



SECTION-B

SHORT Question

Question: 1

ANSWER:

POSTERIOR PITUITARY:

ADH
and oxytocin are stored in
posterior Pituitary.

(i) FUNCTION OF ANTIDIURETIC HORMONE :

When
there is deficiency of water
in body- When blood

with low water level passes from Hypothalamus - The Hypothalamus detect low H_2O level in blood - It stimulates the posterior Pituitary to release ADH -

ADH goes to collecting duct and make it permeable for water - So more water is reabsorbed in blood -

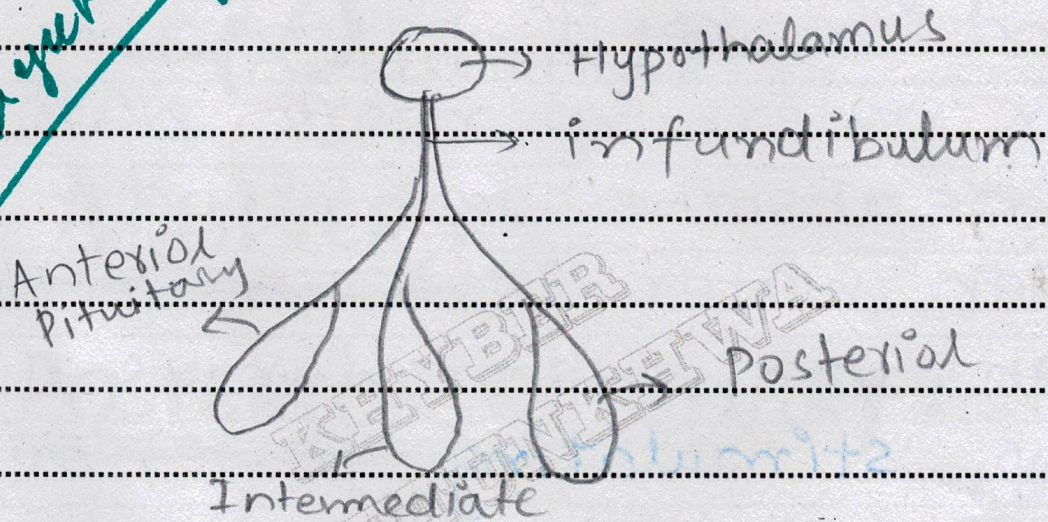
When water level become high the hypothalamus stop stimulating Posterior Pituitary and release of ADH stops.

(ii) FUNCTION OF OXYTOCIN:

~~This~~ Hormone is also stored in Posterior Pituitary. ~~This~~ Hormone is released at the

time of delivery - for uterus contraction - This hormone is released when baby head touch the cervix region. More oxytocin is released more uterus contraction more labour pain.

mila guchi



-(Question: 2)-

ANSWER :

INVITROFERTILIZATION :



FERTILIZATION :

Fusion of egg and sperm and formation of gamete is fertilization.

INVITROFERTILIZATION :

This type of fertilization occurs outside the body. In this case Hormones are injected in females body and more eggs are produced in her body. And also sperms are taken out from male body and placed in a dish. And through injections produced eggs in female are also taken outside in a same dish. Growth medium is provided to it. Sperm and egg fuse to form zygote.



and after few days the healthier embryo is taken from dish and injected into females uterus. Here it starts implantation and further growth.

