TYBSC PHYSICS MOCK TEST NUCLEAR PHYSICS

1. Obtain the asymmetric energy for a nucleus $_{20}Ca^{41}$ (given: a_A = 19.0 MeV)

A.0.463 MeV

B. 0.216 MeV

C. 0.931 MeV

D. 1.034 MeV

2. Obtain coulomb's energy term for nucleus $_{52}Te^{120}$ (given: a_C = 0.59 MeV)

A. -323.44 MeV

B. 323.44 MeV

C. 32.344 MeV

D. -32.344 MeV

3. Gamma ray spectra are of _____ types.

A.Two

B.Three

C.Four

D. six

4. Isomeric states of the nucleus mean _____
   a. Metastable state and ground state together
   b. Metastable state and higher state together
   c. Only metastable state
   d. ground state

5. In nuclear isomerism pair of nuclear species exist_____.
   A. with same Z and A but different radioactive properties.
   B. with same Z, A and radioactive properties.
   C. with same Z and radioactive properties but different A
   D. with same A and radioactive properties but different Z

6. Emission of _____ leaves both atomic & mass number unchanged?

A. neutron
B. alpha particle
C. gamma radiation
D. beta particle

7. An alpha particle is also known as

a. an electron.

b. a positron.

c. a helium nucleus.

d. a photon.

8. Which of the following is K-capture process?
A. Neutron = Proton + electron + anti-neutrino
B. Proton = Neutrino + positron + neutrino
C. Proton + electron = Neutron + neutrino
D. Neutron + Proton = electron + anti-neutrino

9. In Cowan -Reines experiment gamma ray generates due to annihilation of positron and electron, each gamma ray carries _____ amount of energy.
A. 0.511 MeV
B. 0.511 keV
C. 1.02 MeV
D. 1.02 keV

10. Van de graaff generator cannot accelerate _____.
a. Neutron
b. Electron
c. Proton
d. Alpha particle

11. In case of fission reactor if factor k < 1, then this referred as

a. Critical size
b. Sub-critical size
c. Super critical size
d. High-critical size

12. In nuclear reactor _____ prevents very rapid changes in neutron density, when the condition of the operation is close to critical.

a) Delayed neutron

b) Prompt neutron

c) Positron

d) Fission fragments

13. . In theory of exchange forces Majorana force also called as _____

a. Space exchange force

b. Spin exchange force

c. Bartlett exchange force

d. Space-spin exchange force

14. Behaviors of bosons are controlled by _____.

a. Bose statistics

b. Fermi statistics

c. both

d. none of the above

15. _____ is much heavier boson particle.

a. π^+

b. K^+

c. μ^-

d. photon