HOMEWORK # 4:

1. Table below displays a set of rating data for previously published results on gallium citrate imaging in search for a focal source of sepsis using a rectiliear scanner

	Rating				
	5	4	3	2	1
Nondiseased	3	1	3	2	11
diseased	18	1	3	6	12

   - Construct a ROC curve and compute the corresponding area under the ROC curve, and its associated 95% confidence interval.
   - What conclusions you can draw regarding the accuracy of this imaging technique?

2. The hepatic scintigraph is the hepatic imaging scan used in detecting liver disease. Drum and Christacopoulas conducted an experiment to sensitivity and specificity of the hepatic scintigraph in detecting liver disease. The data are presented in the following table.

Table 1: The data

	Diagnostic result	
	T+	T-
Verified, D+	231	27
Verified, D-	32	54
Unverified	166	140

- What are sensitivity and specificity of the hepatic scintigraph if only patients with verified disease status are used in analysis?
- What is the assumption you have to make to derive unbiased estimates for sensitivity and specificity?
- What are unbiased estimates for sensitivity and specificity of the hepatic scintigraph under the assumption above?