College: S. S. College, Jehanabad

Department: Physics

Class: B.Sc. Part-III

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Teacher: Mr M. K. Singh

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B.Sc(H) Physics Part III Online Test

* Required

1. Email address *

2. Name

3. College Roll Number

4. A tensor of rank N in four dimensional space has component. 1 point

Mark only one oval.

- 3^N
- 4^N
- N^4
- 0

5. The vectors are treated as the tensor of rank 1 point

Mark only one oval.

- 2
- 1
- 3
- 0

6. If a function is analytic everywhere in the entire Z plane is called 1 point

Mark only one oval.

- entire function
- analytic function
- holomorphic function
- onto function

7. The tensor whose components transform like the partial derivative of the coordinate are called 1 point

Mark only one oval.

- covariant tensor
- contravariant tensor
- zero tensor
- none of the above

8. The important variational principle associated with Hamiltonian formulation is 1 point

Mark only one oval.

- principle of least time
- principle of action
- principle of conservation of mass
- none of the above

9. A force acting on a particle is conservative if the net work done by the force in a complete round trip of particle is 1 point

Mark only one oval.

- zero
- -ve
- +ve
- All of the above

10. The force of gravity is 1 point

Mark only one oval.

- conservative
- non-conservative
- both
- non of the above

11. Which of the following is not the property of photons 1 point

Mark only one oval.

- charged
- zero rest mass
- energy
- momentum

12. The photoelectric current is proportional to 1 point

Mark only one oval.

- frquency
- wavelength
- intensity of radiation
- none of the above

13. Maximum value of kinetic energy of the emitted electron depends upon 1 point

Mark only one oval.

- frequency
- intensity of radiation
- charge of electron
- none of the above

14. Which of them are atomic models? (i)Thomson's plum puddling model (ii)Rutherford's nuclear model (iii)Bohr's model (iv)Sommerfeld's model 1 point

Mark only one oval.

- i & ii
- iii & iv
- ii & iii
- All the above

15.

Mark only one oval.

- Option 1

16.

Mark only one oval.

- Option 1

17. The nucleus consists of 1 point

Mark only one oval.

- neutron
- proton
- neutron and proton
- electron and neutron

18. Which of the following rays are emitted during radioactivity? 1 point

Mark only one oval.

- Alpha-rays
- Beta - rays
- Gamma-rays
- All of the above

19. Nucleus is 1 point

Mark only one oval.

- positively charged
- negatively charged
- neutral
- charge keeps on changing

20. Proton has the charge 1 point

Mark only one oval.

- 1637 times of an electron
- 1737 times of an electron
- 1837 times of an electron
- 1937 times of an electron

21. Neutrons has the charge 1 point

Mark only one oval.

- 1639 times of an electron
- 1739 times of an electron
- 1839 times of an electron
- 1939 times of an electron

22. The difference in the mass of the resultant nucleus and the sum of the masses of two parent nuclear particle is known as 1 point

Mark only one oval.

- mass defect
- solid defect
- weight defect
- nuclear defect

23. The function representing matter waves must be 1 point

Mark only one oval.

- real
- complex
- zero
- infinity

24. The total probability of finding the particle in space must be 1 point

Mark only one oval.

- zero
- depend upon situation
- double
- 1

25. de Broglie wavelength 1 point

where h is planck's constant

Mark only one oval.

- h/p
- h/v
- p/h
- all of the above

26. The International system of units (SI) of radioactivity activity is 1 point

Mark only one oval.

- Becquerel
- Curie
- Fermi
- Moles

27. The average (mean) life for particle decay is 1 point

Mark only one oval.

- 1.145 times greater than half life
- 1.245 times greater than half life
- 1.345 times greater than half life
- 1.445 times greater than half life

28. The number of electrons in any orbit is 1 point

Mark only one oval.

- 2n^2
- 3n^2
- 4n^2
- 5n^2

29. One atomic mass unit (AMU) is equal to 1 point

Mark only one oval.

- 1.66 x 10^-20 g
- 1.66 x 10^-22 g
- 1.66 x 10^-24 g
- 1.66 x 10^-26 g

30. The atomic mass number is equivalent to which of the following? 1 point

Mark only one oval.

- The number of neutrons in the atom.
- The number of protons in the atom.
- The number of nucleons in the atom
- The number of α−particles in the atom.

31. A reaction that releases more energy than is put into it is called: 1 point

Mark only one oval.

- Endothermic
- Exothermic
- nuclear
- chemical

32. Which type of radiation is stopped by a sheet of paper? 1 point

Mark only one oval.

- alpha particle
- beta particle
- Gamma ray
- X-ray

33. Which of the following about the gamma ray is true? 1 point

Mark only one oval.

- . It has zero rest mass and a neutral charge.
- It can be deflected by an electric field
- It can be deflected by a magnetic field.
- It carries a positive charge.

34. An isotope with a high Binding Energy per nucleon 1 point

Mark only one oval.

- will decay in a short period of time.
- is very unstable.
- is very stable .
- has very few electrons.

35. Why do heavier nuclei have a greater ratio of neutrons to protons than lighter nuclei? 1 point

Mark only one oval.

- to add more nucleons so that the binding energy is greater.
- to provide a greater weak nuclear force.
- to provide more attractive electromagnetic force.
- to provide more attractive strong nuclear force to balance the repulsive electromagnetic force.

36. When a nucleus is divided into its constituents, energy is: 1 point

Mark only one oval.

- created from nothing.
- destroyed into nothing.
- transformed into visible light
- absorbed by the nucleus which then breaks it apart.

37. When nucleons form a stable nucleus, binding energy is: 1 point

Mark only one oval.

- transformed into visible light.
- absorbed as high energy photons or particles.
- released as high energy photons or particles
- destroyed into nothing.

38. Magnitude of 6i^ + 8j^ 1 point

Mark only one oval.

- 10
- 15
- 20
- 11

39. Dot product of vectors is 1 point

Mark only one oval.

- vector
- scalar
- tensor of order 3
- none of the above

40. Cross product of vectors is 1 point

Mark only one oval.

- scalar
- vector
- force
- work

41. . What force is responsible for the radioactive decay of the nucleus? 1 point

Mark only one oval.

- Gravitational force
- Weak Nuclear force
- Strong Nuclear force
- Electromagnetic force

42. Which of the following is correct for the number of neutrons in the nucleus? 1 point

Mark only one oval.

- N= A -Z
- N = Z - A
- N = Z+ A
- N = Z

43. Which of the following about the nuclear force is true? 1 point

Mark only one oval.

- It is an attractive force between electrons and protons in an atom.
- It is an attractive force between electrons and neutrons in an atom.
- It is much weaker than the electromagnetic force.
- It is a strong, short-range, attractive force between the nucleons.

44. Isotopes of an element: 1 point

Mark only one oval.

- have the same number of protons and electrons, but a different number of neutrons
- have the same number of protons and neutrons, but a different number of electrons.
- have different number of protons.
- have different number of electrons.

45. Compton effect explains 1 point

Mark only one oval.

- wave nature of radiation
- particle nature of radiation
- both particle and wave nature of radiation
- none of the above