

SECTION - B

Short Questions:-

Q. NO. 2:-

Answer:-

(i)

Functions of ADH:-

→ ADH stands

for antidiuretic hormone.

→ It is secreted by the posterior pituitary gland.

→ It's function is to conserve water.

Distal convoluted tubules and collecting ducts are impermeable to water.

However when there is deficiency of water the pituitary gland secretes ADH which opens the water channels in distal convoluted tubules and collecting ducts.

Thus more water is reabsorbed.

Function of Oxytocin:-

Oxytocin is secreted from the posterior lobe of pituitary gland.

It performs two main functions.

(1) It helps in parturition. When the baby's head



press the cervical canal
it's a stimulus to
pituitary gland and it
release oxytocin.
when oxytocin reach to
the cervical canal it increase
pressure which is the stimulus
for oxytocin. So more oxytocin
released till the baby is
expelled out of mother
body.

It's another function is
help in lactation of a
lactating women.

Answer: (ix):

→ True ribs

are those ribs that are



directly attach to sternum.

→ These are 7-pairs.

→ False ribs:-

→ False ribs are those ribs that do not attach directly to sternum but indirectly attached to sternum through true ribs.

→ These ribs are attached to true ribs.

→ These are 3-pairs.

→ Floating ribs:-

→ These ribs are also called free ribs.

→ These ribs do not attached to sternum either directly or indirectly.



→ These are attached to intercostal muscles.

→ These are 2-pairs.

→ Answer: $:(xi):$

→ Simple fracture :-

→ Simple fracture of bone referred to bone fracture in which the fracture bone do not penetrate into the skin and there is no damage to blood vessels and nerves.

→ It is also called open fracture.

→ Reduction:-

→ It is reduced

through simple method by
a physician hand without
any surgery.

→ Compound fracture:-

→ Compound fracture is referred to the bone fracture in which the fracture bone penetrates into the skin. There is damage to blood vessels and nerves.

→ Reduction:-

→ Compound fractures are reduced through surgery by inserting pins and wires.

The reduction of compound fracture occurs in four phases:-



- Haematoma formation
- Fibrocartilagenous callus formation
- Bony callus formation
- Remodeling.

→ Answer: (xii):

→ Resting membrane potential:-

→ Resting membrane potential is characterized by positive outside the neuron membrane and negative inside the membrane.

→ In resting membrane potential there is no stimulus and the neuron does not carry any nerve impulse.

→ Resting membrane potential



is achieved by three ways

→ Active movement of Na^+ and K^+ ions across neuron membrane.

→ Passive movement of K^+ outside neuron membrane.

→ Negative charge bearing molecules present inside neuron membrane such as DNA, RNA etc.

→ Active membrane potential

→ Active membrane potential refers to more positive inside the neuron membrane and more negative outside the neuron membrane.

→ Active membrane potential is achieved when there is a threshold stimulus.

→ The active membrane potential is achieved by following



ways:-

→ Na^+ influx:-
 → The K^+ gated closed so that
 K^+ movement outside stop.

SECTION-C

Long Questions

Q.No.3:-

→ Answer:-

Translation:-

→ Translation is
 the second stage of
 protein synthesis.

→ In translation messenger RNA



produced by the transcription is decoded by the ribosome to produce a specific amino acid chain, or polypeptide that will later fold into an active protein.

→ Although translation is a continuous process but for convenience we will discuss it in four phases.

(i) Activation of amino acid:-

→ Activation of amino acid refers to the binding of free amino acids dispersed in cytoplasm.

→ This binding is catalyzed by aminocyl tRNA synthase.
→ Various amino acids continuously activated throughout the process of translation.



→ Formation of initiation Complex:-

→ It is formed by the combination of ribosomal subunits, mRNA and first aminoacyl tRNA complex.

→ First a tRNA molecule binds to the tRNA smaller ribosomal subunit by initiation factor.

→ At the same time 5' end of mRNA also binds to the ribosome with the help of another initiation factor.

→ The region of smaller ribosomal subunit is called P site.

→ Nearby two sites, A site (aminoacyl site) and E site (exit site) are also established.



→ Polypeptide elongation:-

→ In this phase ribosomal units move mRNA, amino acids are brought by tRNA, which are joined together to form a polypeptide chain.