—(Question: 4)—

ANSWER:

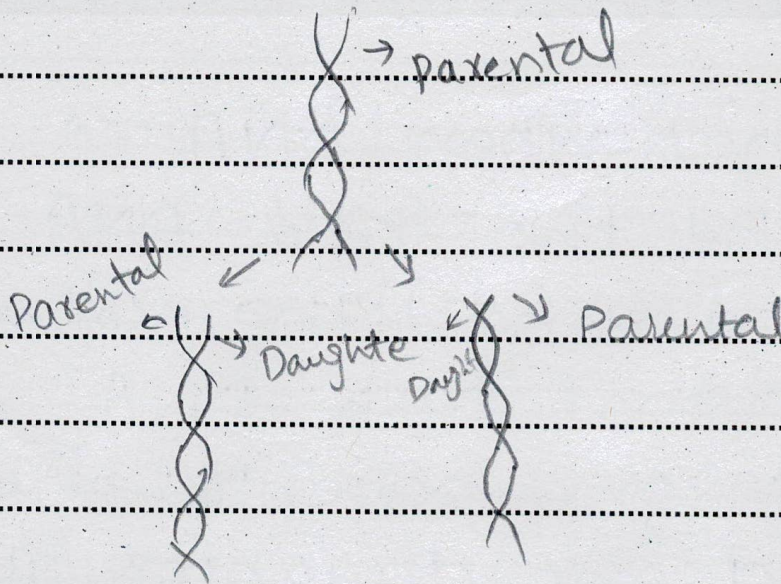
**SEMI- CONSERVATIVE MODEL
OF DNA REPLICATION:**

This model of DNA replication is given by Watson and Crick.

EXPLANATION:

Semi- conservative

model says that when DNA replicates the two new DNA molecules arrange themselves in a way that each DNA consist of one parental like strand and one daughter like strand. In second time replication four DNA molecules forms - Two are same like Parental mean both strands are parental like - and the rest two DNA are same like second step of replication. This is known as semi-conservative model because in first replication DNA molecule is semi conserved mean half conserved.



-(Question: 6)-

ANSWER:

EVOLUTION:

Evolution is gradual changes over time.

ENDOSYMBIOTIC THEORY:

This theory is given by Lyn Margullis. In this theory He says that when a Bacteria engulfs a Heterotrophic



Bacteria - This Heterotrophic Bacteria will act as a Mitochondria inside body of Bacteria. Mitochondria is a double Membrane Bounded organelle. And we know that double Membrane bounded Organelle is present in Eukaryotic cell.

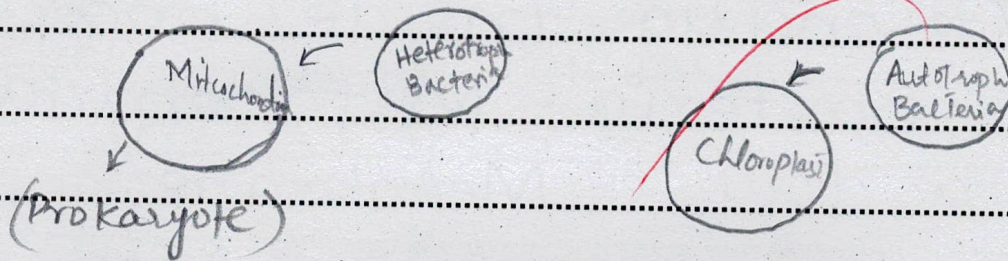
He also says that when a Bacteria engulfs any Autotrophic Bacteria This Autotrophic Bacteria will act as a chloroplast inside Bacteria Body.

And we know that Chloroplast is double Membrane Bound organelle. And it is present in Eukaryotic cell.

This theory shows that



Eukaryotes are evolve from prokaryotes.



— (Question: 9) —

ANSWER:

RIBCAGE:

The ribcage consist of 24 bones.

TRUE RIBS:

In Ribcage first seven (7) ribs are known as True ribs because these Ribs are attached



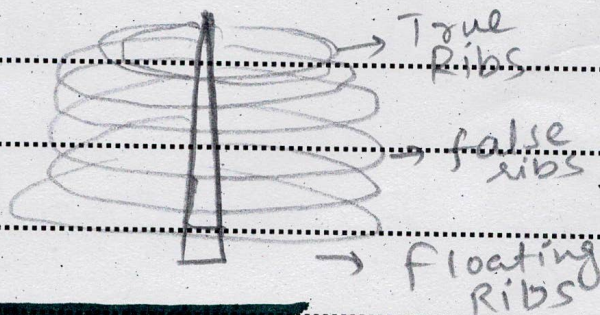
with sternum directly through a cartilage.

