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**T.Y. B.SC. CHEMISTRY - SEM II**

**CBCS PATTERN AS PER NEW SYLLABUS**

**SUBJECT - PHYSICAL CHEMISTRY CH-601 CHAPTER NO. 3** **Nuclear Chemistry MCQ**

**PART - VI**

**BY**

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# Multiple Choice Questions

1. **The atomic number is not changed by which type of radioactive decay?**
   1. Beta
   2. Gamma
   3. Alpha
   4. all of these
2. **Helium nuclei particles are called---------------.**
3. Gamma particles
4. Beta particles
5. Alpha particles
6. none of these
7. **One curie is---------------.**

**a)** 3.7 x 1010dps

**b)** 1.38 x 1010Bq

**c)** 931 dps

**d)** 6.626 x 10-23Bq

1. **The first step in the disintegration of uranium is 238U ----🡪 234Th. What particle is emitted in thisreaction?**
2. particle
3. electron
4. neutron
5. γ ray
6. **The neutral atoms of all isotopes of the same element contain the same number of ---------------.**
7. Neutrons only.
8. Electrons
9. Mass numbers
10. Masses
11. **Isotopes of an element have a different number of---------------.**
12. Proton
13. Neutron
14. Electron
15. atom
16. **Three radioactive elements are emitted when unstable nuclei undergo radioactivedecay. Which of the following is not one of them?**
17. Beta
18. Gamma
19. Alpha
20. Delta
21. **The number of protons or atomic number is reduced to 2 by which form of radioactive decay?**
22. Beta-decay
23. Gamma decay
24. Alpha decay
25. None of the above
26. **Which statement is true for all three types of radioactive emissions?**
    1. They are deflected by electric fields
    2. They ionize gases
    3. They are entirely absorbed by a thin aluminum sheet
    4. They emit light
27. **A nuclide of the element plutonium 94 Pu 242. What is the number of neutrons in its nucleus?**
28. 242
29. 336
30. 148
31. 94
32. **Quick electron emissions are called---------------.**
33. alpha decay
34. beta decay
35. gamma decay
36. radioactive half-life
37. **What form of radioactive decay increases the atomic number or protons by 1?**
38. alpha decay
39. beta decay
40. gamma decay
41. None of the above
42. **Radioactivity is**
    1. Spontaneous
    2. self-disintegration process
    3. irreversible process
    4. all of the above
43. **Beta rays emitted by a radioactive material are---------------.**
    1. charged particles emitted by nucleus
    2. neutral particles
    3. the electrons orbiting around the nucleus
    4. electromagnetic radiations
44. **A radioactive material undergoes decay by ejecting electrons. The electron ejected in this process,**
    1. the electron from the decay of a neutron
    2. the electron presents in the nucleus
    3. an orbital electron
    4. None of these
45. **The rate of disintegration at a given instant is directly proportional to the number of atoms presentat that instant. This is the statement of---------------.**
    1. the law of radioactive decay
    2. half-life
    3. law of radioactive transformation
    4. Group displacement law
46. **Half-life of a radioactive element depends upon---------------.**
    1. nature of element
    2. pressure
    3. temperature
    4. amount of element present
47. **Which of the following statements is true for a 14C?**

**a)** it has 6 protons and 6 neutrons

**b)** it has 12 protons and 12 neutrons

**c)** it has 12 protons and 8 neutrons

**d)** it has 6 protons and 8 neutrons

1. **Beta emission is associated with ---------------.**
2. conversion of a neutron to a proton.
3. decreases mass number by 4 & atomic number 2.
4. conversion of a proton to a neutron.
5. emission of γ rays.
6. **14C and 14N are---------------**

**a)** Isobars

**b)** Isotones

**c)** Isotopes

**d)** Isomers

1. **Alpha emission is associated with ---------------.**
2. conversion of a neutron to a proton.
3. decreases mass number by 4 & atomic number 2.
4. conversion of a proton to a neutron.
5. emission of γ rays.

**Ans : 1)** b, **2)** c, **3)** a, **4)** a, **5)** b, **6)** b, **7)** d, **8)** c, **9)** c, **10)** c, **11)** b, **12)** b, **13)** d, **14)** a, **15)** a, **16)** a, **17)** a, **18)** d, **19)** a, **20)** a, 2**1)** c.