CIRCULATION MK

1. Identify the structures labelled ‘W’ and ‘Z’. (2 marks)

|  |  |
| --- | --- |
| **Description** | **Marks** |
| W: Right atrium | 1 |
| Z: Left Ventricle | 1 |
| **Total** | **2** |

1. Describe the role of the structure labelled ‘V’ on the diagram. (1 mark)

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Prevents the backflow of blood/ maintains direction of blood flow | 1 |
| **Total** | **1** |

1. Compare the vessels labelled ‘X’ and ‘Y’ by completing the table below. (4 marks)

|  |  |
| --- | --- |
| **Description** | **Marks** |
|  | **Vessel X** | **Vessel Y** | 1–4 |
| **Structure** | Thick walled/ elastic/ Muscular/ small lumen/ aorta | Thin walled /large lumen/ contains valves/vena cava |
| **Function** | Carries blood away from heart/ takes blood to the body | Returns blood to the heart |
| **Total** | **4** |

# Question 39 (20 marks)

1. Outline the pathway taken by a red blood cell through the heart. Start at the point where blood returns to the heart via the vena cava and finish where blood leaves the heart via the aorta. Include in your answer the events that occur along the pathway. (12 marks)

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Pathway | Events |  |
| RBC enters RA |  | 1 |
|  | * RA contracts (atrial systole)
* Blood forces A-V valve open/ tricuspid valve
 | 1 |
| RV |  | 1 |
|  | * RV contracts (v. systole)
* Blood forces S-L valve open
 | 1 |
| PA |  | 1 |
|  | * Artery carries RBC to lungs
* Gas exchange occurs
* Oxygen combines with Hb
 | 1 |
| PV |  | 1 |
|  | PV carries RBC back to heart | 1 |
| LA |  | 1 |
|  | * LA contracts (atrial systole)
* Blood forces A-V valve open/ bicuspid value
 | 1 |
| LV |  | 1 |
|  | * Contracts (atrial systole)
* Blood forces S-L valve open
* Blood (RBC) flows into aorta
 | 1 |
|  | **Total 12** |

1. Describe **four** key structural or functional features of arteries and describe **four** key structural or functional features of veins. (8 marks)

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Any 4 of the following: | 1–4 |
| Arteries* Carry blood away from the heart
* Changing blood pressure/ blood pressure increases when heart contract/ blood pressure decreases when heart relaxes
* Thick walls
* Elastic walls/ muscular walls
* No valves
* Can vasocontrict/ vasodilate
* Smaller lumen
 |
| Any 4 of the following: | 1–4 |
| Veins* Carry blood towards the heart
* Have a constant blood pressure/ relative low blood pressure
* Thin walls
* Inelastic walls/ little muscle
* Valves
* Remain the same diameter
* Larger lumen
 |
|  | **Total 8** |