Shree H.N. Shukla College of Science Rajkot
B.Sc. (Sem. VI) (CBCS)
PHYSICS
Unit Test Paper 1 MAR/APR-2020

[Total Marks: 20]

Q.1 (A): Answer the following question in short: **[05]**

1) The net charge on the nucleus is_____.
2) Isotopes have same _____ properties but different ____properties.
3) IN Semi-empirical mass formula the surface term E_s = _____.
4) In B.E. > 0, the nucleus is _____.
5) Write a magic number.

(B) Answer the following question **[04]**

1) Calculate the binding energy per nucleon of $_{28}Ni^{64}$ mass proton = 1.007275 amu, mass of neutron = 1.008665 amu, mass of $_{28}Ni^{64}$ nucleus =63.8126 amu.
2) Calculate binding energy of $_{29}Cu^{64}$ using semi-empirical mass formula. The constants of the formula are a=14.0, b=13.0, c=0.583, d=19.5 and δ=33.5 Mev.

(C) Attempt any two out of three **[06]**

1) Explain nuclear size and nuclear density.
2) Explain Rutherford's α- scattering experiment.
3) Describe the classification of nuclei.

(D) Attempt any one out of two: **[05]**

1) Write note on liquid drop model.
2) Write note on Evidences of shell model.

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