

PART 1 - PHYSICS

Topic : Nuclei

SECTION-A : (Maximum Marks : 4)

This section contains **ONE** question.

Each question has **TWO** lists: **List-I** and **List-II**.

Four options are given representing matching of elements from List-I and List-II. **ONLY ONE** of these four options corresponds to a correct matching.

For each question, choose the option corresponding to the correct answer.

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If **ONLY** the correct option is chosen;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

1. **List-I** shows various functional dependencies of energy (E) on the atomic number (Z). Energies associated with certain phenomena are given in **List-II**.

List-I		List-II	
P.	$E \propto Z^2$	1.	energy of characteristic x-rays
Q.	$E \propto (Z - 1)^2$	2.	electrostatic part of the nuclear binding energy for stable nuclei with mass numbers in the range 30 to 170
R.	$E \propto Z(Z - 1)$	3.	energy of continuous x-rays
S.	E is practically independent of Z	4.	average nuclear binding energy per nucleon for stable nuclei with mass number in the range 30 to 170
		5.	energy of radiation due to electronic transitions from hydrogen-like atoms

Choose the option that describes the correct match between the entries in List-I to those in List-II.

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(A) $P \rightarrow 4, Q \rightarrow 3, R \rightarrow 1, S \rightarrow 2$

(B) $P \rightarrow 5, Q \rightarrow 2, R \rightarrow 1, S \rightarrow 4$

(C) $P \rightarrow 5, Q \rightarrow 1, R \rightarrow 2, S \rightarrow 4$

(D) $P \rightarrow 3, Q \rightarrow 2, R \rightarrow 1, S \rightarrow 5$

Scan or tap for the full solution



Space for Rough Work

**JEE ADVANCED NUCLEI — SIZE OF THE NUCLEUS —
PYQS**

Test Pattern : **JEE (Advanced)**

ANSWER KEY

SECTION-A

[illegible]