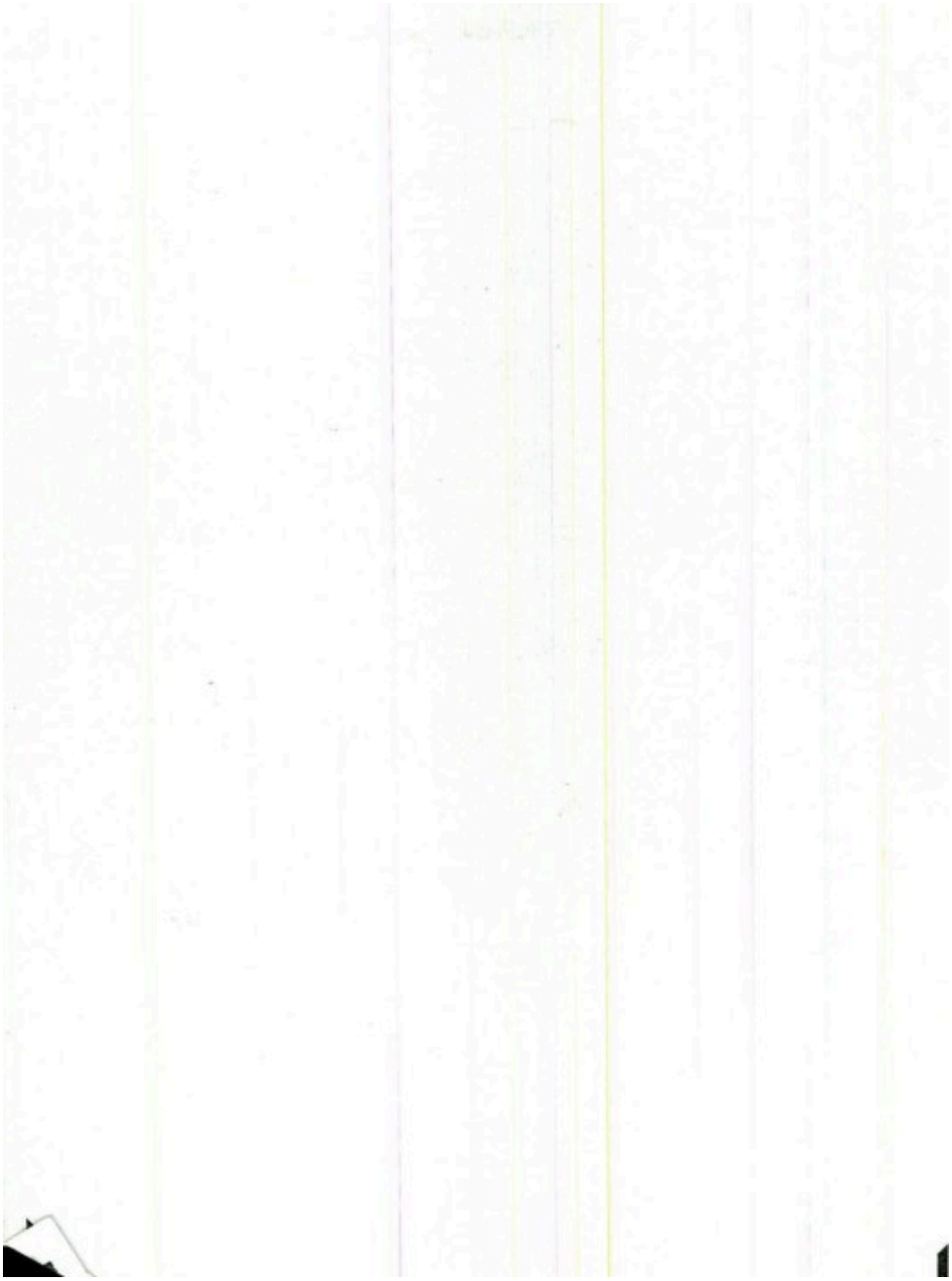
