Please note – this learning resource has been produced by the GUMS Academic Team. They may be some minor errors in the questions/answers, and other possible answers that are not included below. Make sure to check with other resources.

**Label the Wigger Diagram and answer the following questions**

**Diagram

Description automatically generated**Note\*

Important students have a very GENERAL understanding of the above diagram -> what generally occurs when blood flows from atria to ventricles (i.e more blood = increased pressure) + general electrophysiology

**ECG:**

1. **What does the P wave represent?**
2. **What does the T wave represent?**

**Lub dub sounds:**

1. **S1 is heard due to**
2. **S2 is heard due to**

**11) Explain the difference between essential and secondary hypertension with examples**

**12) Explain the difference between primary and secondary hyperlipidaemia with examples**

**PART 2**

1. **What is the mechanism of action of nitrates (Nitroglycerin) in regards to the heart and coronary vessels?**
2. **During a normal cardiac cycle: what is the state of heart valves during diastole?**

**Mr Sanders presents to the ED clutching his chest and complaining of chest pain.**

**Question 3:**

**Name 6 medical conditions that could cause My Sander’s chest pain (you may not have covered all 6):**

Vascular (2):

Cardiac (2):

Respiratory (1):

GI (1):

**Question 4:**

**What is the main clinical difference between Stable and Unstable Angina?**

**Mr Sanders has been overweight for most of his adult life, despite numerous attempts to lose weight. He began to smoke 5 years ago. He lives with his wife and 2 children. He has a history of hayfever but is otherwise generally well.**

**Question 5:**

**Name 2 Modifiable and 2 Non-Modifiable Risk Factors Mr Sanders has for his chest pain**

**Modifiable:**

**Non-Modifiable:**

**Question 6**

**Number the following in the correct order which describes the formation and development of an atherosclerotic plaque (1-10)**

|  |  |
| --- | --- |
| LDLs (low density lipids) become oxidised and release chemotactic agents. |  |
| Endothelial cells become activated and macrophages produce chemicals that activate smooth muscle cells and cause their proliferation and migration into the tunica intima blood vessels. |  |
| A fibrous cap forms, containing ECM (extracellular matrix) proteins such as collagen and fibrin |  |
| There is a loss of endothelial integrity and initiation of the inflammatory process |  |
| LDLs move from the lumen of the blood vessels into its tunica media |  |
| Macrophages engulf the oxidised LDLsm transforming into foam cells. |  |
| Monocytes are attracted to the area |  |
| The lipid core can become necrotic. |  |
| The fibrous cap hardens and has the potential to rupture, this triggers the formation of a thrombus. |  |
| Monocytes migrate between the tight junctions of the endothelial cells to reach the sub-endothelial space and differentiate into macrophages. |  |

**Please provide feedback for this case at:**

**<https://forms.office.com/r/5rANEjhyrQ>**

**![Qr code

Description automatically generated]()**