Question Paper

Exam Date & Time: 03-Sep-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. N.M.T. DEGREE EXAMINATION - SEPTEMBER 2022
SUBJECT: NMT 2202 - HEALTH PHYSICS
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Write briefly about the steps to be taken if there is a spillage of radioactive material in a radioisotope lab.	(20)
2)	Write in detail about the classical method of gamma-ray internal dosimetry.	(20)
3)	Write in detail about the safety precautions to be taken during I-131 ablation therapy.	(10)
4)	Discuss in detail some of the emergency situations that may arise in the Nuclear medicine department. How do they occur? How can you prevent them?	(10)
5A)	Write a short note on the management of radioactive waste.	(5)
5B)	Explain the three fundamental factors by which external radiation hazards can be controlled.	(5)
5C)	How to handle I-131 administered cadaver? Write a short note on A1 and A2 values for transport.	(5)
5D)	Define transport index. How packages are classified for the transport of radioactive materials?	(5)
5E)	Write a short note on the decontamination procedure.	(5)
5F)	What are the discharge limits prescribed by AERB for I-131 effluent waste at discharge point to the public sewerage system?	(5)
6A)	What is area monitoring device?	(2)
6B)	Define Equivalent Dose and Effective Dose.	(2)
6C)	What is radioactivity?	(2)
6D)	Define ALARA.	(2)
6E)	What is misadministration?	(2)

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Question Paper

Exam Date & Time: 05-Sep-2022 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. N.M.T. DEGREE EXAMINATION - SEPTEMBER 2022
SUBJECT: NMT 2241- NON IMAGING NUCLEAR MEDICINE TECHNIQUES
(PROGRAM ELECTIVE - I)
(2020 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1)	Explain Ferro kinetics measurement in Nuclear Medicine and what are the indications of deficiency?	(10)
2)	Explain the measurement of intestinal blood- loss and the symptoms of GIB.	(10)
3A)	Explain the types and properties of probes.	(5)
3B)	Explain the measurement of plasma volume.	(5)
3C)	Explain Signs and Symptoms of Vitamin deficiency.	(5)
3D)	Describe anatomy and physiology of kidney.	(5)
4A)	Define the dilution principle.	(2)
4B)	What are the advantages of dual isotope method for Schilling test?	(2)
4C)	What type of collimator is used in thyroid uptake probe?	(2)
4D)	Write the process involved in the urine formation.	(2)
4E)	Write about the production of ferrous citrate containing Fe-59.	(2)

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Question Paper

Exam Date & Time: 05-Sep-2022 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. N.M.T. DEGREE EXAMINATION - SEPTEMBER 2022
SUBJECT: NMT 2242- RADIOIMMUNOLOGY (PROGRAM ELECTIVE - I)
(2020 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1)	Describe nonspecific host responses for defence against microorganisms.	(10)
2)	What are polyclonal and monoclonal antibodies? Highlight important differences between the two.	(10)
3A)	Describe antibody structure and types of antibodies found in humans.	(5)
3B)	What are blood groups and why is there a requirement for group matching before transfusion?	(5)
3C)	Describe components of acquired immunity.	(5)
3D)	Explain any one antigen antibody interaction based biological assay.	(5)
4A)	What are antigen presenting cells?	(2)
4B)	Which cells/organs form the first line of defence in humans?	(2)
4C)	What is a secondary antibody?	(2)
4D)	What type of immunity is derived from vaccination?	(2)
4E)	Radio-labeled antibodies can be used in which type of assays?	(2)

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