ENZYMES + HORMONES – Review KEY

**Use the tables below to check your answers.**

**Carbohydrates:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Enzyme | Produced by | **Site of**  **Action** | **Optimum**  **pH** | **Chemical**  **Digestion** |
| **SALIVARY**  **AMYLASE** | **Salivary Glands** | **Mouth** | **Neutral**  **pH = 7.0** | **Starch 🡪**  **Maltose** |
| **Pancreatic**  **AMYLASE** | **Pancreas** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Starch 🡪**  **Maltose** |
| **MALTASE** | **Duodenal**  **Glands** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Maltose 🡪**  **2 Glucose** |

**Proteins:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Enzyme | Producedby | **Site of**  **Action** | **Optimum**  **pH** | **Chemical**  **Digestion** |
| **PEPSIN** | **Gastric Glands in stomach** | **Stomach** | **Acidic**  **pH = 2.5** | **Proteins into Peptide Chains of varying lengths** |
| **TRYPSIN** | **Pancreas** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Proteins into Peptide Chains of varying lengths** |
| **PEPTIDASE** | **Duodenum** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Peptide Chains 🡪 Amino Acids** |

**Fats:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Emulsifier | Produced by | **Site of Action** | **Action** |  |
| **BILE** | **Liver** | **Duodenum**  **And rest of small intestine** | **Spreads Fats into small drops to increase SA** |  |
| **Enzyme** | **Produced by** | **Site of Action** | **Optimum pH** | **Chemical Digestion** |
| **LIPASE** | **Pancreas** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Fats 🡪 Glycerol and Fatty Acids** |

**Nucleic Acids:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Enzyme | Produced by | **Site of Action** | **Optimum pH** | **Chemical Digestion** |
| **Nucleases** | **Pancreas** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Nucleic Acids 🡪 Nucleotides** |
| **Nucleosidases** | **Duodenum** | **Duodenum**  **And rest of small intestine** | **Slightly Basic**  **pH = 7.5-8** | **Nucleotides**  **Sugar,**  **Phosphate**  **Base** |

## Digestive Hormones

|  |  |  |  |
| --- | --- | --- | --- |
| Hormone | **Produced by** | **Site of Action** | **Action** |
| **GASTRIN** | **Stomach endocrine**  **Glands** | **On Gastric Glands** | **Cause**  **secretion of HCl, Mucous, Pepsinogen** |
| **CCK** | **Duodenal Endocrine Glands** | **Liver and Gallbladder** | **Release of Bile** |
| **SECRETIN** | **Duodenal Endocrine Glands** | **Pancreas** | **Cause release of Pancreatic Juice (enzymes and Sodium Bicarbonate)** |
| **Gastric**  **Inhibitory Peptide**  **(GIP)** | **Duodenal Endocrine Glands** | **Gastric Glands** | **Causes Gastric Glands to Shut down production** |

**OTHER HORMONES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chemical Name** | **SOURCE** | **Site Of Action** | **Function** |
| **ADH** | **Hypothalamus, but stored and released from posterior pituitary** | **Cells of the Collecting duct** | **To increase the permeability of these cells to water to allow more water to be reabsorbed from the filtrate. Raises blood pressure and blood volume.** |
| **Thyroxin** | **Thyroid Gland** | **All the cells of the body** | **Triggers cells to speed up their metabolic rate.** |
| **Aldosterone** | **Adrenal Gland** | **The cells of the distal convoluted tubule.** | **Triggers these cells to turn on sodium pumps to increase sodium reabsorption back into the blood. Water will follow.** |