II. Digestion and absorption of carbohydrates. 8 marks June

- digestion occurs in mouth and Intestine. (upto duct & heart next)
- cooking helps in breaking of glycosidic linkages in polysaccharides.
- The hydrolysis of glycosidic bonds are carried out by the enzyme ——————.
- In the diet carbohydrate are available as polysaccharides (starch glycogen) & as disaccharides {sucrose & lactose}.

These are hydrolysed to monosaccharides units in g.I tract.

- digestion in the mouth.

- digestion begins with salivary alpha amylase
- Inhibited by gastric HCl.

In pacreas:

- pancreatic juice contains another alpha amylase. which will hydrolyse alpha -1,4 glycosidic linkage.
- Subunits formed are maltose, isomaltose, dextrins & branched / unbranched Oligosaccharides.

In small Intestine.

- The final digestion of disaccharides & oligosaccharides by disaccharidases & oligosaccharidases to monosacch occurs.
- Important disaccharides are sucrase, maltase, isomaltase & lactase. (depending on specific substrate).
- monosaccharides are then absorbed.

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Enzyme	substrate	Products
Sucrase	Sucrose	Glucose, fructose.
Lactase	Lactose	glucose, galactose.
maltase	maltose	glucose
isomaltase.	isomaltose.	glucose.

Lactose Intolerance.

- deficiency of lactase, which hydrolyses lactose to glucose & galactose.
- lactase is present in the brush border of enterocytes.
- lactose accumulates in gut.
- Bacterial action produce organic acid.
- water into bowels by osmotic effect.
- Causes irritant diarrhoea.
- due to presence of lactose in stool [reducing sugar] it shows positive Benedict's test.

2 types.

Congenital.

- due to congenital absence of lactase enzyme.

acquired.

may be sudden change into milk based diet, {lactase is an Inducible ~~diet~~ enzyme} malnutrition

Treatment.

- avoid milk & milk products.
- cured is given (lactobacilli contain lactase).