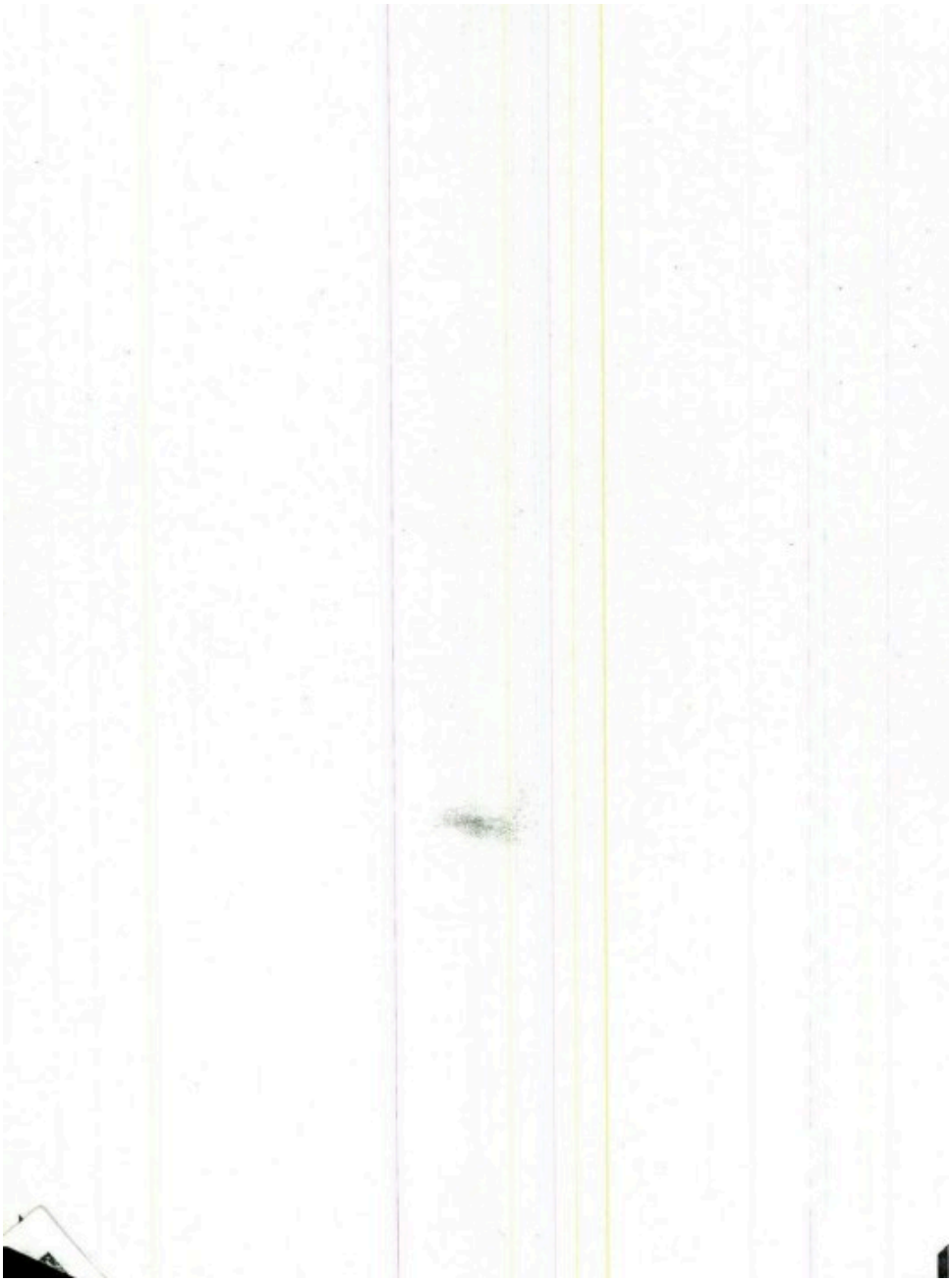






