## 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:

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What is partial volume effect in PET/CT? Describe the methods of its correction.</td>
<td>4+6</td>
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</tbody>
</table>
| 2.     | a) What are various types of clinically useful PET radionuclide generator systems?  
        b) Working of Strontium 82/Rubidium 82 generator | 4+6   |
| 3.     | a) Advantages, disadvantages and potential applications of PET-MR.  
        b) Principles of operation of medical cyclotron and describe various mode of medical cyclotron available in the country. | 5+2+3 |
| 4.     | a) Coronary flow reserve  
        b) Nuclear Medicine procedures in assessment of cardiac dys-synchrony. | 5+5   |
| 5.     | Why is SUV important? How it is calculated? Enumerate factors affecting SUV. | 2+3+5 |
| 6.     | a) Scintigraphic imaging of Alzheimer’s disease  
        b) Fluorinated amino-acids in brain tumor imaging | 5+5   |
| 7.     | a) Role of preclinical PET in medical research  
        b) Impact of solid-state detectors in nuclear cardiology | 5+5   |
| 8.     | Current status of theranostics in the management of castration resistant prostate cancer. | 10    |
| 9.     | a) Cu-64 ATSM  
        b) Angiogenesis imaging | 5+5   |
| 10.    | a) PET/CT in RT planning  
        b) PET in stem cell imaging | 5+5   |