Practice test questions

Class: F Y B Sc

Subject: MODERN PHYSICS

1. The charge of an electron is_____.
   a) 1.6×10^{-19} C
   b) 9.1×10^{-16} C
   c) 1.6×10^{-14} C
   d) 1.9×10^{-15} C

2. Radius of the nucleus is directly proportional to _____.
   a) Cube root of mass number
   b) Square root of mass number
   c) Mass number
   d) One third of mass number

3. 1 Fermi = ___m
   a) 10^{-15}
   b) 10^{-12}
   c) 10^{15}
   d) 10^{-12}

4. Plot of the number of neutrons versus number of protons for the stable nuclides of the different elements is called as _____.
   a) XY plot
   b) XZ plot
   c) Serge plot
   d) ZY plot

5. The difference between the measured mass M and the mass number A of a nuclide is called as _____.
   a) Mass defect
   b) Energy defect
   c) Energy Mass defect
   d) Radius defect

6. The average energy required to separate nucleus into its individual nucleons is called as _____.
   a) Binding energy
   b) Binding fraction
   c) Packing energy
   d) Packing fraction

7. For calculating the age of organic matter, which radioactive element is used? _____

a) C
b) C^{12}
c) C^{14}
d) U^{238}

8. Which scientist observed and given the name of gamma rays?
   a) Rutherford
   b) Villard
   c) P Curie
   d) M Curie

9. The scattering nuclear reactions are which the projectile and emerging particles are _____.
   a) Same
   b) different
   c) decreases
   d) increases

10. In ionization chamber, the chamber is _____.
   a) Cylindrical
   b) Spherical
   c) Elliptical
   d) Circular

11. In smoke industry which detector is used?
   a) Ionization
   b) Proportional
   c) GM counter
   d) Ground wave

12. The value of packing faction of _____ is closer to zero.
   a) O^{16}
   b) F^{56}
   c) C^{12}
   d) He^{4}

13. The smaller the value of packing fraction, the nucleus shows more _____ and vice versa.
   a) Unstable
   b) stable
   c) nuclear radius
   d) binding energy

14. Which of the following is not a gas filled detector.
   a) Ionization chamber
   b) Cloud chamber
   c) Proportional counter
   d) GM counter

15. The length of the plateau in GM counter (in volts) is about.
    a) 5 to 15 eV
    b) 15 to 25 eV
    c) 25 to 35 eV
    d) 25 to 45 eV
16. If Q value is positive, the reaction is said to be ___.
    a) endothermic
    b) exoergic
    c) neutral
    d) abnormal
17. The fusion is the reverse process of _____.
    a) -ve reaction
    b) +ve reaction
    c) fission
    d) exothermic
18. The nucleus formed from the fusion of two higher nuclei have a higher binding energy per_____.
    a) atomic number
    b) amu
    c) nucleon
    d) protons
19. The nuclear fission is an extremely complex nuclear reaction in which an _____ is divided into two nuclei of comparable mass.
    a) atom
    b) protons
    c) neutrons
    d) electrons
20. A black body is the body that _____ incident on it.
    a) Transmits all radiation
    b) Reflect all radiation
    c) Absorbs all radiation
    d) Transmit partly radiation
21. Wavelength of matter wave is _____.
    a) $\lambda = p/h$
    b) $\lambda = h/p$
    c) $\lambda = c/h$
    d) $P = \lambda h$
22. For a perfectly blackbody, coefficient of absorption is _____.
    a) 1
    b) 0

c) Between 0 & 1
d) Between 3 & 5

23. In the black body spectrum, as the temperature of body is increased, the peak wavelength (λ_m) shifts towards the _____ value.
    a) larger
    b) smaller
    c) no change
    d) different

24. Laue pattern is obtained due to _____ of X-rays at lattice planes.
    a) refraction
    b) dispersion
    c) diffraction
    d) interference

25. _____ is a direct conversion of radiant energy in to matter.
    a) Pair production
    b) Pair annihilation
    c) Photoelectric effect
    d) Compton effect