FALSE RIBS:

In Ribcage:
8, 9, 10 ribs are false ribs because these ribs are not directly attach to sternum. They are indirectly attach with each other forming costal arch.

FLOATING RIBS:

In ribcage
11, 12 ribs are floating ribs. Because they are not attached to any other bone.





— (Question: 11) —

ANSWER :

FRACTURE :

Fracture is medical term for Broken Bone.

SIMPLE FRACTURE :

In Simple fracture the skin remain intact - There is no wound on skin - Bone Breaks internally. Simple fracture is repaired by closed reduction.

COMPOUND FRACTURE :

In compound fracture the Bone Breaks and Penetrates



in skin. It make wound on skin.

Compound fracture is repaired by also closed reduction.

— Question: 12 —

ANSWER:

NERVE IMPULSE :

A series of Electrochemical change that pass from one end of neuron to other.

RESTING MEMBRANE POTENTIAL:

In resting Membrane Potential



Membrane is more positive outside and negative inside. Outside Potential is $+70\text{mV}$ and inside Potential is -70mV . In resting Membrane Potential Membrane is said to be in polarized state.

Resting Membrane Potential occurs through:

- Active Pump of Na^+/K^+
- Inside -ve organic ions.
- leakage of K^+ ions.

ACTIVE MEMBRANE POTENTIAL:

In

Active membrane Potential membrane is -ve outside and +ve inside. Active Membrane Potential requires a heavy threshold stimulus.



Active Membrane Potential occurs through:

- Threshold stimulus
- Opening of Na gates
- Opening of K^+ gates

In Active Membrane Potential Membrane is first Depolarized, then repolarized and then hyper polarized.

Active Membrane Potential depolarizes for 1 millisecond.

— (Question: 13) —

ANSWER:

SYNAPSE:

Synapse is

meeting point between two neurons.

Here end of one neuron and starting of other neuron involves.

ELECTRICAL SYNAPSE:

This is a type of synapse in which one neuron depolarize other neuron with a great speed.

Here synaptic cleft is about 0.2nm . Few synapses in our body are electrical synapses.

CHEMICAL SYNAPSE:

This is a type of synapse in which one neuron depolarizes



other neuron very slowly because synaptic cleft is very large that is about 20nm.

Presynaptic neuron depolarize Post synaptic neuron through chemical messengers known as Neurotransmitter. They are packed in vesicles.

When more calcium is filled in Presynaptic knob Vesicles release Neurotransmitter.

which are Attached on receptors of post synaptic Neuron.

— (Question: 3) —

ANSWER:

MENDEL EXPERIMENT:

Mendel
done experiment on Pea plant
namely *Pisum sativum*.

SELECTION OF PEA PLANT:

Mendel
choose Pea plant for his
experiments because of
following reasons:

- (i) Pea plant is easy to grow
- (ii) Pea plant is grown in
pots as well as gardens.
- (iii) Growth cycle of Pea plant
is very less. It is grown
in few months.



- (4) Pea plant do self fertilization as well as cross fertilization.
- (5) Cross fertilization is done Artificially.
- (6) Pea plant has 7 seven characteristics.

— (Question: 5) —

ANSWER:

TRANSCRIPTION:

In the process of Transcription the RNA polymerase II copy the ~~code~~ from DNA Anti-sense strand and forms mRNA. on mRNA the whole method



formation
of protein is present.

TRANSLATION:

In translation the tRNA collects the amino acids and attach to mRNA. With the help of code present on mRNA - Protein is finally synthesized.

— (SECTION-C) —

✓ LONG Questions

— (Question: 3) —

ANSWER:



8

GENE EXPRESSION:

Gene expression is the process of Protein synthesis.

