**NUCLEAR MEDICINE**

**PAPER – III**

**NM/J/15/24/III**

**Important instructions:**
- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

Write short notes on:

1. a) Classify neuroendocrine tumors.  
   b) List out non-neuro endocrine SSR expressing tumors.  
   c) Role of Nuclear Medicine in the diagnosis & management of neuroendocrine tumors.  
   
   2+2+6

2. Management of thyroid cancer patients with: 
   a) Skeletal metastases.  
   b) Thyroglobulin elevated & Negative whole body iodine scan.  
   
   5+5

3. a) Lutetium-177.  
   b) 186 Rhenium/188 Rhenium.  
   
   5+5

4. Design a Nuclear Medicine department with PET/CT & SPECT/CT according to AERB norms.  
   
   10

5. a) Enumerate various radioisotopes used in radio immunotherapy of lymphomas.  
   b) Write their characteristics, advantages & disadvantages.  
   
   5+5

6. a) Define Radiation Dosimetry.  
   b) What are the components involved in its calculation?  
   c) How you would calculate dose delivered to an organ by a given administered Radionuclide?  
   
   2+3+5

7. a) SIRT.  
   b) Radio synovectomy.  
   
   5+5

8. a) LET.  
   b) Dose equivalent.  
   c) Free radicals & DNA Damage.  
   d) rad, rem & roentgen and their relationship.  
   
   2+2+2+4

9. a) Recent ATA guidelines for the treatment of hyperthyroidism.  
   b) rhTSH and its uses.  
   
   5+5

10. a) Chemical interventions used in altering the radiation effects.  
    b) ICRP 2007.  
    
    5+5

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