{SECTION B}

{QUE 2}

(i)

ANSWER:

Both Antidiuretic and oxytocin are the hormones of posterior pituray gland.

FUNCTION OF ADH:

The function of ADH is in osmoregulation of water. When there is deficiency of water in the body. Hypothalamus detect it and stimulates the pitutray gland to release ADH which

causes the collecting tubules and distal convulated tubule to be permeable to water and reabsorption of water occurs.

When the water levels are normal in the body, the hypothalamus stimulates the pituitary gland and the production of ADH stops.

FUNCTION OF OXYTOCIN:

Oxytocin is called the "love hormone". It helps during child birth by contracting the uterine walls.

Oxytocin also play role in the milk production from the breast of mother

ANSWER:

IN-VITRO FERTILIZATION:

"The fertilization of egg and sperm outside the living body is called the In-vitro fertilization."

- The baby due to the IVF is called the "test tube baby"

Explanation:

Those couples goes for IVF in which either male or female or both are infertile due to some reasons.

Females are given hormone therapy and egg produce is taken out from the body of female. Sperm is taken from the male and

both sperm and egg are then fertilized in the laboratory.

After fusion of male and female gamete, the zygote formed is then inserted in the uterus of the female.

After 9 months, a healthy test tube baby is born.

Importance = ?

(iii)

ANSWER:

Mendels chooses the pea plant for his experiments due to the following charateristics

CHARACTERISTICS:

- The pea plant have a very simple genetics.

- The pea plants are easy to cultivate.
- The life span of pea plant is very short i.e 3-4 months.
- The pea plants are hermophrodite i.e male and female in same plant.
- self-pollination occurs in the pea plants.
- Cross-pollination is also possible in pea plant.
- Pea plants have seven contrasting characteristics.

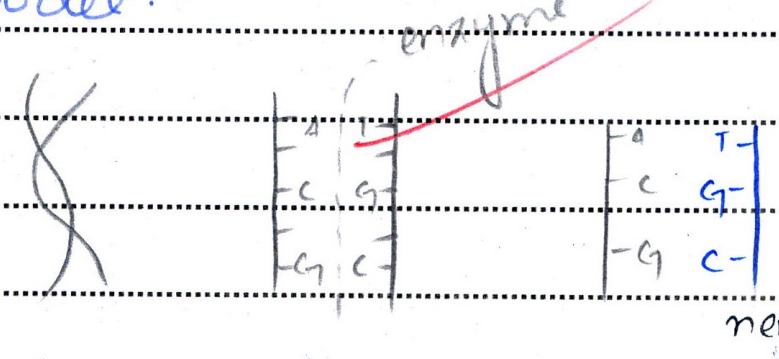
(iv)

ANSWER:

SEMI-CONSERVATIVE MODEL OF DNA:

According to the semi-conservative model, the DNA strand that is double and helical, first become straight and then cut into half by enzymes and now the both strand act as template from which new strands are form.

The replication of DNA occur according to the semi-conservative model.



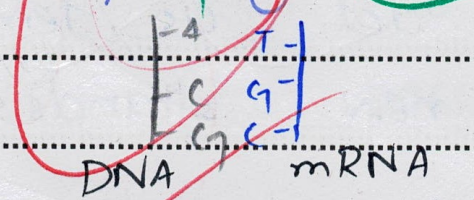
(v)

ANSWER:

TRANSCRIPTION:

"The process in which the sequence of the DNA present in the nucleus is copied by the mRNA for the formation of proteins is known as transcription."

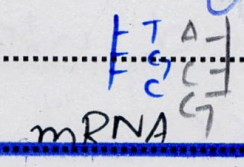
It is the first step of "central Dogma".



TRANSLATION:

"The process in which the sequence of the mRNA, which it copied from DNA, is translated to form proteins is known as translation."

It is the second step of "central Dogma"



(vii)

ANSWER:

DEFORESTATION:

The cutting and destroying of the forests is known as deforestation.

EFFECTS OF ENVIRONMENT:

The effects of deforestation on environment are as follows.

Lack Of Oxygen:

Deforestation results in the lack of oxygen

because plants are the source of oxygen and when there is no plants, there will be lack of oxygen.

Lack Of Shelters:

Forests are the shelters for millions of living organisms, so deforestation results in the lack of shelters.

Infertility:

Deforestation results in the infertility of soil due to the washing away of nutrients, which badly affect the environment

Effect On Natural Beauty:

The nature beauty is due to the forests, and when the

forests are destroyed, the natural beauty of earth is also change.

Climatic Change:

Deforestation has greatly affect the climate. The earth temperature is increasing day by day due to deforestation.

(viii)

ANSWER:

BIOTECHNOLOGY:

The use of living organisms for the welfare of human beings is knowns as biotechnology.

IMPORTANCE:

The importance of

biotechnology can be understand by the following two examples;

INSULINE PRODUCTION:

Insulin is a hormone which is a hypoglycemic agent. Due to some reasons, it is not produce in the body.

By using the bacteria, insulin is produce in large amounts and then the diabetic patients take insulin through injection.

