CHEMISTRY

BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

Nuclear Chemistry

Exercise

1. A nuclide of an alkaine earth metal undergoes radioactive deacy by emission of

the $\alpha -$ particles in sucession. The group of the periodic tablle to which the resulting daughter element would belong to:

A. group 14

B. group 16

C. group 14

D. group 6

Answer: A

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2. The radioactive isotope CO^{60} which is used in the treatment of cancer can be made by (n.p) reaction for this reaction the target nucleus is

A. $_{28}Ni^{59}$

B. $_{27}Co^{59}$

C. $_{28}Ni^{60}$

D. $_{27}Co^{60}$

Answer: C

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3. The radio iostope, tritium $\left(H^3\right)$ has a half life of 12:3 yr. If the initial amount of tritum is 32 mg, how many milligrams of it would remain after 49.2 yr?

A. 4mg

B. 8 mg

C. 1 mg

D. 2 mg

Answer: D

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4. ${}_{92}U^{235}$ nucleus absorbes a neutron and disintegrate into ${}_{54}Xe^{139}$, ${}_{38}Sr^{94}$, and x neutrons x is

A. 3-neutrons

B. 2-neutrons

C. αparticle

D. βparticle

Answer: A

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5. If X^a species emit firstly a positron then two α and β last one α is also emitted and finally convert in Y^c species so correct the relation is

A. a=c+12,d=b-5

B. a=c-8,d=b-1

C. a=c-6,d=b-0

D. a=c-4,d=b-2

Answer: A

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6. A human body required the 0.01 M activity of radioactive substance after 24 h. Half life of radioactive substance is 6h. Then injection of maximum activity of radioactie substance that can be injected will be

A. 0.08

B. 0.04

C. 0.16

D. 0.32

Answer: C

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7. The half-life of a radioactive isotope is 3 h. if the initial mass of the isotope was 300 g, the mass which remained undercayed in 18 h would be

A. 4.68 g

B. 2.34 g

C. 1.17 g

D. 9.36 g

Answer: A

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8. The half life of $C^{14}\left(\lambda = 2.31 \times 10^{-4}\right.$ per year) is

A. 2×10^2 yr

B. 3×10^3 yr

C. 3.3×10^4 yr

D. 4×10^3 yr

Answer: B

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9. In the following radioactive decay $x^{232} \rightarrow y^{220}$ how many α and β particles are ejected from x to y?

A. 3α and 2β

B. 5α and 3β

C. 3α and β

D. 5α and 5β

Answer: C

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10. Sulphur $35(34,96903$ amu) emits a $\beta -$ particles but no γ-rays. The product is c

hlorine -35 $(34,96885$ amu),. The maximum energy carried by $\beta-$ particle is:

A. 16.758 MeV

B. 1.6785 MeV

C. 0.16758 MeV

D. 0.016758 MeV

Answer: C

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11. Number of neutrons i8n a parent nucleus X, which gives $._{7}^{14}N$ after two sucessive $\beta -$ emission would be:

A. 9

B. 6

C. 7

D. 8

Answer: A

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12. Carbon 14 dating method is based on the fact that

A. carbon 14 fraction is same in all objects

B. carbon 14 is hightly insoluble

C. ratio of carbon 14 and carbon 12 constant

D. All of the above

Answer: C

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13. $U^{235} + n^1 \rightarrow$ fission product + neutron + $3.2 \times 10^{-11} j$. The energy released , when 1g of u^{235} finally undergoes fission , is

A. $12.75 \times 10^8 kj$

B. $18.60 \times 10^9 kj$

C. $8.21 \times 10^7 kj$

D. $6.55 \times 10^6 kj$

Answer: C

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14. One microgram of radioactie sodium Na^{24} with a half life of 15 h was injected fin to a living system for a bio assay .How long will iot take for the radioactivity to fall to 25% of the initial value?

A. 60 h

B. 22.5 h

C. 375 h

D. 30h

Answer: D

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15. 20 mg of C-14 has half-life of 5760 yr. 100 mg of sample containing C-14 is reduced to 25 mg in

A. 5760 yr

B. 11520 yr

C. 17280 yr

D. 23040 yr

Answer: C

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16. In a radioactive decay, an emitted electron comes from

A. the nucleus of atom

B. the orbit with principal quantum number 1

C. the inner orbital of the atom

D. the outermost orbit of the atom

Answer: A

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17. If an isotope of hydrogen has two neutrons in its atom, its atomic number and mass number will respectively be

A. 2and 1

B. 1 and 1

C. 3 and 1

D. 1 and 3

Answer: D

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18. Emission of an alpha paritcle leads to a

A. decrease of 2 units in the charge of the atom

B. increase of 2 units in the mass of the atom

C. decrease of 2 units in the mass of the atom

D. increase of 4 units in the mass of the atom

Answer: A

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19. The age of most ancient geological formations is estimated by a)$C-14$ dating method b)$K-Ag$ method c)$U-Pb$ method d)$Ra-Rn$ method

A. potassium argon method

B. carbon 14 dating method `

C. radium silicon method

D. uranium lead method

Answer: D

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