QUESTION 35
Infusion of cryoprecipitate is principally indicated for the replacement of:
A. factor IX.
B. fibrinogen.
C. immunoglobulin A (IgA).
D. anti-thrombin.
E. protein C.

CRYOPRECIPITATE — When FFP is thawed at 4°C, a precipitate remains, which can be separated by centrifugation; this material is termed cryoprecipitate (cryo). It is a concentrated preparation which contains virtually all of the factor VIII, fibrinogen, fibronectin, factor XIII, and von Willebrand factor (vWF) in fresh frozen plasma, reduced from an initial volume of 250 mL to a final volume of 10 to 15 mL. The remaining material can be refrozen and used as cryo-poor FFP. Cryo contains about 200 mg of fibrinogen and 100 units of Factor VIII (80 to 110 IU) per bag and carries the same infectious risk as a unit of red cells, or of FFP. **Cryo is used in the treatment of congenital and acquired deficiencies of fibrinogen and Factor XIII**. Ten bags of cryo (obtained from 10 units of plasma) contain about 2 gm of fibrinogen and will raise the fibrinogen level about 70 mg/dL in a 70 kg recipient. Because of past experience with viral transmission, cryo should no longer be used for the treatment of hemophilia A; pasteurized factor VIII concentrates derived from plasma or from recombinant DNA techniques are preferred sources of factor VIII for replacement therapy, as well as for vWF in many circumstances. However, cryo does contain the large multimers of vWF and may be needed for the treatment of von Willebrand disease when there is no other recourse.