(Section B)

Q. No. 2 Part (i)

Glomerular Capillary	Peritubular Capillary
⇒ Glomerular capillaries arise from afferent arteriol.	⇒ Peritubular capillaries arise from efferent arteriol.
⇒ These capillaries are present only in Bowman capsule.	⇒ These capillaries are present on whole nephron except Bowman capsule.
⇒ Glomerular filteration takes place through these capillaries.	⇒ selective reabsorption takes place through these capillaries.

Q. No. 2 Part (ii)

IDENTIFICATION OF =

A = Part A is Bowman's capsule. Its function is pressure filteration / Glomerular filteration which is first step in urine formation.

B = Part B is Proximal convolated Tubule which play a vital role in selective reabsorption.

C = Part C is loop of henle which play a vital role in reabsorption of water and salt. to make concentrate urine.

(Section B)

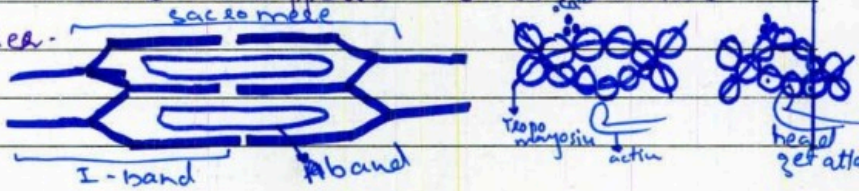
Q. No. 2 Part (iii)

ROLE OF CALCIUM ION:

Calcium ion play a vital role in muscle contraction as it gets attach to troponin and alter its shape due to tropomyosin is pulled exposing Actin binding site where actin get attach and contraction takes place.

Sacsomere During contraction:

during contraction sacsomere shortens as I-bands comes closed to each other and h-band disappears. so it becomes smaller.



Q. No. 2 Part (iv)

ARTERIES	VEINS
⇒ Blood vessels that take away blood from heart is called arteries.	⇒ Blood vessels that Bring back blood towald heart is called veins.
⇒ It usually carry oxygenated blood.	⇒ It usually carry deoxygenated blood.
⇒ Artery contains thick walls and narrow lumen.	⇒ Vein contain thin walls and large lumen.
⇒ valves are absent.	⇒ valves are present.

(Section B)

Q. No. 2 Part (v)

MONOCLONAL ANTIBODIES:

Monoclonal antibodies are synthesized in laboratories and are only specific to one type of antigen. There are various advantages of mAb's but only two are give following:

High Specifity: Monoclonal antibodies are highly specific to single type of antigen as they only act on single type of antigen

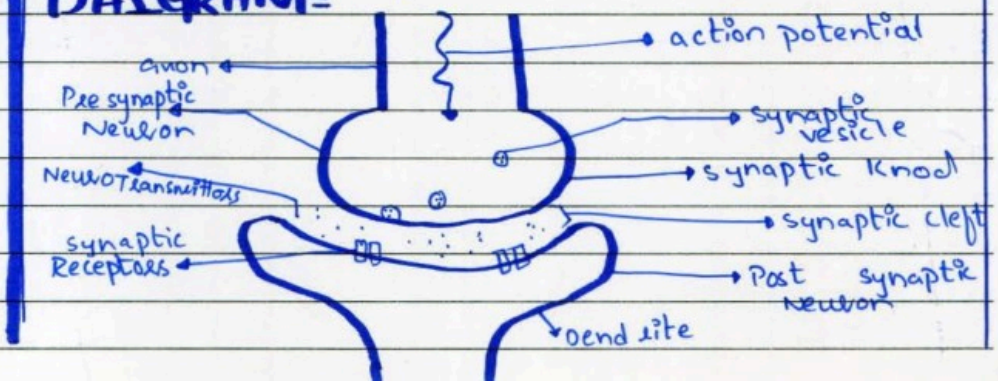
Humanized: mAb's are humanized as it lowers the chances of immune reaction or infectious.

Q. No. 2 Part (vi)

SYNAPSE:

Synapse is a junction between two neuron. It contain gap between neurons known as synaptic cleft. Through synapse impulse pass from neuron to neuron.

