uptake and scan. If the data shown below were obtained 6 h post administration of I-123, what is the percentage thyroid uptake at 6 h ?

200 uCi of I-123 capsules cts	135,890 cpm	Background cts	109 cpm
thyroid cts	45,534 cpm	Thigh cts	2,109 cpm

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Question Paper Code : 6412

M.Sc. (Semester-IV) Examination, 2018

NUCLEAR MEDICINE

[Second Paper]

(Radionuclide Therapy & Invitro Techniques)

Time : Three Hours] **[Maximum Marks : 70**

Note : Answer **five** questions in **all**. Question **No. 1** is **compulsory** and carries 30 marks. In addition attempt **one** question carrying 10 marks from each of the four units.

1. Answer all the following : [3x10 = 30]

   (a) Draw a labelled diagram of hypothalamic-pituitary-thyroid axis.

   (b) Enumerate one approach for use of PET tracer in drug discovery. Give one example.

   (c) What is radiosynovectomy ? Mention three isotopes used in radiosynovectomy.

   (d) Write short note on Invitro radionuclide studies for anaemia.

(e) Enumerate difference between I-123 and I-131.

(f) What are the various methods of GFR estimation ?

(g) Describe super scan of malignancy. Compare two [Sm and Sr] commonly used radionuclides for bone pain palliation.

(h) Write short note on targeted imaging.

(i) What is the most common cause of primary hyperthyroidism in 30 years old female ? What abnormality do you expect in thyroid function test of this patient ?

(j) What is GFR ? What are the tracers used for its estimation ?

UNIT-I

2. What do you understand by radioimmuno therapy ? What is HAMA ? Give an example of radioimmuno therapy for lymphoproliferative disease.

3. Describe the protocol for Cr-51 labelled RBC (Red Blood Cell) volume assessment.

UNIT-II

4. What is the mechanism of uptake of I-131 MIBG ? Enumerate three general requirements for an adult qualifying for I-131 MIBG therapy. What are the precaution for I-131 MIBG therapy ?

5. What is the rationale for radioiodine ablation after thyroidectomy in patient with differentiated thyroid cancer ? What measures [at least 3] reduce radiation exposure to patient undergoing radioiodine treatment ?

UNIT-III

6. Enumerate two thyroid antibodies. What is their significance in hyper/hypo functioning thyroid disorders ?

7. Write the principle of RIA and IRMA. Mention three differences between them.

UNIT-IV

8. Describe urea breath test in detail with its interpretations.

9. (a) What is the present day indication for radioiodine uptake study in adults ?

(b) Patient received 200 μCi of I-123 for thyroid