Question 1: A 70 yr women with aortic stenosis for open AVR.

a. What is the pathophysiology of worsening aortic stenosis?

1. Left ventricular outflow tract obstruction in latent phase.
2. Left ventricular hypertrophy to maintain EF with diastolic dysfunction.
3. Increased LVEDV and LVEDP with pulmonary oedema and MR.
4. Decrease EF due to hypertrophy and outflow tract obstruction.
5. Blood flowing through narrow valve decreases coronary perfusion and embarrasses myocardium.

b. Which specific cardiac investigations may be used in assessing the severity of this women’s disease?

1. Echocardiography:
   ▪ To assess valve: orifice size, pressure gradient, regurgitation, peak flow
   ▪ Consequences of stenosis: LVH, function, left atrium, PAP, RV function,
2. Left ventricular catheter study
3. MRI
4. ECG

c. Give valves of the following that would indicate that this women has severe aortic stenosis?

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<tr>
<td>Peak aortic flow</td>
<td>&gt; 4m/s</td>
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<tr>
<td>Mean pressure gradient</td>
<td>&gt; 40mm of Hg</td>
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<tr>
<td>Valve area</td>
<td>&lt; 1 cm²</td>
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d. What will be your haemodynamic goals for the post operative management of this patient?

   a) Maintain contractility: balance anaesthesia technique, adequate filling+/-ionotropes.
   b) Optimise preload: (CO monitoring)
   c) Maintain Sinus Rhythm: @ 60-80 bpm, avoid tachycardia, pain management, use of beta blockers.
   d) Maintain afterload: maintain coronary perfusion by avoiding excessive doses of IV or Inhalational induction agents, alpha agonists.
   e) Maintain adequate BP by adequate filling, ionotropic support.