Salam Salam, an easy sheet of 10 minutes, enjoy :D

CVS anatomy #1 (Farajology #4), extra notes:

The second handout

Page 5:

- The upper border of the heart is covered by the great vessels, cut them → it's mainly formed by the left atrium.
- The right border is formed by the RIGHT ATRIUM, visible on x-ray.
- Pulmonary trunk and ascending aorta are twins, because they were one duct embryologically, the ductus arteriosus.
- Pulmonary trunk is medial to ascending aorta.
- Rt & Lt brachiocephalic veins were known historically as innominate veins.

Page 6:

- Atrial systole doesn't add that significant amount of blood to the ventricles (only 10-20%) because blood passes passively (down the pressure gradient).
- Cardiac cycle is: atrial systole → ventricular systole → whole heart diastole.
- Apex beat can be felt or seen even though the apex is partially covered by the lung, and every beat represents a systole.

Page 7:

- Divide the sternum into four quadrants, the lower left is the area of cardiac dullness.
• Rt atrium receives blood from the myocardium through the coronary sinus on the post. surface of the heart.

Page 8:

• Crista terminalis separates anterior rough part from posterior smooth part.
• Interatrial septum and interventricular septum are closer to the coronal plane than from the sagittal.
• Rt atrium is anterior and to the right of Lt atrium. Rt ventricle is anterior and to the right of Lt ventricle.
• The valve of IVC directs blood from the placenta in the fetus, and has no function postnataly.
• Vanae cordis minimi are known also as "Thebesian veins" (referring to Adam Thebesias), and are found in the heart especially in the right atrium.

Page 9:

• Recall; the right ventricle pumps blood to the pulmonary TRUNK not the pulmonary arteries directly.
• The inflowing part of the cavity of right ventricle is the lower part, the outflowing (infundibulum) is the upper.
• Lt ventricle is a high pressure pump to compensate high peripheral resistance (there are much smooth muscles in the vessels walls). Whereas Rt ventricle is a low pressure pump, because there is too little smooth muscles in the lungs (the pressure is low).

Page 10:

• The papillary muscle is the easiest type of muscular ridges to be seen.
• The septal papillary muscle of the Rt ventricle is smallest in it.

Page 11:

• Papillary muscles should be stimulated early in the systole.
• The 1st phase of the systole is isovolumetric contraction (increased tension in the fibres but no change in
blood pressure increases → blood is pumped to the atrium → papillary muscles hold the valve stable.

- Papillary muscles DON'T close nor open any valve, the only insure competency and hold closed.

- Valve incompetency maybe the result of papillary muscle damage → acute heart failure may occur (regression of blood from ventricles to atria). Cold weather may contribute by constricting peripheral vessels → more blood is back to the heart → overload...

- In the start of systole; the mitral valve closes, and in the end of systole the aortic semilunar valve opens.

- Valve opening is soundless, its closure give both sounds of the heart:
  - 1\textsuperscript{st} sound (lub): during early systole: closure of AV valves.
  - 2\textsuperscript{nd} sound (dup): during early diastole: closure of semilunars.

- The membranous part of interventricular septum is a bit weird, in the front it lies between the two ventricles. While in the back it separates the left ventricles from the right atrium.

- Semilunar valves close as a little amount of blood return from the aorta and pulmonary trunk to the heart and fill the cusps pushing the valve close.

- The only functional connection between atrial syncytium & ventricular syncytium is the AV bundle (bundle of his). It lies behind the membranous part of interventricular septum. In VSD (ventricular septum defect) repair, we use a stitch of synthetic material, and it may injure the AV bundle, causing
Bundle branch block, and maybe fatal if the pacemaker action is lost.

Page 12:

- Despite the different in thickness and pressure, the two ventricles have the same end diastolic volume, end systolic volume, & stroke volume.
- The mitral valve is vulnerable to rheumatic myocarditis secondary to an untreated tonsilitis (common in children without antibiotic therapy), which may develop to stenosis or:
  - valve incompetency → amounts of blood regression to the left atrium → back to the lungs → increased pressure → pulmonary edema → shortness of breath.
- Posterior to the heart (posterior to the left atrium) is the transverse sinus → pericardium → esophagus & descending aorta. This has a clinical significance in estimating the size of the left atrium by Barium x-ray. Give the patient a barium swallow (will descend via the esophagus), if the appearance was smooth the size of the left atrium is normal, if it is "compressed on" → the left atrium is enlarged (think of the previous scenario).

My quote is (Surat al-Nahl, ayah 90) please read it.

Thanks 😊