Sessional exam-2021

PHYSICS

(Major)

Theory paper: Nuclear Physics (601)

Full marks:30

Time: 2 hours

1. ***Answer the following*** **6 x 1 = 6**

I. Define binding energy of a nucleus.

II. Draw the binding energy curve.

III. Pair production is same as annihilation process (True/False).

IV. How density is related to mass number of a nucleus?

V. Neutrino hypothesis solved missing _____in Beta decay reaction. (Fill in the blank)

VI. Among ${}^{14}_{6}C$ and ${}^{12}_{6}C$, which one is radioactive and why?

2. ***Answer the following:*** **3 x 3 =9**

I. What is Q value of a reaction? Write down about its Physical significance.

II. What is inverse Beta decay? What is its significance?

III. What forces are existing in a nucleus? Write down the properties of those forces.

3. What is Radioactive decay and its types? How gamma radiation interacts with matter? **2+3 = 5**

4. Write down a note about p-p cycle. **5**

5. Explain first three terms of Bethe Weisackar semi-empirical mass formula. **5**

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