Gene expression consist of two phases:

- (i) Transcription
- (ii) Translation.

TRANSLATION:

Translation phase consist of 4 stages:

- (i) Activation of Amino Acid.
- (ii) Formation of Complex
- (iii) Elongation.
- (iv) Termination.



(i)

ACTIVATION OF AMINO-ACID :

In the first step of translation firstly Amino acid is activated when added with ATP 2 Phosphates are released then Amino acid is activated.

(ii)

FORMATION OF COMPLEX :

On the molecule of tRNA there is one 5' and one 3' end Amino acid attaches to 3' end and this will form Aminoacyl tRNA complex.

There is also a step that on mRNA smaller



subunit of Ribosome

Attach with the help of activation factor.

Aminoacyl tRNA complex with N- ~~formly~~ methionine attach to mRNA. Here also Aminoacyl (A site) and E site (~~Exit~~ site).

ELONGATION :

In this step of translation the subunits of Ribosomes move along the mRNA opening the codes and tRNA take Amino acids and then empty tRNA out from Exit site.

tRNA with Amino acid on head came and goes to peptidyl site and Exit the tRNA.



Hence forming Polypeptide.

TERMINATION:

In this step of translation tRNA is unable to recognize the stop codon. So in this way releasing factor when came on Aminoacyl site the mRNA stop coding and polypeptide is dettaches from tRNA.

mRNA also loses larger and smaller sub-units of Ribosomes and dettache everything from its own self -

Now protein is synthesized and Translation ends.

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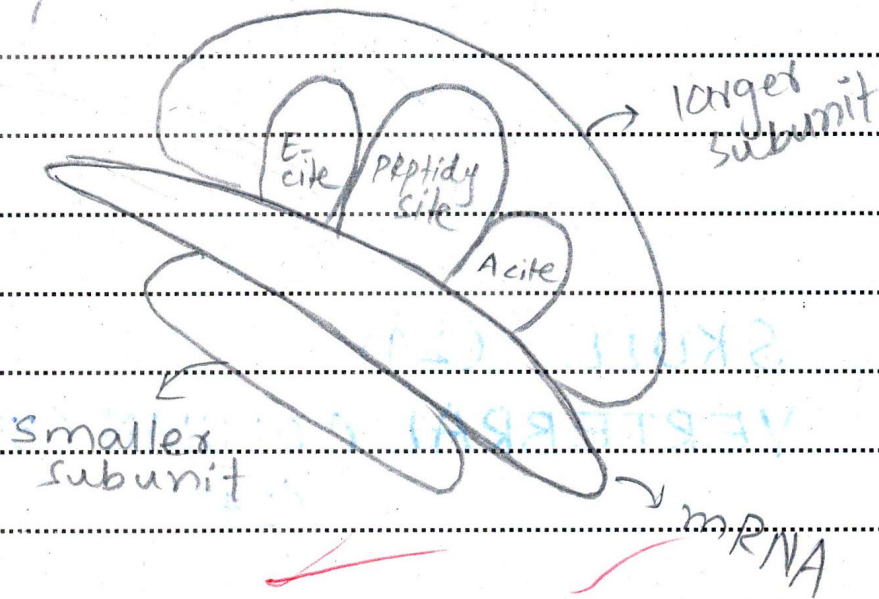
CONTINUATION SHEET



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— (Question: 5) —

ANSWER:

SKELETON:

Skeleton gives support to human body.

02
Axial skeleton consists of 80 Bones.

BONES OF AXIAL SKELETON:

Axial skeleton consist of axial part of Body.
It consist of:

- SKULL (29)
- VERTEBRAL COLUMN (33)
- RIB CAGE (24)

SKULL BONES :

Skull consist of 29 Bones.

