

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

**B.Sc(ALLIED HEALTH SCIENCES) DEGREE EXAMINATIONS - September 2021**

**First Year**  
**BIOPHYSICS**

Three Hours

Maximum: 75 marks

**SECTION - A**

**I. Choose the Best Answer :**

**(10 x 1 = 10)**

1. If fast moving electrons rapidly decelerate, then rays produced are
  - a) alpha rays
  - b) beta rays
  - c) gamma rays
  - d) x-rays
2. Scattered x-ray beams approach detector screen
  - a) Perpendicularly
  - b) parallel
  - c) anti-parallel
  - d) at an angle
3. Intensifying Screens converts the energy of X-Ray beam into
  - a) UV light
  - b) Visible light
  - c) Invisible light
  - d) None of these
4. CT generates images in
  - a) Perpendicular to the axis of rotation of the X-ray tube
  - b) Parallel to the axis of rotation of the X-ray tube
  - c) 45 deg axis of rotation of the X-ray tube
  - d ) Both A& C
5. Ultrasound having a frequencies ranging from
  - a) 20-20000Hz
  - b) Greater than 20,000Hz
  - c) Less than 20,000Hz
  - d) Less than 20Hz
6. No bio effects is seen below \_\_\_ ultrasound intensity.
  - a) 110 mW/cm<sup>2</sup>
  - b) 90 mW/cm<sup>2</sup>
  - c) 100 mW/cm<sup>2</sup>
  - d) 101 mW/cm<sup>2</sup>
7. Filter is used to
  - a) Increase the patient dose
  - b) Decrease the Patient dose
  - c) Maintain the level of dose
  - d) Another Purpose
8. In pulse sequences the time interval between the beginning of one pulse sequence and beginning of the succeeding pulse sequence is known as
  - a) Inversion time
  - b) Time of repetition
  - c) Echo time
  - d) None of above
9. With high grid ratio,the exposure dose to the patient is
  - a) Increased
  - b) Decreased
  - c) Unaffected
  - d) None
10. Grids are usually used in
  - a) Fatty person
  - b) Thin person
  - c) Children
  - d) Pregnant women

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

**(5 x 5 = 25)**

11. How the prime factors influence on image quality.
12. PETCT?
13. Bone scanner.
14. 2D and 3D imaging?
15. Write the properties of alpha radiation Explain the basic principle of CT.
16. Different modes of Ultrasound image.
17. Discuss about bio effects of ultrasound.

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

**(2 x 10 = 20)**

18. Define CT principle & numbers. Give its.
19. Explain CT Detectors & different types.
20. Explain the color Doppler Write about ultrasound display modes.
21. Write short notes on Solid state detector & scintillation detectors.

**IV. Write Essays on any ONE of the following:**

**(1 x 20 = 20)**

22. Write the principle and generations of Computed Tomography.
23. Define about biological effect of radiation.

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