DAIGRAM:



(Section B)

Q. No. 2 Part (vii)

OSTEOPOROSIS =

Osteoporosis is a disease in which Bone deformation take place. In this bones become very fragile.

Causes =

It mainly occurs in old age. It occur due to deficiency of calcium.

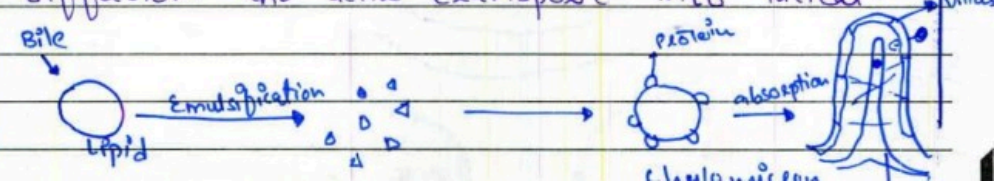
Symptoms =

The main symptoms are: bones get fracture easily. Bones become fragile and deforming starts.

Q. No. 2 Part (viii)

FATS ABSORBTION IN SMALL INTESTINE =

Bile is released from gall bladder into small intestine where fats is converted into small droplets this process is called emulsification then it is converted into chylomicrons (small circular fats particles) because lipase acts on it. after that villus absorb it through diffusion and active transport into lacteal.



(Section B)

Q. No. 2 Part (ix)

ECTOTHERMS	ENDOTHERMS
⇒ Ectotherms are those animals that rely on surrounding environment for heat.	⇒ Endotherms are those animals that can generate heat in their body by themselves.
⇒ Mostly cold blooded animals are ectotherms.	⇒ Mostly warm blooded animals are endotherms.
⇒ Ectotherms cannot maiuain their body temperatures.	⇒ Endotherms can maintain their body temperatures.
Example	
⇒ Snake, lizard, Fish	⇒ Human, birds.

Q. No. 2 Part (x)

HARMFUL EFFECTS OF OCEAN ACIDIFICATION =

following are the three harmful effects of ocean acidification.

⇒ Due to ocean acidification many marine specie which are sensitive dies and become endangered.

⇒ Because of ocean acidification Food chain of marine specie (dis(x) disrupts.

⇒ Ocean acidification is the reason for coral bleaching which effects diverse species.

(Section B)

Q. No. 2 Part (xi)

SIGNIFICANCE OF SELECTIVE REABSORBTION=

Selective reabsorbtion takes place in proximal convoulated tubule. In selective reabsorbtion only certain things are reabsorbed. In this step minerals, glucose etc are reabsorbed from glomerular filterate into peritubular capillaries. so it is essential in reabsorbing ~~ets~~ minerals that is vital for body also in loop of henle water and salt is reabsorbed if body is facing dehydration.

Q. No. 2 Part (xii)

Roles of Liver=

There are various roles of liver following are three roles of liver:

=> Liver detoxify drugs by breaking them.

=> Liver produce bile which is essential in fats absrobtion.

=> Liver break down worn out RBC's.

=> It also clear billirubin from body. if it is not cleared then jaundice may happen.

=> It maintain Blood glucose level.

(Section B)

Q. No. 2 Part (xiii)

EFFECT OF DRUG ADDICTION AND TOLERANCE:

when a person gets addicted to drugs. his tolerance decreases without drugs. As drugs release dopamine and seretonin harmone in a body so it alter the functioning of the nervous system. Drug addicts when takes drugs they feel pleasure and sedative drugs hallicunate then so their nervous system works differently and they escape reality. Also their tolerance levels decreases and they ~~take~~ increases their drugs dose.

(xiv)

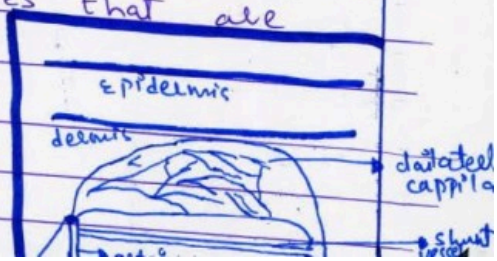
MECHANISMS TO LOSE HEAT:

i- Sweating:

Sweating is a process in which body produce sweats by sweat gland which by evaporation produce cooling effects to the body.

ii- Vasodailation:

In vasodailation capillaries that are close to skin are dailated while shunt vessel contricts. so more blood travel through cappillaries and heat is lost to environment via radiation.

