Autonomic Nervous System Division

Student's Name

Institutional Affiliation

**Autonomic Nervous System Division**

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|  | Sympathetic Division | Parasympathetic Division |
| CNS Exit | Most cranial thoracic segments of the head  | Most cranial thoracic parts of the spinal cord. |
| Location of pre-ganglionic neuronal cell bodies  | Located in the ventral roots and segment of body cells  | Situated at the left or right vagus in the thoracic cavity vagal that branches to the heart |
| Pre-ganglionic neuronal length | It originates from the spinal cord  | Originates from the brainstem and other segments of the spinal cord |
| Pre-ganglionic axon location | It runs through the eye membrane to facilitate recognition of an object by the pupil | It runs through the oculomotor nerve via the smooth muscles in the eye. |
| NT released from Pre-ganglionic neurons  | Has the nerve cells that have receptors for transmitters released in the synaptic cleft | The nerve cells facilitate the transmission of receptors to eye |
| Location of post-ganglionic neuronal cell bodies | Located in the visceral also known as the lateral gray of the spinal cord  | Situated in the visceral also known as the lateral gray of the spinal cord |
| Post-ganglionic neuronal length | It is approximately T-1 to L -4 | It is short and thus runs from S1 – S3 |
| Post-ganglionic axon location | It comprises of the innervated pelvic viscera which are the ascending colon along the spinal cord | It consists of innervated pelvic viscera which include the descending colon |
| Organic innervated  | Facilitates secretion of favor viscous | Stimulates the flow of support serous |
| OVERALL MAIN EFFECTS: | It facilitates the ascending movement of the materials in the body to ensure proper coordination of cells (Snell, 2010). | It facilitates the descending movement of materials in the colon |
| Effects on:  |  |  |
| Heart rate  | It speeds up the heartbeat rate to pump more blood to increase the blood pressure. | It facilitates the decrease in heartbeat rate to reduce the blood pressure of the body |
| Pupil | It enlarges the pupil to increase the visibility of objects when there is less light from the object. | It decreases the size of the pupil to prevent excess light for the object. It helps to protect from damage. |
| Airways  | Clean airway to facilitate transportation of oxygen | Clean airway to enable transport of oxygen |
| Blood vessels to GI organs | Facilitates move of substances to GI organs  | Facilitates movement of materials from GI organs to blood vessels |
| Blood vessels to muscle  | Increases muscles contraction | Decreases muscles contraction |
| Salivation | Increases salivation  | Decrease salivation rate |

References

Snell, R. S. (2010). *Clinical neuroanatomy*. Vancouver: Crane Library at UBC.