

# NUCLEI

## Test Paper-I

**MAX MARKS: 30**

**TIME: 90Mts**

Sl. No.	QUESTION	ANSWER PAGE	MARKS
1	Give a point of evidence that most of the space in an atom is empty.	Page:438	1
2	What are isotopes? Give an example.	Page:439	2
3	Name the isotope of Hydrogen which do not occur naturally?	Page:439	1
4	Who discovered neutron? In which year he was awarded the noble prize.	Page:440	1
5	Discuss about the stability of a free neutron.	Page:440	2
6	What are isobars? Give an example	Page:441	1
7	What are isotones? Give an example.	Page:441	1
8	What is the relationship existing between the radius(R) of a nucleus and mass number A?	Page:441	1
9	Given the mass of iron nucleus as 55.85amu and A=56, find the nuclear density?	Page:442	2
10	Give the equation of mass-energy equivalence. Also Calculate the energy equivalent of 1 g of substance.	Page:442	2
11	What is mass defect Give the formula for finding mass defect. What is the corresponding energy related to the mass defect.	Page:443	3
12	Draw a graph showing the variation of binding energy per nucleon as a function of mass number. Also give the important features of it. Give the important conclusions from the graph	Page:444	3
13	Draw a graph showing the variation of potential energy of a pair of nucleons as a function of their separation. Give any two important conclusions from the graph.	Page:445	3
14	What are the properties of nuclear forces?	Page:445	2
15	Who discovered Radioactivity?	Page:446	1
16	What is meant by radioactive decay? How many types of radioactive decay are there? What are they?	Page:446	2
17	Derive the expression $N(t) = N_0 e^{-\lambda t}$	Page:447	2