

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University)

B.Sc(NUCLEAR MEDICINE TECHNOLOGY) DEGREE

EXAMINATIONS - September 2021

First Year

BASIC PHYSICS AND NUCLEAR MEDICINE PHYSICS

Three Hours

Maximum: 75 marks

SECTION - A

I. Choose the Best Answer :

(10 x 1 = 10)

1. Material gain electron means it gets
 - a) Positive charge
 - b) Negative Charge
 - c) No charge
 - d) Equal charge
2. Force between two point charges is inversly proportional to
 - a) Square of the distance
 - b) Product of charges
 - c) force
 - d) None of the above
3. Atomic number greater than 206 means
 - a) Artificial Radioactivity
 - b) Natural Radioactivity
 - c) Induced Radioactivity
 - d) Both a & c
4. Example of artificial radioactivity
 - a) Radium 226
 - b) Potassium 40
 - c) Magnesium 70
 - d) Phosphorous 32
5. 14. Velocity of electromagnetic wave
 - a) $v = \lambda f$
 - b) $v = \lambda f$
 - c) $v = (\lambda f)^2$
 - d) $f = \lambda v$
6. The intensity is commonly measured in
 - a) Rutherford
 - b) Roentgen
 - c) kerma
 - d) Curie
7. If a low-energy collimator is (incorrectly) used with a high-energy radionuclide the results would be:
 - a) A reduced camera sensitivity (counting efficiency).
 - b) A blurred image.
 - c) A reduced field of view.
 - d) Reduced image detail
8. The materials having very small susceptibility at all temperatures are
 - a) Antiferromagnetic
 - b) Diamagnetic
 - c) Ferromagnetic
 - d) Paramagnetic
9. An atom containing unpaired electrons shows
 - a) Paramagnetism
 - b) Diamagnetism
 - c) Ferromagnetism
 - d) No magnetism
10. Electrons that orbit outermost shell of an atom are called?
 - a) Valence electrons
 - b) Electrons
 - c) co efficient of electrons
 - d) Neutrons

(p.t.o.)

II. Write Short Answers on any FIVE of the following:

(5 x 5 = 25)

11. Explain about voltmeter.
12. What are electromagnetic waves? Give its properties.
13. Write the basic concepts of fluorescence and Phosphorescence.
14. Write the properties of beta radiation
15. Discuss about artificial radioactivity.
16. Write about properties of X-Rays.
17. Write about radiometric quantities.

III. Write Short Essays on any TWO of the following:

(2 x 10 = 20)

18. Explain any two electrical instruments.
19. Explain the following terms: a) emission spectra b) continuous spectra c) Band spectra
d) Absorption spectra
20. Discuss about artificial radioactivity and its uses in medicine.
21. Write the properties of magnetic materials

IV. Write Essays on any ONE of the following:

(1 x 20 = 20)

22. Write about the factors: Elements, Compounds, Mixtures, Molecules, Atom, Atomic model, Periodic table, Nuclear structure.
23. Explain the interaction between x-rays and particles.

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