

*Faculty of pharmacy, Nursing and Health Professions*

**NURS 130 Assignment**

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**SID:** 1201212.

**Section:** 2.

1. **How does the motor pathway of the autonomic nervous differ from that of the somatic nervous system? (2)**

PNS divide into sensory and motor division, the motor division also divide to **SNS** which is control the voluntary movement and innervate skeletal muscles by the release of ACh and has just one motor neuron in the motor pathway. Heavily myelinated axons of the somatic motor neurons extend from the CNS to the effector.

and **ANS** control the involuntary movement and innervate the smooth, cardiac muscles and glands and has a two-motor neuron pathway from the CNS to the organ to be served. The preganglionic (first) neuron has a lightly myelinated axon, The ganglionic (second) neuron extends to an effector organ.

1. **Explain the cardiac cycle, and tell me what is the effect of each of these hormones on the blood pressure and on the heart performance in general Thyroid hormone, ACTH, ANP? (10)**

**cardiac cycle: -**

**1. Late diastole:** phase of late relaxation of ventricles (repolarization) at which the both sets of chambers are relaxed and ventricles fill passively.

**2. Atrial systole:** phase of contraction of Atrial (depolarization), once the blood is inside the right and left atrium they start to contract, so the pressure inside them increases, and because the blood move down its concentration gradient, so it begins flow from the right atrium to the right ventricle through tricuspid valve, and from the left atrium to the left ventricle through bicuspid valve.

**3. Isovolumic ventricular:** the 4 valves are closed, because the volume in all chamber is the same, and this is the first phase of ventricular contraction.

**4.** **Ventricular ejection**: this is the contraction of ventricular (depolarization) the pressure inside ventricles rises this push the semilunar valves to open and the blood is ejected from the right ventricle to pulmonary trunk, and from the left ventricle to the aorta.

**5.** **Isovolumic ventricular relaxation:** the pressure inside ventricles is low, and the blood try to back to the ventricles again, so it fills the cups of semilunar valves and push them to close.

**Thyroid hormone:** increase synthesis of B adrenergic receptors on the heart, so the response of sympathetic nervous system increases, Subsequently the heart rate and blood pressure will rise.

**ACTH:** increases the stress hormone, this lead to rise the heart rate, cardiac output and blood pressure will increase, this causes a vascular damage and weakness in left ventricular. and the Absorption of Na+ Ions and water increased K+ excretion, so the blood pressure will increase.

**ANP:** secreted by the heart when blood pressure rises, so the main effect of ANP is inhibit the renin-angiotensin-aldosterone mechanism so it decreases the blood pressure by allowing to Na+ ions and water to leave the body by the urine.

1. **What property of the RBCs make them unable to live more than 120 days? (3)**

Lack of nucleus therefore, they cannot perform transcription to produce mRNA and translation to produce proteins (enzymes etc.), and they also lack organelles like ER, mitochondria which help the cell repair itself in case of damage. So, they die through the process of phagocytosis.