Fermantation:

The fermentation is another good example of biotechnology. Using bacteria, many substances are fermented into

desired products. such as yougert, wine, pickles etc.

(ix)

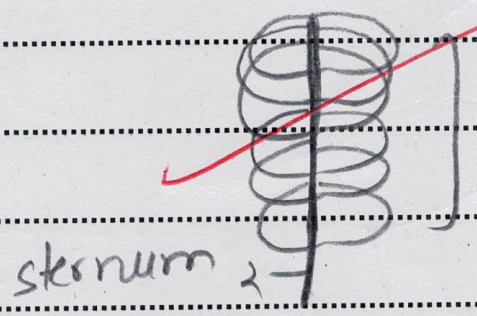
ANSWER:

There are 12 pairs of ribs, which are divided into three types on the basis of its attachment with ribs.

TRUE RIBS:

"The ribs which are directly attach to the sternum are known as true ribs."

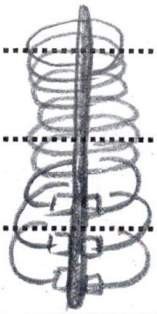
They are 7 in pairs.



FALSE RIBS:

"The ribs which are indirectly attach to the sternum"

- They are 3 pairs.

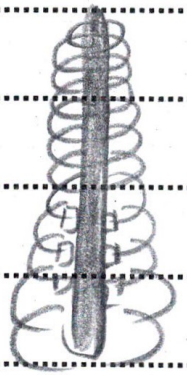


] false ribs.

FLOATING RIBS:

"The ribs which are not attach to the sternum are known as floating ribs"

- They are 2 in pairs.

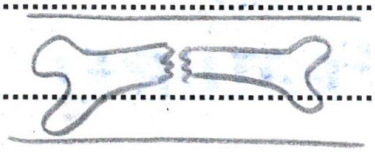
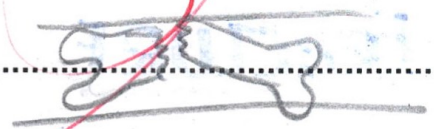


] floating ribs.

(xi)

ANSWER:

SIMPLE FRACTURE	COMPOUD FRATURE:
The fracture in which the bone is broken only is called as the simple fracture	The fracture in which the bone is broken and the bone also penetrates in the skin is called as the compound fracture
Skin is not damage in simple fracture.	Skin is damaged in compound fracture

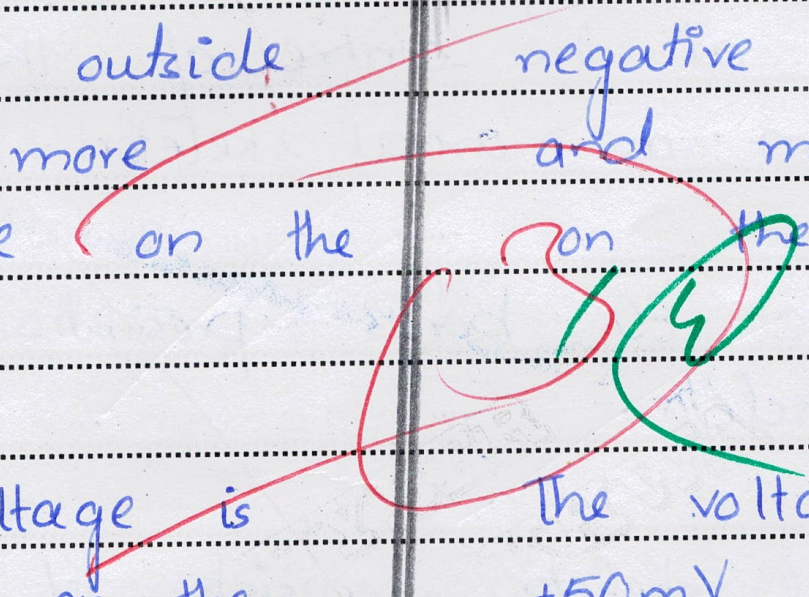
The healing process is quicker	The healing process is slower than the simple fracture
	

(xii)

ANSWER:

RESTING MEMBRAE POTENTIAL	ACTIVE MEMBRANE POTENTIAL
The net difference of positive and negative charges across the non-conding neuron	The net difference of positive and negative charges across the conducting neuron

membrane is known as resting membrane potential.	membrane is known as the active membrane potential.
It is more positive outside and more negative on the inside.	It is more negative outside and more positive on the inside.
The voltage is -70mV on the inside	The voltage is +50mV on the inside.



{SECTION C}

{QUE 5}

ANSWER:

AXIAL SKELETON OF HUMAN:

The skeleton which is present at the centre of the body is known as axial skeleton.

- There are 80 bones present in the axial skeleton.

- The axial skeleton consists of
  - -> skull
  - -> Neck
  - -> Trunk.

SKULL:

The skull provides protection to the brain, forms the facial

features of face.

There are 28 bones in the skull.

The skull consist of ;

1. Cranium
2. Facial bones
3. Ear osicles.

Cranium:

There are 8 bones in the cranium of skull which form the cranial cavity in which bone is present.

