**HND 2nd Semester**

**Course Title: Anatomy Instructor: Ahmed Hayat**

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 **Final Term Assignment Marks: 50**

***NOTE: Mention your name and roll number on the assignments.***

1. Enlist 5 irregular bones in human body.
2. Name the basic 11 systems in human body.
3. Mention five differences between sympathetic & parasympathetic nervous system
4. Enumerate the 12 cranial nerves.
5. How insulin and glucagon controls blood glucose levels.

**Question no.1:** Enlist 5 irregular bones in human body?

**Answer:** The irregular bones are

* The vertebrae
* Sacrum
* Maxilla
* Mandible
* Temporal

**Question no.2:** Name the basic 11 systems in human body.

**Answer:** The basic 11 systems in human body are

1. Digestive System
2. Circulatory system
3. Endocrine system
4. Immune System & Lymphatic system
5. Muscular system
6. Nervous System
7. Integumentary system \ Exocrine system
8. Renal system and urinary system
9. Reproductive system
10. Respiratory system
11. Skeletal system

**Question no.3:** Mention five differences between sympathetic & parasympathetic nervous system?

**Answer:**

|  |  |
| --- | --- |
| **Sympathetic** | **Parasympathetic** |
| 1. Thesympathetic nervous system (SNS) is one of the two main divisions of the autonomic nervous system.
 | The parasympathetic system (PNS) is one of the two divisions of the autonomic nervous system.  |
| Thesympathetic nervous systems primary process is to stimulate the body fight –or- flight response.  | The parasympathetic system is responsible for stimulation of "rest-and-digest" or " feed and breed" activities . |
| It is located near the thoracic and lumbar region in the spinal cord.  | It is located in between the spinal cord and medulla. |
| Increases heartbeat, muscles tense up | Reduces heartbeat, muscles relaxes  |
| Thesympathetic system has shorter neuron pathways, hence a faster response time.  | Have comparatively longer neurons pathways, hence a slower response time. |

**Question no.4:** Enumerate the 12 cranial nerves?

**Answer:** The 12 cranial nerves are

1. OL Factory nerve
2. Optic nerve
3. Oculomotor nerve
4. Trochlear nerve
5. Trigeminal nerve
6. Abducens nerve
7. Facial nerve
8. Vestibulocochlear Nerve
9. Glossopharyngeal nerve
10. Vagus nerve
11. Accessory nerve
12. Hypoglossal nerve

**Question no.5:** How insulin and glucagon controls blood glucose levels?

**Answer:** Insulin plays a critical role in the regulation of body fat. Together with its counterpart the hormone glucagon it regulates blood glucose (also known as blood sugar), which is the concentration of glucose in the blood.

Insulin is secreted by the pancreas in response to specific triggers, especially elevated blood glucose levels, but just the thought of eating can also cause the release of insulin. Glucagon is the polar opposite of insulin. it is a hormone that is secreted when blood glucose is low. Glucagon stimulates the liver to release glucose by breaking down glycogen. These two hormones are maintaining homeostasis, basically keeping blood glucose at a stable level.

Insulin is considered the primary anabolic hormone of the body because it promotes the creation of complex molecules in cells from small molecules in the blood ( anabolism ). Glucagon conversely promotes the breaking down of larger molecules into sugar ( catabolism ). When the blood glucose level is too high, the pancreas secretes insulin. When the level is too low, the pancreas secretes glucagon.

It is normal for blood glucose levels to fluctuate, particularly following a meal. Other causes can be stress, infection, and trauma. Vigorous exercise or fasting can cause blood glucose levels to drop. Insulin and glucagon work to bring blood glucose levels back into the acceptable range.

Insulin drives a decrease in blood glucose in various ways:

It promotes the use of glucose to create energy for the cells (glycolysis)

It stimulates the liver and muscles to absorb glucose and store it as glycogen (glycogenesis)

It also stimulates fat cells to absorb glucose and store it as triglycerides (lipogenesis)

Insulin also suppresses other energy sources to prioritize glucose use, it inhibits the breakdown of fat tissue into fatty acids (lipolysis) and proteins into amino acids