

**QUESTION 6**

You are using the data below to prepare a special incident report that concerns a 27- year old male radiation worker.

**GIVEN**

| Period                  | External Deep Dose Equivalent (rem) | Intake –Inhalation Class D ( $\mu\text{Ci}$ ) |
|-------------------------|-------------------------------------|---|
| 1 <sup>st</sup> Quarter | 0.7                                 | <sup>137</sup> Cs 80<br><sup>131</sup> I 19.5 |
| 2 <sup>nd</sup> Q       | 1.2                                 |   |
| 3 <sup>rd</sup> Q       | 1.8                                 |   |
| 4 <sup>th</sup> Q       | 0.3                                 |   |

| Radionuclide          | Inhalation ALI (ICRP 30) ( $\mu\text{Ci}$ )   |
|-----------------------|---|
| <sup>137</sup> Cs (D) | 200   |
| <sup>131</sup> I (D)  | 50 Non-stochastic Thyroid<br>(200 Stochastic) |

**POINTS**

- 10** A. What is the Committed Dose Equivalent to the thyroid from the <sup>131</sup>I intake? **Show all work.**
- 20** B. What is the approximate Committed Effective Dose Equivalent (CEDE) from the internally deposited radionuclides? **State any assumptions. Show all work.**
- 20** C. Assume you have calculated a CEDE from radionuclide intake of 1.2 rem and a CDE to the thyroid of 26 rem. What is the Total Effective Dose Equivalent (TEDE)? Have any of the occupational dose equivalent limit recommendations in NCRP Report No.116 (1993) been exceeded? **State which recommendation(s). Justify your answer.**