MULTIPLE CHOICE QUESTIONS

Q1. Each question is followed by four options encircle the correct option,

1) The central part of an atom is called:

a) Nucleus b) Proton
c) Neutron d) Electron

2) The mass of neutron is nearly equal to the mass of:

a) Nucleus b) Proton
c) Neutron d) Electron

3) If atomic number is 92 and mass number is 235 of an atom, then number of electrons will be:

a) 92 b) 235
c) 143 d) none

4) The elements showing radioactivity have atomic number greater than:

a) 235 b) 99
c) 58.5 d) 82

5) Which one is a radioactive element?

a) Uranium b) Plutonium
c) Radium d) All of these

6) Who discovered the process of radioactivity?

a) Newton b) Henry Becqueral
c) Einstein d) None of these

7) Radioactivity is a _____ process.

a) Reversible b) irreversible
c) Cyclic d) None of these

8) The isotopes, which emit radiations, are called:

a) Nuclear isotopes b) Emitted radiation
c) Radioisotopes d) None

9) In metals, the current is produced due to the flow of:

a) Positive charge b) Neutral charge
c) Free electrons d) Protons

10) The range for a-rays emitted by Uranium is:

a) 2.7cm b) 7.2 cm
c) 8.62 cm d) 86.2 cm

11) β-rays carry β charge.

a) Positive
b) Negative
c) Both +ive & —ive
d) No

12) The ionization produced by γ-rays is _____ as compared to a or β rays.

a) Very small
b) Very large
c) Equal
d) None

13) γ-rays are emitted by the____:

a) Nucleus
b) Proton
c) Neutron
d) Photons

14) When a neutron emits 13-particle, it changes into a:

a) Nucleon
b) Proton
c) Positron
d) Electron

15) Radioactive elements emit:

a) α-rays
b) β-rays
c)γ-rays
d) All of these

16) α-rays art in fact the it nuclei of:

a) Carbon
b) Helium
c) Oxygen
d) Carbon

17) γ-rays are

a) Photons
b) Electrons
c) Positrons
d) Helium nuclei

18) Which of the following radiation possess maximum ionization power?

a) α-rays
b) β-rays
c) γ-rays
d) All of these

19) Radioactivity happens due to integration of:

a) Nucleus
b) Proton
c) Neutron
d) Electron

20) Which of the following rays have no charge?

a) α-rays
b) β-rays
c) γ-rays
d) None of these

21) Which radioisotope is used for standing the thyroid glands?

a) Carbon
b) I_{131}
c) P_{32}
d) $C0_{60}$

22) How much of the total mass of an atom is concentrated in the nucleus of an atom?

a) 9.99 %
b) 99.9 %
c) 0.99%
d) 0.099 %

23) The atomic number of the newly produced element remains the same, but its charge number increases by:

a) One unit
b) Two units
c) Three units
d) Four units

24) Einstein's relation is ___:

a) $E = m^2c^2$
b) $E = m\,c$
c) $E = m^2c$
d) $E = m\,c^2$

25) The lightest of all elements is___:

a) Hydrogen
b) Carbon
c) Helium
d) None

26) When a reacts with a uranium nucleus, two or three neutrons are released.

a) Proton
b) Electron
c) Neutron
d) None of these

27) A process in which the light nuclei diffuse to form a heavier nucleus is called reaction.

a) Fission
b) Spontaneous
c) Fusion
d) Chemical

28) If an atom of deuterium is fused with an atom of tritium then a _____ is formed.

a) a-particle
b) β -particle
c) y-particle
d) None of these

29) The temperature at the centre of the sun is nearly _____ Kelvin..

a) 5 million
b) 10 million
c) 15 million
d) 20 million

30) In a fusion reaction, if isotopes of Hydrogen form a Helium nucleus, nearly _____ of energy is liberated.

a) 1.76 MeV
b) 1.67 MeV
c) 176 MeV
d) 17.6 MeV

31) β -particles emitted with the velocities of up to _____ of velocity of light.

a) 0.1 c
b) 0.11
c) 0.9c
d) 0.99

32) Which materials should be used to make a box for storing radioactive substance?'

a) Aluminium
b) Plastic

33) What percent of radioactive element remains after 4 half lives?

a) 25% b) 12.5%

c) 25% d) 6.25%

34) a-particles emitted by uranium travel a distance:

a) 1.7cm b) 1.8cm

c) 2.7cm d) 3.7cm

35) Which is the better for absorption of y-rays?