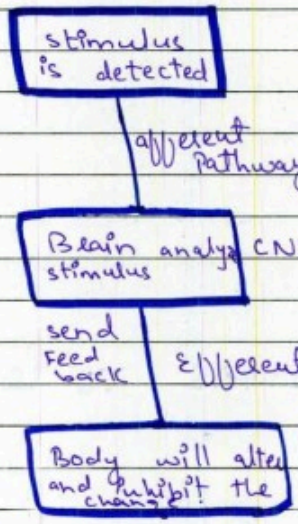


(Section C)

Q. No. 3 (Page 1)

NEGATIVE FEEDBACK:

Negative feed back refers to the feed back which brings back body towards homeostasis by inhibiting the change.



Examples:

following are the example of Negative feedback:

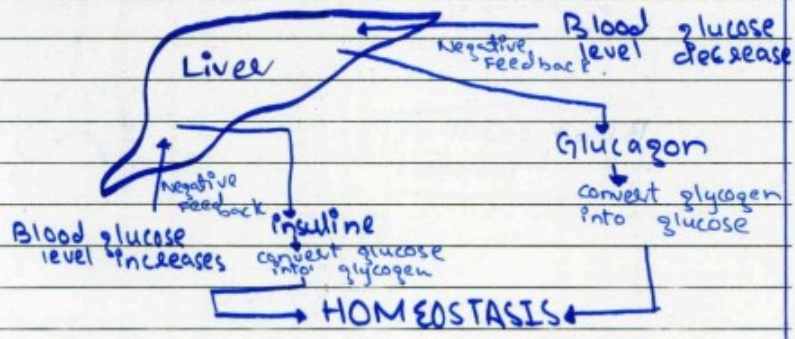
1- IF Blood Glucose level changes

if blood glucose level increases the body will ~~send~~ start negative feed back to bring body back at homeostasis - liver will produce insulin which will

(Section C)

Q. No. 3 (Page 2)

convert glucose into glycogen and store it in fat muscles etc thats how blood ~~calciu~~ glucose level will be maintained.
Also, if blood glucose level drops body will start its negative feed back and and ~~wi~~ livee will produce glucagon which will convert glycogen into glucose and body sugar level is maintained.



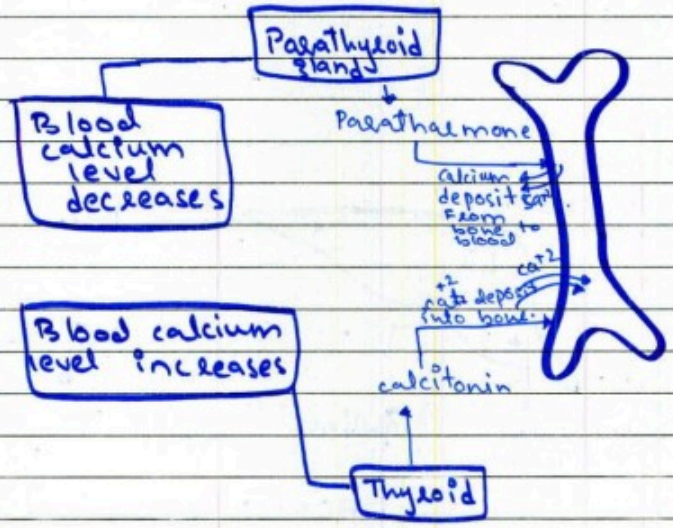
2- If Blood calcium level Changes=

If blood calcium level increases then thyroid gland secrete harmone calcitonin which deposite calcium from blood into bones and maintain calcium level.
Also if blood calcium leve decreases.