- Cranium : 8 Bones
- Facial Bones : 14 Bones
- Ear Bones : 6 Bones
- Hyoid Bone : 1 Bone

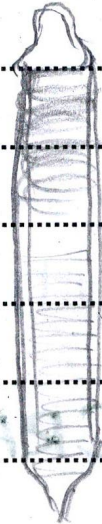


VERTEBRAL COLUMN :

Vertebral

Column consist of 33
vertebrae.

- Cervical : 7 bones
- Thoracic : 12 Bones
- lumbar : 5 Bones
- Sacrum : 5 Bones
- Coccyx : 4 Bones



RIBCAGE:

Rib cage consist
of 24 Bones.

First seven Ribs are known
as True Ribs as they
are Attached directly to
Sternum.

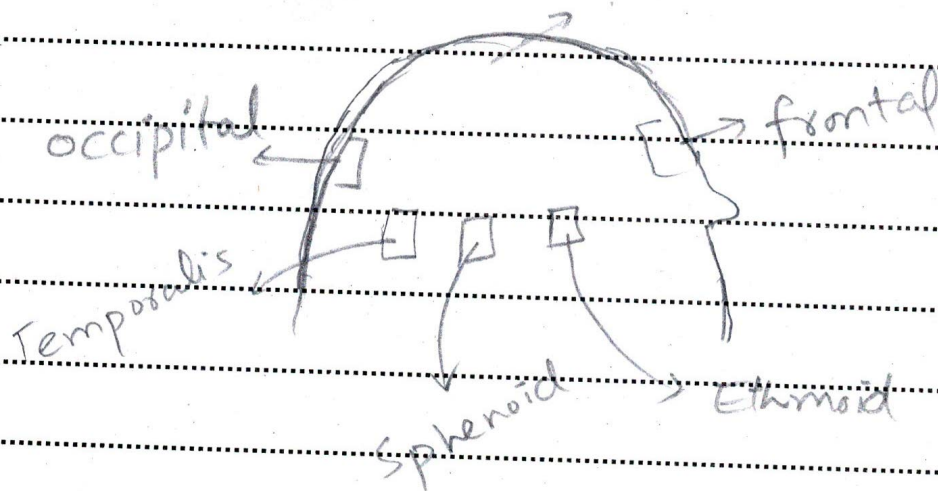
8, 9, 10 Ribs are known

Forming coastal Arch.

11, 12 are floating Ribs because they are not Attached to any Bone.

Cranium

Bones are Frontal (1),
occipital (1), sphenoid (2)
Temporalis (2), sphenoid,
ethmoid.





EAR BONES :

One ear consist
of 3 Bones: Malleus, incus,
stapes.

HYOID BONE :

Hyoid Bone
is U-shaped single Bone
present in neck. That is
not Attached to any other
Bone.

Facial Bone :

zygomatic (2)

lacrimal (2)

Nasal (2)

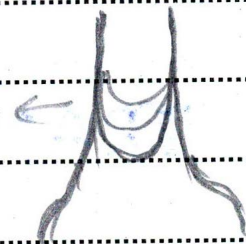
Inferior Nasal conchae (2)

Vomer 1

Palatine (2)

Mandible 1

Hyoid
Bone





—(Question: 6)—

ANSWER:

—(Part - b)—

TRANSPORT OF CO_2 :

~~Carbon dioxide~~
is transported in three ways:

- (1) AS Bicarbonate ions (70%) ✓
- (2) AS Carb Amino Haemoglobin (23%) ✓
- (3) AS dissolved plasma (7%) ✓

TRANSPORT OF CO_2 AS
BICARBONATE ION:

CO_2
is transported from tissue



Beds to lungs as bicarbonate ions (70%)

Firstly CO_2 is out from tissue and goes to blood in

Blood there is RBCs.

Inside RBC Haemoglobin is present. CO_2 reacts with water present in

RBC cytoplasm. in the presence of carbonic Anhydrase to form carbonic Acid H_2CO_3 .

