

## HST.035 Homework Assignment #4

(Due March 20<sup>th</sup>)

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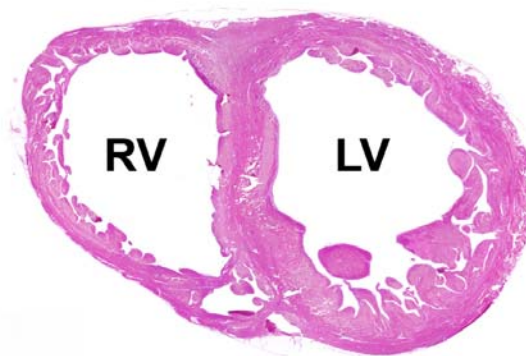
**PLEASE PRINT YOUR NAME:**

1. For each of the classic clinical features described below, choose between nephrotic (O) and nephritic (I) syndromes:

| Feature                        | O or I? |
|--------------------------------|---------|
| Proteinuria >3.5 grams per day |         |
| Oliguria                       |         |
| Hematuria                      |         |
| Edema                          |         |
| Lipiduria                      |         |
| Hypertension                   |         |
| Hypoalbuminemia                |         |
| Hyperlipidemia                 |         |

2. The cross section of an abnormal heart from a 5-year-old boy is shown on the right.

2a. What is the most appropriate pathological diagnosis for this heart?



2b. Which of the following could have resulted in this pathological process? (More than one answer may be possible.)

- Atherosclerotic coronary artery disease
- A genetic mutation affecting calcium regulation in the heart
- Myocarditis
- Aortic stenosis
- Mitral regurgitation

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3. Does contact between platelets and the subendothelial basement membrane always result in initiation of the coagulation cascade? If not, give an example of a normal anatomic site where it doesn't.

4. Once initiated, why doesn't a blood clot spread through the entire vascular system? (Describe at least two mechanisms by which the clotting process is limited/terminated.)

5. The electron micrograph shown below is from the kidney of a 3-month-old baby who developed massive generalized edema.



What are the most prominent structural abnormalities in this EM? (Why is this not a case of Minimal Change Disease?)