VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University)
B.Sc(RADIOGRAPHY) DEGREE EXAMINATIONS - August 2019
First Year
PHYSICS OF RADIOLOGY, RADITION PHYSICS AND MEDICAL PHYSICS

Three Hours   Maximum: 75 marks

SECTION - A

I. Choose the Best Answer :   **(10 x 1 = 10)**

1. Unit of electric field
   a) Newton x Coulomb   b) Newton c) Coulomb d) Newton/Coulomb

2. Forbidden gap energy is < 2eV
   a) Conductor   b) Insulator c) Semiconductor d) Diode

3. Ist Law of Kirchoff's
   a) $\sum I = \sum E$ b) $\sum I R = \sum E$ c) $\sum I = \sum R$ d) $\sum I = 0$

4. In fixed anode X-ray tube the target angle is
   a) 15 -20   b) 15-25   c) 20-25   d) 25-30

5. 1 Roentgen =
   a) 2.58 x 10-4 c/kg   b) 2.48 x 10-4 c/kg c) 2.50 x 10-4 c/kg d) 3.58 x 10-4 c/kg

6. The process of removal of ortbital electrons from the neutral atom is
   a) ionization   b) excitation c) No ionization & excitation   d) None of the above

7. X-rays are filtered out of human body by using
   a) cadmium absorbers   b) carbon absorbers
   c) copper absorbers   d) aluminum absorbers

8. Intensifying Screens converts the energy of X-Ray beam into
   a) UV light   b) Visible light   c) Invisible light d) None of these

9. Single slice scanner filled with
   a) Argon gas b) Hydrogen gas c) Xenon gas   d) CO_2 gas

10. Function of the grid to
    a)Absorb scatter radiation b) Transmit all primary radiation
    c) Both above   d) None of the above

II. Write Short Answers on any FIVE of the following: **(5 x 5 = 25)**

11. Write the basic concepts of fluorescence and Phosphorescence.
12. State : Radioactive disintegration law and is explanation.
13. Explain capacitors in parallel connection with neat diagram.
14. Discuss about thermionic emission.
15. Define photoelectric effect. Give its explanation.

(p.t.o.)

16. Explain half wave self rectification with circuit diagram.
17. Explain about intensifying screens.

III. Write Short Essays on any TWO of the following: (2 x 10 = 20)

18. Define: Atom nucleus, Atomic number, Mass number, Ionization, Excitation & Isotopes.
19. State Kirchhoff's laws and explain its first law and second law.
20. Briefly explain working principle of rotatory x-ray tubes.
21. Explain radiation detector and its different types.

IV. Write Essays on any ONE of the following: (1 x 20 = 20)

22. Discuss about the Principle, construction, working and energy loss of transformers.
23. Explain working principle of GM counter and its uses.

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