**Chili task 1**

1. **Exam Question**
2. **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]**
3. **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)**

**Answer to Chili task 1**

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. **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

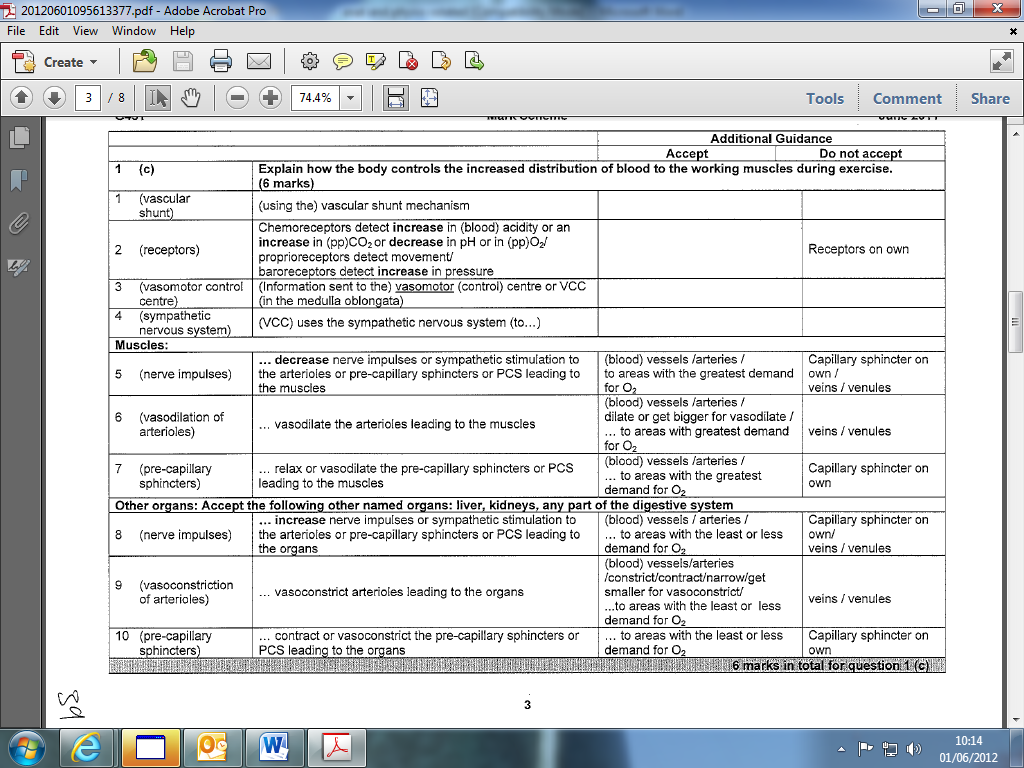
**Chilli task 2**

1. **Explain how the body controls the increased distribution of blood to the working muscles during exercise (6 marks)**

**Bullet point:**

**Answer to Chilli task 2**

1. **Explain how the body controls the increased distribution of blood to the working muscles during exercise (6 marks)**



**Chili task 3**

1. **Describe the mechanism that allows for the redistribution of blood flow during exercise and explain how it is controlled. Distribution of blood flow during exercise (8 marks)**
2. **Describe the mechanism that allows for the redistribution of blood flow during exercise and explain how it is controlled. Distribution of blood flow during exercise (8 marks)**

vascular shunt mechanism

* (redistributes blood during exercise so that) areas with the greatest need receive more blood/areas with low demand receive less blood
* through vasodilation of arterioles/blood vessels feeding working
* muscles
* and vasodilation/opening of precapillary sphincters feeding working
* muscles
* through vasoconstriction of arterioles feeding others organs (e.g. liver/kidney/intestines)
* and vasoconstriction/closing of precapillary sphincters feeding these organs
* (control) (subsubmax 4)
* (vascular shunt mechanism) controlled by the vasomotor control centre NCC
* located in the medulla (oblongata) of the brain
* VCC responds to changes in blood pressure/muscle/blood chemistry
* chemoreceptors detect changes in lactic acid/carbon dioxide/oxygen/pH/ content of blood
* chemoreceptors located in muscles/aorta/carotid arteries
* baroreceptors detect changes in blood pressure
* baroreceptors located in aorta/carotid arteries
* VCC uses sympathetic nervous system

which acts on the middle layer of smooth muscle in an arteriole/the ring of smooth muscle at the opening of a capillary (precapillary sphincter)/control diameter of arterioles/precapillary sphincters