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Q. No. 3 (Page 3)

body will activate negative feedback. and parathyroid will release parathormone which will deposite calcium from bones into blood and blood calcium level will be regulated.



(Section C)

Q. No. 4 (Page 1)

LOCATION OF PANCREASE=

HEAD = head of pancreas is present in the curve of deudenum.

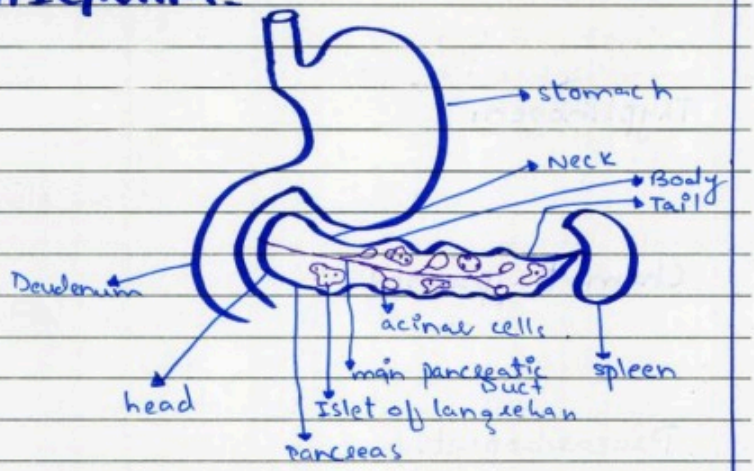
NECK= Neck connects head to the body.

BODY = Body of pancreas is present just below stomach and it contain main (panct) pancreatic duct and acinar cells and islet of langerhans

TAIL =

Tail is connected to the spleen in the end of pancrease. Also it is below mesenteric artery.

DAIGRAM=



(Section C)

Q. No. 4 (Page 2)

FUNCTION OF PANCREAS AS ENDOCRINE Gland=

Pancreas has function of both endocrine as well as exocrine glands. Through acinar cells it acts as endocrine gland as acinar cell release its secretion in pancreatic duct. It produce pancreatic juice when secretin harmone stimulates it. In pancreatic juice various enzymes are present i.e Trypsin, chemotrypsin, carbopeptidase.

ENZYMES PRODUCED=

These enzymes are produced in their inactive form i.e Trypsinogen, chemotrypsinogen and procarbopeptidase.

Trypsinogen:

Trypsinogen is activated by enterokinase it take part in hydrolysis of proteins.

Chemotrypsinogen:

chemotrypsinogen is activated by trypsin. It also play vital role in hydrolysis of proteins.

Procarbopeptidase:

it takes part in hydrolyses

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Q. No. 4 (Page 3)

of peptide bonds and carbohydrates.

ALKALINE NATURE:

Pancreatic juice is alkaline in nature as it is released in deudenum. when chyme from stomach enters into deudenum it is acidic in nature to neutralise it pancreatic juice is alkaline in nature. Due to Bi carbonate ion and cholecystokinin it becomes alkaline in nature and reduce acidity of chyme.

~~EXOCRINE~~: ENDOCRINE FUNCTION:

