Topic: Islets of Langerhans
Class: B.Sc Part –III (Hons.)
Paper- V
Group – B

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Hormones of Pancreas and Their Role:

- **(i) Glucagon:**
- It stimulates the liver to convert stored glycogen into glucose. Glucagon is also called an “anti-insulin” hormone.
- **Target Cells:**
- Glucagon acts on the cells of the liver and adipose tissue.
- **(ii) Insulin:**
- (a) It is antagonistic to glucagon. Insulin converts glucose into glycogen in the liver and muscles.

- (b) It promotes protein synthesis in tissue from amino acids.
- (c) Insulin reduces catabolism of proteins. It is an anabolic hormone.
- (d) It increases the synthesis of fat in the adipose tissue from fatty acids.
- (e) Insulin reduces the breakdown and oxidation of fat.

- **Target Cells:**
- Insulin acts on the cells of the liver muscles and adipose tissue.
- Alloxan and Cobalt chloride are compounds widely used by scientists to study cell physiology of islets of Langerhans.
- Alloxan is used to destroy the beta cells while cobalt chloride to destroy alpha cells of the islets of Langerhans.

- **(iii) Somatostatin (SS):**
- The same substance as growth inhibiting hormone from the hypothalamus,
- Produced not only by the pancreas and hypothalamus but also by some cells of the digestive tract.
- One of the actions of Somatostatin seems to suppress the release of other hormones from the pancreas.
- It also appears to suppress the release of hormones from the digestive tract.
- **Target Cells:**
- Both Somatostatin and pancreatic polypeptide act on the cells of the pancreas.

- **(iv) Pancreatic Polypeptide (PP):**
- It appears that pancreatic polypeptide inhibits the release of digestive secretion of the pancreas.
- Both Somatostatin and pancreatic polypeptide are relatively newly discovered hormones of the pancreas.
- And both are still being studied.