



Quality Checkers
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XI-SCI : Chemistry
Structure Atom,

DATE:

TIME: 1 hour 30
minutes

MARKS: 25

SEAT NO:

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Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1 Select and write the correct answer.

(4)

1. Two electrons in an atomic orbital have
2. The energy difference between the shell goes on _____ when moved away from the nucleus.
A) Increasing B) Decreasing
C) Equalizing D) Static
3. Total number of n values for n = 4 is
A) 8 B) 12
C) 16 D) 20
4. The value of azimuthal quantum number is 2, there will be = value of magnetic quantum number.
A) 2 B) 3
C) 4 D) 5

Q.2 Answer the following.

(3)

1. Indicate the number of unpaired electrons in :
(1) Si (Z = 14) (2) Cr (Z = 24)
2. Mention one physical process for the release of electron from the surface of metal?
3. Define the Term: Isotones

Section B

Attempt any Four

- Q.3 Give reason : An atom is electrically neutral. **(2)**
- Q.4 What is photoelectric effect? **(2)**
- Q.5 Derive the expression : Angular momentum = mvr **(2)**
- Q.6 Who proved Rutherford wrong? State two reasons that helped him to do so. **(2)**
- Q.7 What does the negative sign of electron energy convey? **(2)**
- Q.8 How many electrons, protons and neutrons will be there in an element ${}_{9}^{19}\text{X}$? **(2)**

Section C

Attempt any Two

- Q.9 State Hund's rule of maximum multiplicity with suitable example. **(3)**

Q.10 Give the SI unit and symbols of the following: (3)

	Physical Quantity	SI unit	Symbol
1.	Wavelength	_____	_____
2.	Frequency	_____	_____
3.	Wave number	_____	_____

Q.11 What is the wavelength of the photon emitted during the transition from the orbit of $n = 5$ to that of $n = 2$ in hydrogen atom? (3)

Section D
Attempt any One

Q.12 Write postulates of Bohr's theory of hydrogen atom. (4)

Q.13 A hydrogen atom absorbs a photon of UV light and its electron enters the $n = 4$ energy level. Calculate (4)

- (a) the change in energy of the atom.
- (b) the wavelength (in nm) of the photon.