

2002 AP[®] CHEMISTRY FREE-RESPONSE QUESTIONS (Form B)

Your responses to the rest of the questions in this part of the examination will be graded on the basis of the accuracy and relevance of the information cited. Explanations should be clear and well organized. Examples and equations may be included in your responses where appropriate. Specific answers are preferable to broad, diffuse responses.

Answer BOTH Question 5 below AND Question 6 printed on page 11. Both of these questions will be graded. The Section II score weighting for these questions is 30 percent (15 percent each).

5. Consider five unlabeled bottles, each containing 5.0 g of one of the following pure salts.



- (a) Identify the salt that can be distinguished by its appearance alone. Describe the observation that supports your identification.
- (b) Identify the salt that can be distinguished by adding 10 mL of H_2O to a small sample of each of the remaining unidentified salts. Describe the observation that supports your identification.
- (c) Identify a chemical reagent that could be added to the salt identified in part (b) to confirm the salt's identity. Describe the observation that supports your confirmation.
- (d) Identify the salt that can be distinguished by adding 1.0 M Na_2SO_4 to a small sample of each of the remaining unidentified salts. Describe the observation that supports your identification.
- (e) Identify the salt that can be distinguished by adding 1.0 M NaOH to a small sample of each of the remaining unidentified salts. Describe the observation that supports your identification.