

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

B.Sc(NUCLEAR MEDICINE TECHNOLOGY) DEGREE EXAMINATIONS - September
2021

Second Year

NUCLEAR MEDICINE TECHNIQUES AND SPECIAL PROCEDURES

Three Hours

Maximum: 75 marks

SECTION - A

I. Choose the Best Answer :

(10 x 1 = 10)

1. The detector of PET is made of _____
 - a) Silver
 - b) Gadolinium
 - c) Tungsten
 - d) Lead
2. Your liquid waste container label should have which of the following items of information:
 - a) date of disposal
 - b) isotope and activity
 - c) identification of other hazardous materials and chemicals
 - d) all of the above
3. You accidentally spill a small amount of radioactive material on your skin. You should:
 - a) call the EH&S Office (X-2401 or 9-911)
 - b) go to the Student Health Center
 - c) wash skin gently with hand soap and water
 - d) first (c) then (a)
4. Which type of radioactive decay produces light, fast moving particles?
 - a) Alpha
 - b) Gamma
 - c) Beta
 - d) None of the above
5. Survey meters can be used for (check as many as appropriate):
 - a) Sulfur 35
 - b) Carbon 14
 - c) Tritium (3H)
 - d) Phosphorus 32
6. What is the principal reason for wearing a dosimeter (ring or badge)
 - a) It signifies that the worker is authorized to work with radiation
 - b) The results from a film badge, TLD badge, or TLD ring comprise a permanent record of an individual's occupational radiation exposure history
 - c) The use of the badge replaces the need for surveys in the lab
 - d) The dosimetry will absorb the radiation and reduce the individuals exposure
7. Which of the following is (are) true for radiation exposure to an unborn child?
 - a) An unborn child is most sensitive during the first three months of pregnancy.
 - b) Radiation workers at CSUN who are pregnant, or are considering becoming pregnant should contact EH&S for additional radiation safety information.
 - c) Pregnant workers need not be concerned with exposures to low energy beta emitters (e.g. tritium).
 - d) All of the above.

8. The sensitivity of a gamma camera can be affected by the:
 - a) Counting time.
 - b) Type of collimator.
 - c) PHA window level.
 - d) PHA window width
9. In a crystal scintillation detector the size or amplitude of the electrical pulse is generally proportional to the:
 - a) Activity.
 - b) Gamma photon energy.
 - c) Number of gamma photons.
 - d) Number of light photons.
10. Which of the following statements best describes the primary purpose of a collimator on a gamma camera:
 - a) It prevents scattered photons from reaching the detector.
 - b) It prevents cosmic radiation from reaching the detector.
 - c) It stops pre-detector scattered photons.
 - d) To allow photons from a given region of interest to strike the detector and try to minimize the contribution of photons originating from outside this region.

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

11. Mechanism of uptake in pulmonary perfusion studies.
12. Thyrotoxicosis.
13. Discharge criteria of high dose ¹³¹I patient.
14. Low dose whole body ¹³¹I scan.
15. Pharmacological stress.
16. Survival curves.
17. Labelled monoclonal antibodies.

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

18. Radioiodine whole body survey.
19. Indications for thyroid scintigraphy.
20. ^{99m}Tc RBC tagging procedures.
21. PET Bone Scans

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

22. Mention the tracers used for hepatobiliaryscintigraphy. Describe the technique of
23. Detail about the technique of scintigraphy in any one of them.

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