Heart

1. Which part of the ECG corresponds to ventricular repolarization? T wave
2. What normally has a slowly depolarizing "prepotential"? SA node.
3. What happens in second degree heart block? The ventricular rate is lower than the artial rate.
4. The opening of which channels cause currents that contribute to the repolarization phase of the action potential of ventricular muscle fibers? K+ channels
5. What happens in complete heart block? Fainting may occur because of prolonged periods during which the ventricles fail to contract.
6. What causes the second heart sound? Vibrations due to the closing of pulmonary and aortic valves.
7. What causes the fourth heart sound? Ventricular filling
8. What causes the dicrotic notch on the aortic pressure curve? Closure of aortic valve.
9. During exercise a man consumes 1,8 L of O2 per minute. Arterial O2 content is 190ml/L Venous O2 content is 134ml/L. What is his CO?
   1800ml/(190ml-134ml)=1800ml/56ml=32 L/min
10. Why is the work performed by the left ventricle substantially larger than that performed by the right ventricle? The afterload is greater.
11. What does Starling's law explain? The increase in CO that occurs when venous return is increased.
12. Which type of vessel has the highest total cross-sectional area in the body? Capillaries
13. The pressure in a capillary in skeletal muscle is 35 mm Hg at the arteriolar end and 14 mm Hg at the venular end. The interstitial pressure is 0 mm Hg. The colloid osmotic pressure is 25 mm Hg in the capillary and 1 mm Hg in the interstitium. What is the net force producing fluid movement across the capillary wall at its arteriolar end? Starling equation shows Flow movement=($[P_c - P_i] - \sigma[\pi_c - \pi_i]$)=(35-0)-(25-1)=35-24=11 mm Hg out of the capillary
14. Is the velocity of blood flow higher in the veins than in the venules? Yes
15. What is increased when the viscosity of the blood is increased? The mean blood pressure.
16. A pharmacologist discovers a drug that stimulates the production of VEGF receptors. What might this drug treat? Coronary artery disease.
17. Why is the dilator response to injected acetylcholine changed to a constrictor response when the endothelium is damaged? The damage interferes with the production of NO by the endothelium.
18. When a pheochromocytoma(tumor of the adrenal medulla) suddenly discharges a large amount of adrenalin into the circulation, what is expected to happend to the patients heart rate? It will increase because adrenalin has a direct chronotropic effect on the heart.

19. What is the primary action of the baroreceptor reflex? Involvment in short-term regulation of systemic blood pressure.
20. When is sympathetic nerve activity expected to increase? Many factors. If glutamate receptors were blocked in the NTS, if GABA receptors were blocked in the RVLM, if there was a compression of the RVLM and during hypoxia.
21. When is the pressure difference between the aorta and the heart the least? In the right ventricle during diastole.
22. Which organ has the greatest blood flow per 100 g of tissue out of the brain, the heart muscle, the skin, the liver, the kidneys? Kidneys
23. Does vasopressin dilate arterioles in the skin? No.