

B.Sc. Semester - 5 (CBCS) Examination
December -2020 (NEW COURSE)
Nuclear& Particle Physics (Core)

Time: 1:30 Hours**Marks: 42****Instructions:**

1. Figures to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any three of the following questions.
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- Q.1(a) Answer the following questions (any two out of three) 10**
1. Discuss liquid drop model
 2. Discuss Rutherford's Atom Model
 3. Discuss Evidence of the Shell model
- Q.1(b) Answer the following questions (any one out of two) 04**
1. Discuss main features of binding energy vs mass number curve.
 2. Discuss Semi empirical mass formula and significance of various terms
- Q.2(a) Answer the following questions (any two out of three) 10**
1. Discuss Neutrino hypothesis and Fermi theory of Beta Decay
 2. Discuss Continuous beta ray spectrum and Difficulties in understanding it
 3. Discuss theory of Alpha decay and Barrier penetration.
- Q.2(b) Answer the following questions (any one out of two) 04**
1. Write note on Carbon dating
 2. Write note on applications of Radio isotopes
- Q.3(a) Answer the following questions (any two out of three) 10**
1. Write note on principle, construction and working of Ionization Chamber
 2. Write note on Rutherford experiment for artificial transmutation
 3. Write note on Threshold energy of Endoergic reaction
- Q.3(b) Answer the following questions (any one out of two) 04**
1. Write note on Solid state detector
 2. Write note on GM counter
- Q.4(a) Answer the following questions (any two out of three) 10**
1. Discuss the construction and working of Linear Accelerator
 2. Discuss the discovery of Nuclear fission
 3. Write note on Synchrocyclotron
- Q.4(b) Answer the following questions (any one out of two) 04**
1. Write note on Nuclear Reactors
 2. Write note on Bohr & Wheeler's theory of fission
- Q.5(a) Answer the following questions (any two out of three) 10**
1. Write note on Tokamak
 2. Write note on Plasma confinement
 3. Write note on Quark model
- Q.5(b) Answer the following questions (any one out of two) 04**
1. Write note on Particles and Antiparticles
 2. Write note on Hydrogen bomb
