atom?  
(a) Goldstein (b) Dalton  
(c) J..J. Thomson (d) William Crooks
- Plum pudding theory was put forward by:  
(a) Thomson (b) Goldstein  
(c) Crooks (d) Soddy
- Sir William Crooks performed experiments in a discharge tube at low pressure in  
(a) 1893 (b) 1895  
(c) 1896 (d) 1897
- Canal rays were discovered by  
(a) Goldstein (b) Thomson

(c) Dalton (d) Crooks 17. How many times the mass of a proton is more than an electron?

- (a) 1820 (b) 1830  
(d) 1850

12

(b) d<sup>i</sup>e

19. Chadwick discovered neutrons in

- (a) 1925 (b) 1930  
 (c) 1932 (d) 1934
20. Who predicted in 1920 that some neutral particle having mass equal to that of proton in an atom?  
 (a) Bohr (b) Rutherford  
 (c) Chadwick (d) Goldstein
21. Rutherford used a gold foil in his experiment, which has a thickness of  
 (a) 0.002cm (b) 0.00004cm  
 (c) 0.0001 cm (d) 0.001 cm
22. Neil Bohr presented his model in  
 (a) 1914 (b) 1918  
 (c) 1913 (d) 1926
23. Neil Bohr won the noble prize in  
 (a) 1914 (b) 1918  
 (c) 1922 (d) 1926
24. In 1912 Neil Bohr joined for post doctoral research with  
 (a) Rutherford (b) Chadwick  
 (c) Newton (d) Goldstein
25. Rutherford won noble prize in  
 (a) 1902 (b) 1906  
 (c) 1908 (d) 1910
26. Who performed first experiment to split atom?  
 (a) Soddy (b) Rutherford  
 (c) Bohr (d) Newton
27. The value of Planck's constant is  
 (a)  $5.63 \times 10^{-34}$  Js (b)  $5.62 \times 10^{-24}$  Js  
 $5.62 \times 10^{-19}$  (c) Js (d)  
 $5.62 \times 10^{-12}$  Js
28. Quantum means  
 (a) Variable energy  
 (b) Fixed energy  
 (c) High energy  
 (d) Minimum energy
29. According to Rutherford's atomic theory atom should produce  
 (a) Line spectrum  
 (b) Continuous spectrum  
 (c) Both a & b  
 (d) None of these
30. Who described the concept of line spectrum in his atomic model?  
 (a) Rutherford (b) Bohr  
 (c) Both a & b (d) Chadwick
31. The number of electrons that a shell can accommodate is given by formula.  
 (a)  $2n^2$  (b)  $3n^2$  (c)  $2n^2$  (d)  $3n^2$
32. How many sub shells are there in first energy level or k shell?  
 (a) 01 (b) 02  
 (c) 03 (d) 04
33. How many electrons can be accommodated in L-shell?  
 (a) 02 (b) 08  
 (c) 18 (d) 32
34. How many electrons can be accommodated in N-shell?  
 (a) 02 (b) 08  
 (c) 18 (d) 32
35. How many electrons can be accommodated in ruorbital?  
 (a) 02 (b) 06

(c) 10 (d) 14

36. Electronic configuration of Boron is

(a)  $1s^2, 2s$  (b)  $1s^2, 2s^2$

(c)  $1s, 2s^2, 2p^1$  (d)  $1s^2, 2p^1$

37. Symbol for Deuterium is

38.  $^{13}\text{C}$  and  $^{14}\text{C}$  are both present in nature

(a) 0.1 % (b) 0.9 %

(c) 1.1 % (d) 1.5 %

39. The percentage of pure  $^{238}\text{U}$  is

(a) 97 % (b) 98 %

(c) 99 % (d) 100 % 40.

Which isotope is used for diagnosis of goiter?

(a) Iodine-131 (b) Cobalt-60.

(c) P-32 (d) Sr-90

found in nature

## Answer Key

1.	b	2.	c	3.	c	4.	d	5.	b
6.	b	7.	c	8.	b	9.	d	10.	a
11.	b	12.	d	13.	c	14.	a	15.	b
16.	a	17.	c	18.	c	19.	c	20.	b
21.	b	22.	c	23.	c	24.	a	25.	c
26.	b	27.	a	28.	b	29.	b	30.	b
31.	c	32.	a	33.	b	34.	d	35.	b
36.	c	37.	b	38.	c	39.	c	40.	a