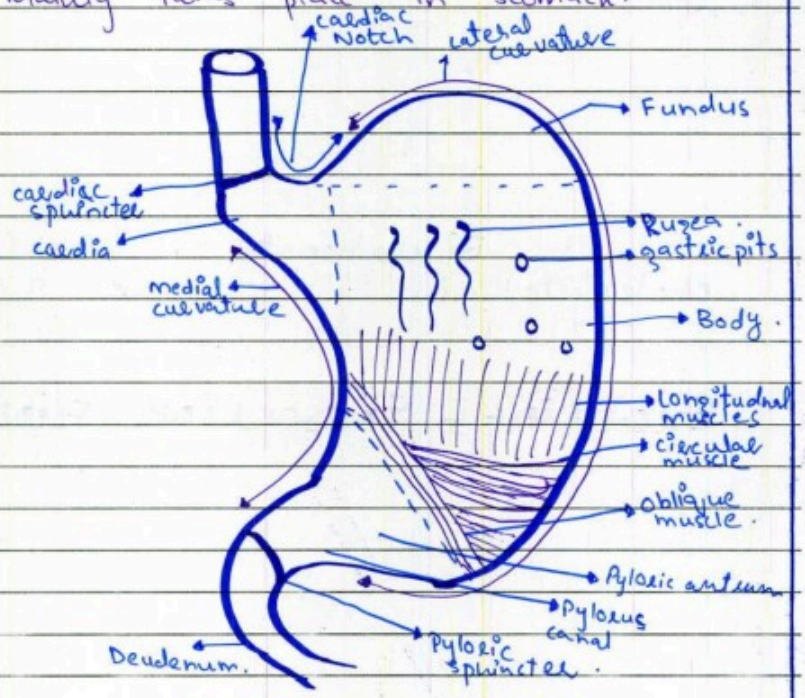
Through islets of langerhan it produce insulin from beta cells and ~~glucagon~~ glucagon from alpha cells. when blood glucose level is high isuline is produced by beta cells which by glyconeogensis convert glucose into glycogen and blood glucose level is regulated. And when blood glucose level is low it produce glyc-glucagon which convert glycogen into glucose by which blood glucose level is regulated. ~~This~~ it response as negative feedback and bring back body at homeostasis.

(Section C)

Q. No. 5 (Page 1)

HUMAN STOMACH=

Human stomach is J- shaped - Digestion Mainly takes place in stomach.



Fundus is gas filled portion.
Oblique muscles help in mechanical digestion.

CHEMICAL DIGESTION IN HUMAN STOMACH=

Chemical digestion mainly takes place in human stomach.
various enzymes are released though

(Section C)

Q. No. 5 (Page 2)

gastric pits. Gastric pits contain parietal cells, chief cells and endocrine cells.

Parietal / Oxyntic cell: These cells secrete HCL and intrinsic factor.

Chief cells: These are also called zymogen cells these secrete pepsin enzyme.

ENDOCrine cell: These cells produce gastrin which regulate the secretion of gastric juice.

Mucosal cells: Mucosal cells produce mucus which protect stomach walls from being digested.

ROLE OF HCL AND INTRINSIC FACTOR =

HCL activates pepsinogen into pepsin. It also kills bacteria and germs that is comes with our food. It also inhibits the digestion of carbohydrates.

Intrinsic factor plays a vital role in absorbtion of vitamin B-12.

Role OF PEPSIN=

Pepsin is secreted in its inactive form pepsinogen. which is then activated by HCL. It works

(Section C)

Q. No. 5 (Page 3)

best in pH (1-3). Pepsin is essential in digestion of proteins. it converts proteins in peptide bonds.

(Section C)

Q. No. 6 (Page 1)

AMMONIOTELICS=

"Ammoniotelics are those species that excrete ammonia as their waste material".

⇒ Ammonia is very toxic as 1 gram of ammonia require 500ml water to become non toxic.

⇒ so only marine water ~~contain~~ affords excess of water.

⇒ Ammonia is toxic than all wastes

⇒ Examples of ammoniotellics are ~~the~~ fish, cnidarias, sponges etc.

Ureotelic=

"Ureotelics are those animals that excrete urea as their waste material".

⇒ Urea is less toxic than Ammonia.

⇒ 1g Urea requires 50 ml ml water to become non toxic.

⇒ (Ammoniotelics) Ammonia is 100000 times toxic than urea.

⇒ Many land animal (adapts) excrete urea as their waste material.

⇒ Examples include humands, many animals etc.

(Section C)

Q. No. 6 (Page 2)

Uricotellics :

"Uricotelics are those animal that excrete uric acid as their waste products".