a) Aluminium b) Plastic

c) Lead d) Graphite

36) Complete the equation with suitable elemnt Y

$^{A}_{z}X+Y \rightarrow {}^{A}_{z+1}X$

a) $_{-1}\beta^{0}$ b) $_{-1}n^{\circ}$

c) $_{+1}\beta^{0}$ d) None

37) a-rays passing through a gas produce:

a) Evaporation b) Ionization

c) Excitation d) None

38) The atoms of _____elements change into atoms of the other elements due to the emission of radiations.

a) Metal b) Non-metal

c) Radioactive d) None of these

39) a-rays are produce fluorescence in

a) Zinc sulphide b) Sodium chloride

c) Barium plantinocynide d) Barium sulphate

40) y-rays are _____ in nature.

a) Zinc sulphide b) Sodium chloride

c) Barium plantinecynide d) Barium sulphate

41) y-rays are _____ in nature.

a) Mechanical b)Technical

c) Electromagnetic d) None

42) Nuclei, which do not emit radiations naturally are called:

a) Stable nuclei b) Unstable nuclei

c) Helium nuclei d) All of these

43) The elements whose atomic number is more than _____ are naturally unstable.

a) 238 b) 141
c) 37 d) 82

44) The branch of Physics, which deals with the study of the properties of isolated nuclei of atoms, is called

a) Molecular physics b) Nuclear physics
c) Atomic physics d) Particle physics

45) The size of a nucleus is of the order of _____.

a) $10^{-1^{*}m}$ b) 10^{-12}n
c) 10^{-14m} .d) 10^{-18m}

46) Which are those elements whose atomic numbers are the same but their atomic mass numbers are different?

a) Radioactive b) Nuclei
c) Isotopes d) Metal

47) _____ of an element is that time during which the number of atoms of that element are reduced to one half.

a) Transmutation b) Half life
c) Average life d) None

48) _____ is used for curing cancerous tumors and cells.

a) Sulphur-32 b) Cobalt-60
c) Uranium-238 d) Polonium-121

49) The new element decreases 4 its atomic mass number and 2 its atomic number after the emission of an of

a) a-rays b) n-rays
c) y-rays d) All of these

50) The heaviest element found in nature is:

a) Sulphur b) Uranium
c) Polonium d) Cobalt

51) a-particles are called____nuclei.

a) Heavy b) Weak
c) Strong d) Helium

52) The breaking of nucleus into two parts with the release of large amount of energy is called

a) chemical reaction b) Fission reaction

53) In the nuclear reactor, _____ rods absorb the surplus neutrons.

a) Carbon b) Boron

c) Sodium d) Silver

54) Which device is used to produce nuclear energy in controlled manner, using fission reaction?

a) Accelerator b) Spectrograph

c) Nuclear reactor d) Atomic reactor

55) Which one is used to detect tumors in the brain?

a) Phosphrous -32 b) Cobalt-60

c) Uranium-238 d) Polonium-121

56) Hydrogen bomb is an example of:

a) Chemical reaction b) Fission reaction

c) Fusion reaction d) All of these

57) Isotope of an element has same _____ properties due to same charge number.

a) Physical b) Chemical

c) Both physical & chemical d) None of these

58) The ionisation power of a-rays is _____ than 3-rays.

a) More b) Less

c) Stronger d) Weaker

59) 7-rays are _____ radiations of very short wavelength.

a) Mechanical b) Technical

c) Electromagnetic d) None

60) _____ emitted with the velocities of up to 0.1 of velocity of light.

a) a-rays b) β-rays

c) y-rays d) All of these

ANSWERS

No.	Ans.	No.	Ans.	No.	Ans.	No.	Ans.
1	a	2	b	3	c	4	d
5	d	6	b	7	b	8	c
9	b	10	b	11	b	12	a
13	a	14	b	15	b	16	b
17	a	18	a	19	a	20	c
21	b	22	d	23	a	24	d

29	a	30	d	31
33	d	34	c	35
37	b	38	c	39
41	c	42	a	43
45	cr	46	c	47
49	a	50	b	51
53	b	54	c	55
57	b	58	a	59

d	32	c
c	36	a
a	40	c
d	44	b
b	48	b
d	52	b
a	56	c
c	60	a