→ This is accomplished by three steps:

→ which ever codon of mRNA is exposed its anticodon bearing aminocyl tRNA complex binds to it with the help of elongation factor.

→ Then peptidyl transferase is emerged which removes the amino acid from tRNA and binds it to the



newly coming amino acid.

→ Then ribosomal subunits slightly move along tRNA is reached at E site, while the other tRNA is shifted from A site to P site, and another codon is exposed to A site.

→ These three steps are repeated again and again until the stop codon is reached at A site.

→ Termination

→ Elongation continues in this fashion until a chain-terminating non-sense codon is exposed at A site.

→ It terminates the process of translation and the polypeptide is released from



the ribosome, and two
ribosomal subunits separate
from the mRNA.

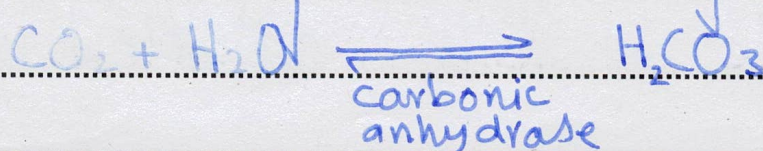
Q.No.6:-

→ Answer:- (b):-

→ Transmission of CO_2
as bicarbonate ion:-

→ 70% of
carbon-dioxid is transported
in blood as bicarbonate
ion.

→ In this process CO_2 travel
in blood and attached
to water to form carbonic
acid in the presence of
carbonic anhydrase enzyme.





- The carbonic acid is very unstable compound and dissociate into H^+ and carbonate ion HCO_3^- .
- The accumulation of H^+ ions in blood causes decrease in pH of blood and the acidity of blood increase.
- However it does not occur as the haemoglobin buffer the H^+ ions produced.
- The H^+ ion react with haemoglobin to form haemoglobinic acid.
- The HCO_3^- (carbonate ions) in the blood diffuse to the plasma and Cl^- ions diffuse from plasma to the RBC, through special protein channels.
- This shifting of Cl^- and

HCO_3^- balance the concentration of ion on either side of RBCs.

→ This chloride and HCO_3^- ion shifting is called Hamburger's phenomenon or chloride shifting.

→ The Cl^- in the RBCs react with Na^+ to form NaCl and the HCO_3^- on the other side of RBC react with

→ Thus the pH of blood is maintained at 7.4.

→ The Partial pressure of CO_2 also effect the transfer of CO_2 .

→ If the partial pressure is high in tissue than lungs the given process occur and if the partial pressure is low in tissue the carbonate

ion dissociate and in lungs
and is released.

→ Q. NO. 5:-

Answer:-

→ Axial skeleton of Human:-

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→ Axial skeleton
present in center.

→ It consist total 126 bones.

→ It comprises of bones of

→ Skull

→ Vertebral column

→ Ribs

→ Sternum.

→ Skull:-

→ Skull contain:-

→ Cranial bones

→ Facial bones

→ Ear bones.



→ Cranial bones:-

are 8-bones that protect the brain

→ There are four unpaired bones of cranial bones

→ Sphenoid bone

→ Occipital bone

→ Frontal bone

→ Ethmoid bone.

→ There are two paired bones of cranial bones

→ Temporal bones

→ Parietal bones

→ Facial bones:-

→ There are 14 bones present in face region.

→ Out of 14 bones 6 are paired and two are unpaired bones.



The paired bones contain:-

- Lacrimal bones
- Inferior nasal concha
- Maxilla → Nasal septum
- Zygomatic bones

The unpaired bones contains

- Maxilla

Ear bones:-

→ There are

three ear bones.

→ All the three bones are paired bones.

→ These are Malleus, incus, stapes.

→ Stapes is one of the shortest bone in the whole body.

Vertebral Column:-

→ The vertebral column consist

of 33 vertebrae which form
26 bones.

→ The vertebral vertebrae are
classified according to its
location:-

→ Cervical vertebrae:-

→ These
vertebrae are found in the
thoracic region.

→ There are seven of thoracic
vertebrae.

→ The Atlas and axis of the
thoracic vertebrae help in neck
movement.

→ Thoracic vertebrae:-

→ These are ribs bearing vertebrae

→ They are twelve in number.

