

**QUESTION 7**

Five accident scenarios are presented below.

- Accident 1) A worker's hand is severely lacerated by a grossly contaminated saw blade while cutting a drain line containing Pu-239.
- Accident 2) A diver is pulled from a spent fuel pool after a leak in the divesuit is detected. The pool water is heavily contaminated with tritium (H-3).
- Accident 3) A worker is grossly contaminated upon the face, hair, neck, and upper torso with Cs-137 following work in a highly contaminated area.
- Accident 4) A researcher swallows a quantity of S-35 during a pipetting operation.
- Accident 5) A worker's respiratory protective equipment fails during work in a high I-131 airborne area.

**POINTS**

- 25 A List five (5) actions which should be taken immediately in response to a radiological accident involving personal injury. Order the actions by priority (1=first action, highest priority). **Only the first five responses will be graded.**
- 20 B For each of the five accident scenarios presented above, give the preferred bioassay monitoring technique. Justify your answer. Assume your resources are not limited.
- 20 C Medical intervention techniques used to minimize internal dose following an intake/uptake of radioactive material are divided into several general categories based upon their protective actions. List 4 of these categories and give a brief description of the dose-savings principles of each. **Number your responses. Only the first four will be graded.**
- 10 D A physician working with an accident response team recommends the following intervention actions. Do you agree? Explain your answer.
  - 1) Chelation therapy following the inhalation intake of 5 ALI of Am-241.
  - 2) Lung lavage following the inhalation of 10 ALI of mixed fission products.
- 25 E Assume that the intakes associated with the five accident scenarios given above are sufficiently high to warrant medical intervention. Give a specific intervention technique that is available for each accident and discuss any special concerns or necessary precautions.