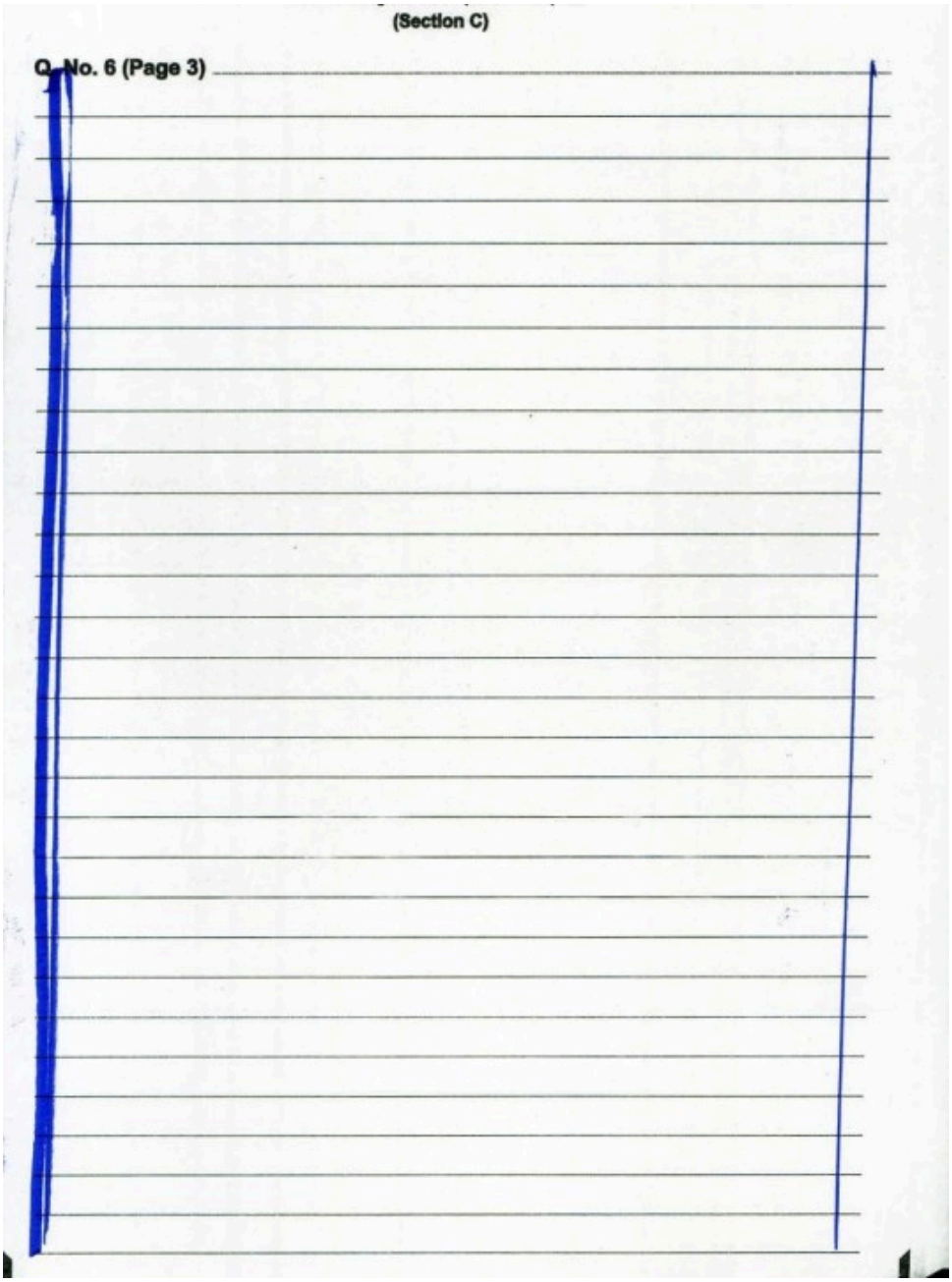
⇒ Uric acid is least toxic than all.

⇒ 1g Uric acid require 1 ml of water to become non-toxic

⇒ Mainly those animal excrete uric acid as waste product that face dehydration.

⇒ Mostly egg laying ~~eg~~ animals are uricotellics.

⇒ Example includes snake, lizard, birds etc.


(Section C)
Q. No. 6 (Page 3)