→ Lumbar:-

→ These vertebrae are



found in lambic region and help in bending.
→ These are five in number

→ Sacral vertebrae:-

→ These are found in sacral region of the vertebral column.

→ These are 5 vertebrae and fuse to form 1-bone.

→ Coccyx Vertebrae:-

→ It is present in the end of vertebral column.

→ These are 4 vertebrae and fuse to form 1-bone called coccyxal bone.

→ Sternum:-

→ It is the



chest bone in the thoracic cavity.

→ There are 12-pairs of ribs.

→ The ribs are of three types.

→ True ribs which are directly attach to sternum and are 7 pairs.

→ False ribs which are indirectly attach to sternum and are 3-pairs.

→ Free floating which are not attach to sternum.

→ These are 2-pairs.

→ **Summary of axial bones:**

Vertebral bones → 26 bones

Skull → 28 bones

Ribs → 42 bones + 1 sternum



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SECTION-B

Short Questions

Q. No. 2:-

(Xiii)

24

→ Answer:-

→ Synapse:-

→ Synapse
is the junction between
the axon of one neuron
and dendrites of another
neuron.



- The space between the axon terminals (presynaptic knob) and dendrites (post synaptic knob) is called synaptic cleft.
- Sometimes the nerve impulse is pass with the action potential method but nerve impulses pass from one neuron to another by synapses.
- On the basis of synaptic cleft the synapses are of two types.
 - Electrical synapses
 - chemical synapses

→ Electrical synapses:-

- The synapses in which the synaptic cleft is $0.2 \mu m$.
- In these synapses the impulse pass very fast through ions distribution.



→ Chemical synapses:-

→ Chemical synapses are those synapses in which the synaptic cleft is $2\mu\text{m}$.

→ These are most common.

→ In these the impulse passes in the form of chemicals such as neurotransmitters.

(IV)

→ Answer:-

→ Semi-conservative model:-

→ This model was given by the watson and crick, who also proposed the structure of DNA.

→ According to this model the parent DNA molecule



becomes unwind and lost its base pairs, both strands act as template that allow the formation of new strands. as a result two daughter DNA molecules are formed with one old and one new strand.

→ In this way the new strand are partially conserved in both daughter DNA molecules.

Ques

(X)

→ Answer:-

B x 1

→ Skin as thermoregulatory organ:-

→ Skin perform as the thermoregulatory organ in number of ways.

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CONTINUATION SHEET

Fic. No.

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→ The presence of int fat layer inside the skin in hypodermis prevent the loss of heat.

→ The muscles that erect the hair on the skin cause goosebumps to avoid loss of heat.

→ The sweat glands in the skin start sweating as the internal temperature rises.

→ Thus the skin act as thermoregulatory organ as it produce sweating when temperature rises and if the temperature fall it erect hair muscles so hair stand erect and loss of heat reduced.



(vii)

Answer:-

Effects of deforestation:-

→ Deforestation refers to the removal of trees in excess.

It has very negative effects on the environment.

Some effects are:-

→ It increases global warming.
→ The level of CO_2 rises in the atmosphere.

→ The level of O_2 falls in the atmosphere.

→ The air pollution increases that causes many diseases.



∴ (iii) :-

Answer:-

→ Mendel choose pea plant for his experiment because of the following properties of pea plant:
 → Less area is required to grow pea plants.
 → It grow very quickly.
 → The characteristics that Mendel observe are easily observed in pea plants.

(Viii)

Answer:-

→ BIOTECHNOLOGY:-

Biotechnology is the use of living organisms for the welfare of human.



Example:-

→ There are number of examples. The two examples are genetically modified cows and genetically production of penicillin.

Importance:-

→ Genetically modified cow give us more milk. So that we take the actual amount of nutrients are taken. Penicillin is most commonly use in medical field.



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Section . C

Q.No.6

(a)

Answer:-

Insight behavior-

2

Insight behavior is the type of learning behaviour.

Let's take example.

A man take care of goose. He isolate the geese from mother goose and as the geese before they hatch they first saw the man. He kept these geese.



for some hours.

Then he notice that the geese were following him and were totally avoiding mother goose and other geese.

This type of behavior is known as insight behaviour which is not inborn.

But it is adopted after what he saw - the organism saw in first sight.