This carbonic acid breaks in H^+ and HCO_3^- ion in presence of carbonic Anhydrase.

This HCO_3^- goes out from RBC and Cl^- ion came inside. This is known

as chloride ion shift.

HCO_3^- goes outside and attach to Na forming NaHCO_3 .

Chemical Reaction - ?

Diagram illustrating the chloride shift mechanism:

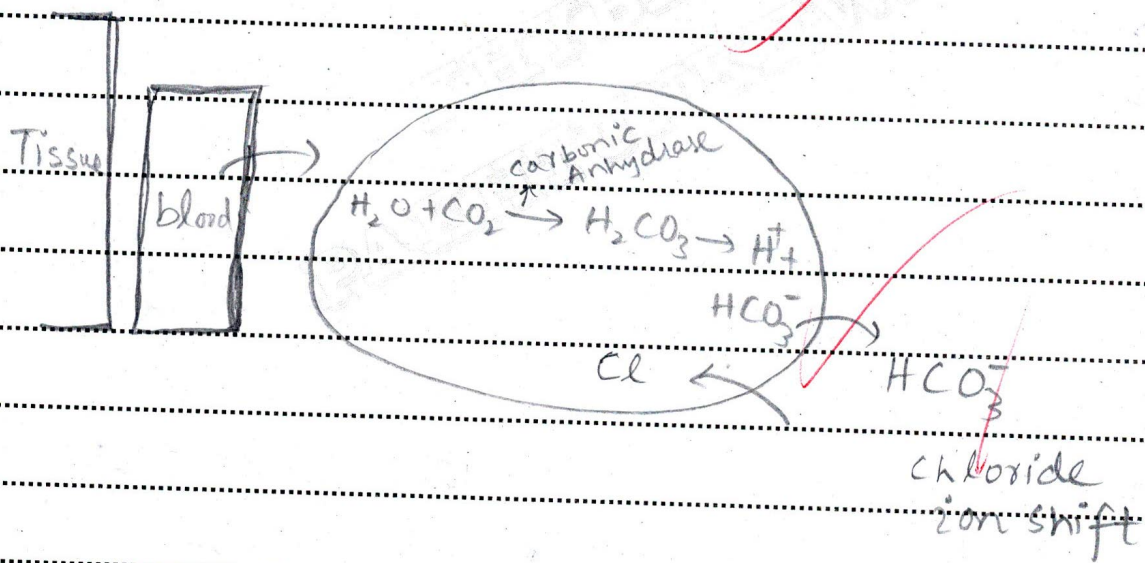
On the left, two vertical rectangles represent the **Tissue** and **blood** compartments. An arrow points from the blood compartment into a large oval representing a cell.

Inside the cell, the chemical reaction is shown:

$$\text{H}_2\text{O} + \text{CO}_2 \xrightarrow{\text{carbonic Anhydrase}} \text{H}_2\text{CO}_3 \rightarrow \text{H}^+ + \text{HCO}_3^-$$

A red checkmark is placed next to the H^+ ion, and another red checkmark is placed next to the HCO_3^- ion.

To the right of the cell, HCO_3^- is written. Below this, the text **chloride ion shift** is written. An arrow points from the HCO_3^- ion towards the cell, and another arrow points from the cell towards the chloride ion shift.





Part (a)

INSIGHT LEARNING:

This is a type of learning behavior in which is learned by an animals itself in an emergency condition.

EXAMPLE:

Consider a chimpanzee is locked in a room and in this some Bananas are hang with wire on wall. There is Nothing



to eat for monkey except Bananas.

There is a stool and sticks present in room.

Here Monkey use its eyes and learn to pluck the

Bananas.

Chimpanzee uses stick.

and stood on stool and pluck that Bananas. And

eat it - This Behavior is

Note inherit in chimpanzee

A Chimpanzee learns this

Behavior from its sight

This type of Learning is insight learning.

