# PhysicsByAaryan

CSIR NET . GATE . JEST . BARC - Physics

# Xray and alkali spectra - CSIR NET Physics PYQs

Atomic and Molecular Physics . All PYQs (2015-2025) with answer key

**3 questions . Answer key included**

**www.physicsbyaaryan.com . www.csirnetphysics.com**
Contact: 9501976811

**Q1. [June 2017] . 5.0 marks**

Atomic and Molecular Physics > Xray and alkali spectra

| CSIR NET | 2017 June | 5M |
|---|---|---|

If the binding energies of the electron in the $K$ and $L$ shells of silver atom are 25.4 keV and 3.34 keV , respectively, then the kinetic energy of the Auger electron will be approximately

1. 22 keV
2. 9.3 keV
3. 10.5 keV
4. 18.7 keV

**Q2. [June 2018] . 5.0 marks**

Atomic and Molecular Physics > Xray and alkali spectra

| CSIR NET | 2018 June | 5M |
|---|---|---|

A photon of energy 115.62 keV ionizes a $K$-shell electron of a $Be$ atom. One $L$-shell electron jumps to the $K$-shell to fill this vacancy and emits a photon of energy 109.2 keV in the process. If the ionization potential for the $L$-shell is 6.4 keV , the kinetic energy of the ionized electron is

1. 6.42 keV
2. 12.82 keV
3. 20 eV
4. 32 eV

**Q3. [June 2024] . 5.0 marks**

Atomic and Molecular Physics > Xray and alkali spectra

| CSIR NET | 2024 June | 5M |
|---|---|---|

Helium atom is excited to a state with the configuration $(2s2p)$ with an energy 58.3 eV . After some time, this atom spontaneously ejects a single electron. The value of the orbital angular momentum quantum number ( $l$ ) of the ejected electron in the final state of the system is (*Ionization potential of* $He(1s)^2$ *is 24.6 eV*)

1. 1
2. 0
3. 2
4. 3

# Answer Key

3 questions . Subject and topic for quick revision

| Q. No | Subject | Topic | Answer |
|---|---|---|---|
| Q1 | Atomic and Molecular Physics | Xray and alkali spectra | **4** |
| Q2 | Atomic and Molecular Physics | Xray and alkali spectra | **3** |
| Q3 | Atomic and Molecular Physics | Xray and alkali spectra | **1** |

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9501976811