PhysicsByAaryan

CSIR NET . GATE . JEST . BARC - Physics

Collective model - CSIR NET Physics PYQs

Nuclear and Particle Physics . All PYQs (2015-2025) with answer key

3 questions . Answer key included

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Q1. [Dec 2017] . 5.0 marks

Nuclear and Particle Physics > Collective model

CSIR NET	2017 Dec	5M

The first excited state of the rotational spectrum of the nucleus $^{238}_{92}U$ has an energy 45 keV above the ground state. The energy of the second excited state (in keV) is

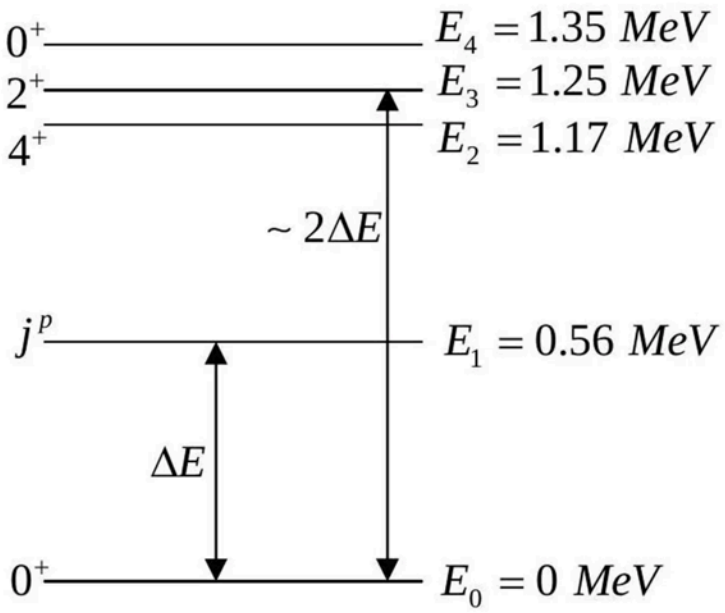
1. 150
2. 120
3. 90
4. 60

Q2. [Dec 2018] . 5.0 marks

Nuclear and Particle Physics > Collective model

CSIR NET	2018 Dec	5M

The low-lying energy levels due to the vibrational excitations of an even-even nucleus are shown in the figure below. The spin-parity j^p of the level E_1 is



1. 1^+
2. 1^-
3. 2^-
4. 2^+

Q3. [June 2023] . 5.0 marks

Nuclear and Particle Physics > Collective model

CSIR NET	2023 June	5M

The energy (in keV) and spin-parity values $E(J^p)$ of the low lying excited states of a nucleus of mass number $A = 152$, are $122(2^+), 366(4^+), 707(6^+)$, and $1125(8^+)$. It may be inferred that these energy levels correspond to a

1. rotational spectrum of a deformed nucleus
2. rotational spectrum of a spherically symmetric nucleus
3. vibrational spectrum of a deformed nucleus
4. vibrational spectrum of a spherically symmetric nucleus

Answer Key

3 questions . Subject and topic for quick revision

Q. No	Subject	Topic	Answer
Q1	Nuclear and Particle Physics	Collective model	**1**
Q2	Nuclear and Particle Physics	Collective model	**4**
Q3	Nuclear and Particle Physics	Collective model	**1**

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