MARK SCHEME FOR PROGRESS TEST 12

1. **.**

**(i) Define stroke volume and give a resting value for the average adult. (2 marks)**



1. **Cardiac output increases during physical exercise. Explain how intrinsic control mechanisms cause cardiac output to increase during exercise. (5 marks)**



1. **Describe the changes that occur in the distribution of cardiac output as a performer moves from rest to exercise. Explain how the vasomotor centre controls this distribution. (4 marks)**

 **4 marks max:**

 (Describe)

1. More blood is distributed to the working muscles.

2. Less blood is distributed to non-essential organs

 (Explanation)

3. Vasodilation of arteries/arterioles supplying working muscles/Vascular shunt

4. Opening/vasoldilation of precapillary sphincters supplying working muscles

5. Vasoconstriction of arteries/arterioles supplying non-essential organs

6. Closing/vasoconstriction of precapillary sphincters supplying non essential organs

1. **During the training run blood needs to be diverted away from nonessential organs to the working muscles. Explain how the vasomotor centre controls this distribution. [3 marks]**
* Vasodilation of arteries/arterioles/blood vessels/leading to working muscles/vascular shunt
* Opening/vasodilation of pre capillary sphincters leading to working muscles
* Vasoconstriction of arteries/arterioles/blood vessels leading to non-essential organs
* Closing of pre capillary sphincters leading to non-essential organs
* Sympathetic stimulation/’reduction
1. **A long distance runner completes a 60 minute sub-maximal training run. A cool down has a number of effects on the vascular system which aid the performer. One effect is the prevention of blood pooling. Identify other effects. [2 marks]**

Mark first 2 only

1. Maintain stroke volume/cardiac output
2. Gradual decrease in temperature
3. Maintain blood pressure
4. Removal of waste (bi)products/carbon dioxide/lactic acid
5. Keeps capillaries dilated/maintains blood flow/oxygen to muscles/reduces O2debt
6. Maintains skeletal muscle pump/respiratory pump
7. Maintains venous return

**6**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Joint  | Joint Type  | Movement  | Agonist  | Antagonist  |
| Hip  | Ball and socket | Flexion | Iliopsoas  | Gluteus Maximus  |

7. The gymnast in the figure above must keep his shoulders in a fixed position. Name **two** muscles in the rotator cuff group which aid the stability of the shoulder joint.

Subscapularis Supraspinatus, Infraspinatus teres minor.

1. Flexibility training is an important component of a training programme.

 PNF is one type of flexibility training. Describe PNF stretching.

 **[3 Marks]**

