Assignment-9

The due date for submitting this assignment has passed. **Due on 2017-09-27, 23:59 IST.**

**Submitted assignment**

1. It is possible to identify a substance from its XRD pattern, because:
   - XRD pattern reveals the elemental chemical analysis of the substance  **2 points**
   - The d-values calculated from the lines in an XRD pattern alone can uniquely identify the substance
   - XRD pattern (line positions and relative intensities of lines) of a substance is unique and is like a finger-print of the substance
   - The relative intensities of the lines in the XRD pattern alone can uniquely identify the substance

   **No, the answer is incorrect.**
   **Score: 0**
   **Accepted Answers:**
   *XRD pattern (line positions and relative intensities of lines) of a substance is unique and is like a finger-print of the substance*

2. In a phase mixture, the XRD pattern of a phase, which is present in larger amount, will show:
   - Much stronger lines
   - Rather weaker lines
   - More number of lines
   - Less number of lines, compared to the XRD patterns of the other phases, present in smaller amounts

   **No, the answer is incorrect.**
   **Score: 0**
   **Accepted Answers:**
   *Much stronger lines*

3. Quantitative analysis of phases in a multi-phase system, using XRD, can be carried out by:
   - Direct comparison method
   - Single line method
   - Internal standard method
   - All of the above

   **No, the answer is incorrect.**
   **Score: 0**
   **Accepted Answers:**
   *All of the above*
4) In the direct comparison method, to determine the retained austenite content in a hardened steel sample consisting of the phases martensite and austenite, from the XRD pattern of the sample, it is necessary to:

- Compare the relative intensity of an austenite line in the sample, with the relative intensity of the same line in a pure austenite standard
- Compare the relative intensity of an austenite line with the relative intensity of a martensite line in the XRD pattern
- Compare the relative intensity of an austenite line with the relative intensity of a line from a standard substance, mixed with the given sample in known proportions

No, the answer is incorrect.
Score: 0

Accepted Answers:
Compare the relative intensity of an austenite line with the relative intensity of a martensite line in the XRD pattern