- Out of 8 bones ;

Paired Bones :

Parietal and Temporal are paired bones.

Unpaired Bones:

4 bones are unpaired bones i.e;

1. Frontal bone
2. Ethmoid bone.
3. Sphenoid bone.
4. Occipital bone.

Facial Bones:

The facial bones forms the face.

- There are 14 facial bones.

Out of these;

- Paired Bones:

12 bones are paired i.e;

Maxillary bone.
Lacrimal bone.
Palatine bone.
Nasal bone.
Zygomatic bone.
Inferior concha bone.

Unpaired bones:

2 bones are unpaired i.e;

Vomer
Mandible.

EAR OSICLES:

There are three oscilles in each ear. i.e;

Mallius
Incus
Stapes.

NECK:

In neck, there is only one bone i.e hyoid bone.

Hyoid bone is present at the base of skull and is present anteriorly to the trachea.

Present at C-3.

TRUNK:

The trunk consist of vertebraes and ribs.

There are 51 bones present in the trunk.

Vertebrae:

There are 33 vertebrae which forms a long rod in

which the spinal cord is present.

There are 26 bones in the vertebral column.

The 33 vertebrae are;

Cervial:

- There are 7 cervical vertebrae
- In this region, 7 bones are present.

Thoracic:

- There are 12 thoracic vertebrae
- In this region, 12 bones are present.

Lumbur:

5 lumbur vertebrae are

present.

- 5 bones are present.

Sacrum:

- 5 sacral vertebrae are present.

- 4 bones are present.

Coccyx:

- 5 coccyx vertebrae are present.

- 1 bone is present.

RIBS:

There are 12 pairs of ribs.

Out of these ;

True Ribs:

The first "7" are called the true ribs, as they are directly attach to sternum.

False Ribs:

The next "3" are called false ribs, as they are indirectly attach to sternum.

Floating Ribs:

The last "two" ribs are called the floating ribs, as they are not attach to the sternum

{QUE 4}

(a)

ANSWER:

BOMBAY PHENOTYPES:

Introduction:

Bombay phenotypes, blood group was first found in the Bombay. It is a very rare blood group. Only 0.0001% in the world.

Discovered Name = 2.

Defination:

The Bombay blood group have phenotypes O and genotypes A, AB, B.

Explanation:

Bombay phenotype

is the example of epistasis.

Epistasis is the process in which one gene supress the function of other.

The gene for the blood group is present of 9 chromosomes which is the hypostatic gene.

Other gene known as H-gene is the epistatic gene.

H-gene produce H-substance and the blood group gene produce enzyme which is converted by the H-substance into an antigen, which is displayed on the RBC

If the individual have H-gene in heterozygous form, then it will have its normal blood group.

- If individual have H-gene in homozygous form and is recessive then even if the genotypes have A, AB or B, it won't show because there is no H-substance which convert enzyme into antigen and as a result, the phenotype will be O.

(b)

ANSWERS:

APPLICATIONS OF PCR:

The applications of the PCR are as follows;

- PCR is used to make a lot of copies of DNA from a small segment or piece of DNA.

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- It is use for crime investigation
- It is use for medical purposes.
- It is widely use in the identification of pathogens.
- Due to PCR, the study of alot of micro-organism is now easy.

{QUE 6}

(b)

ANSWER:

TRANSPORT OF CO_2 AS BICARBONATE ION:

- About 70% of CO_2 is transported by sodium in the blood
- The CO_2 is produce in excess the body cells from whe they diffuse into the RBCs where it react with H_2O and from carbonic acid with the help of carbonic anhydrase

$$CO_2 + H_2O \longrightarrow H_2CO_3$$

- The carbonic acid is unstable and splits into H^+ and HCO^-_3

$$H_2CO_3 \longrightarrow H^+ + HCO_3^-$$

- The H^+ ion increase the acidity of the blood and combine

with Hb to form Haemoglobinic acid which help in release of O_2.

- The Cl^- ions moves inside and HCO_3^- ions moves outside, this phenomenon is called Hamburger's phenomenon or chloride ion shift.
- The Cl^- combines with K^+ & KCl is formed and Na^+ is combine with HCO_3^- and $NaHCO_3$ is formed.
- When $NaHCO_3$ reaches lungs, the reverse process occurs.

$$NaHCO_3 \longrightarrow Na^+ + HCO_3^-$$

$$HCO_3^- + H^+ \longrightarrow H_2CO_3$$

$$H_2CO_3 \longrightarrow H_2O + CO_2.$$

- In this way, CO_2 is exhale outside.
- The transport also depends upon the PCO_2.

(a)

ANSWER:

INSIGHT LEARNING:

It is the type of learning in which no trial and error is applicable rather the animal uses its insight vision to solve the problem is solved by the animal itself.

EXPLANATION:

- When Chimpanze was placed in an open place and bannanas are attach with the roof of the room.

- The chimparze at first take stick to take bannana, but it can't take it.

- Then the chimpanze used boxes insight and place the boxes on one another.

- Then he climbed on the boxes and break the bannas and eat it.

- In this way, he use insight learnings to take the bannanas.