DIET KANNUR

STEPS

TIPS AND TECHNIQUES FOR WRITING
STRESS FREE EXAMINATION IN DIFFERENT SUBJECTS

BIOLOGY (English medium)

പ്രിയ അധ്യാപകരേ,

SSLC വിജയശതമാനം മികച്ചതാക്കുന്നതിൽ നമ്മുടെ അധ്യാപകർ നിരന്തര ശ്രമം നടത്തി വരികയാണല്ലോ. അതു കൊണ്ടു തന്നെ മികച്ച വിജയശതമാനം സംസ്ഥാന തലത്തിൽ നേടാൻ നമുക്കാകുന്നുമുണ്ട്. കോവിഡ് 19 മഹാമാരിയുടെ പശ്ചാത്തലത്തിൽ വളരെ പരിമിതമായ ദിവസങ്ങൾ മാത്രമേ ഈ വർഷം ക്ലാസ് റൂം അധ്യയനം സാധ്യമാവുന്നുള്ളൂ. അതുകൊണ്ടുതന്നെ യാതൊരു ആശങ്കകളുമില്ലാതെ ആത്മവിശ്വാസത്തോടെ മുഴുവൻ കുട്ടികളേയും പരീക്ഷയ്ക്ക് പ്രാപ്തരാക്കുക എന്നത് നമ്മുടെ കടമയാണ്.

ഗുണമേന്മയുള്ള വിദ്യാഭ്യാസം കുട്ടികളുടെ അവകാശമാണ് . പഠനത്തിൽ പ്രയാസം അനുഭവിക്കുന്ന കുട്ടികൾക്കും മുഴുവൻ വിഷയങ്ങളിലും **C+ ഗ്രേഡ്** എങ്കിലും നേടുക എന്ന ലക്ഷ്യം വച്ചു കൊണ്ട് ഡയറ്റ് കണ്ണൂരിന്റെയും തലശ്ശേരി വിദ്യാഭ്യാസ ജില്ലയുടെയും നേതൃത്വത്തിൽ തുടക്കം കുറിക്കുന്ന പരിപാടിയാണ് **STEPS (Tips and Techniques for writing stress free examination in different subjects)** ഇതിന്റെ ഭാഗമായി ഓരോ വിഷയത്തിനും ചിട്ടയായ ഒരു പ്രവർത്തന പദ്ധതി രൂപപ്പെടുത്തിയിരിക്കുകയാണ്. പൊതു പരീക്ഷയുടെ ചോദ്യ മാതൃക മുന്നിൽക്കണ്ടു കൊണ്ട് പ്രധാന ഊന്നൽമേഖല കുട്ടികളിൽ ഉറപ്പിക്കാൻ പര്യാപ്തമായ രീതിയിലാണ് ഇത് ചിട്ടപ്പെടുത്തിയിരിക്കുന്നത്. ഈ പ്രവർത്തന പദ്ധതി ക്ലാസ് റൂമിൽ പരമാവധി പ്രയോജനപ്പെടുത്താൻ കഴിയട്ടെ. എല്ലാ വിദ്യാർത്ഥികളേയും ഉന്നത വിജയത്തിലേക്ക് നമുക്ക് നയിക്കാം.

സ്നേഹപൂർവ്വം

പാലയാട് ഡി ഇ ഒ തലശ്ശേരി പ്രിൻസിപ്പാൾ,
25-01-2021 ഡയറ്റ് കണ്ണൂർ

BIOLOGY STEPS Material

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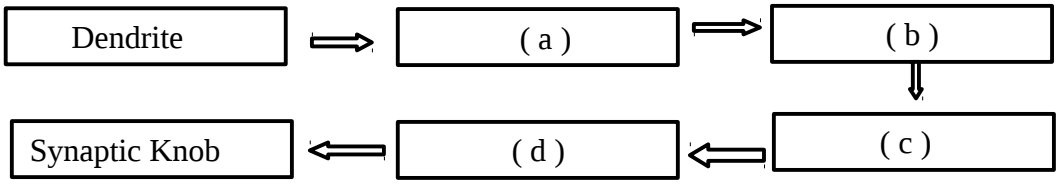
Lesson 1 : SENSATIONS AND RESPONSES

Structure of Neuron - Page 9 Illustration 1.2

Study the parts of neuron : Dendrite - Dendron - Cell body - Axon- Axonite – Synaptic knob from illustration 1.2

Question Model :-

1) Complete the flow chart showing the path of impulses through a Neuron (2 Score)

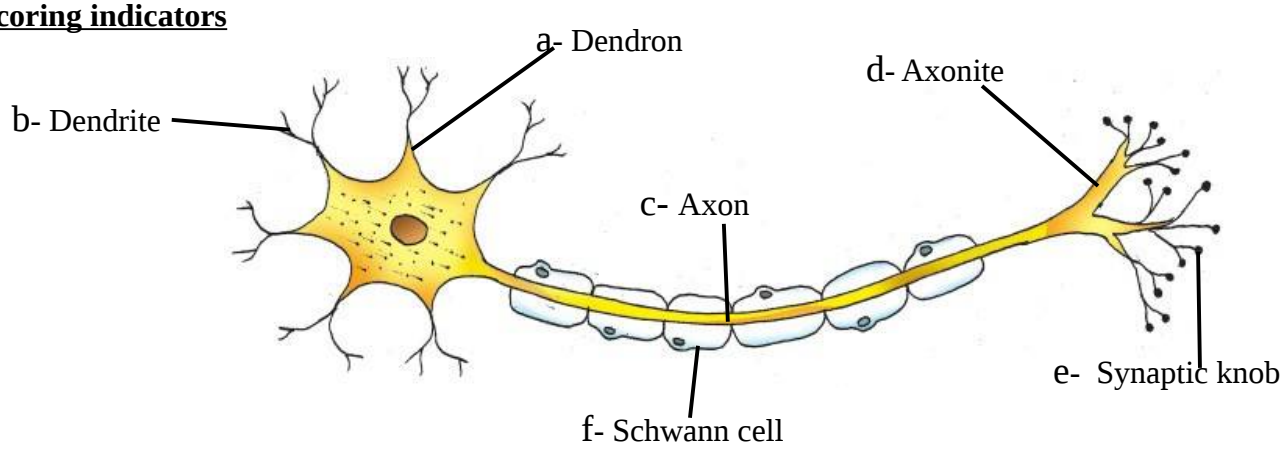


Scoring indicators (a) Dendron (b) Cell body (c) Axon (d) Axonite

2) Redraw the figure and label the following parts, by writing their names

a) Short filament from the cell body.
b) Part that receives impulses from adjacent neuron.
c) Part which carries impulses from the cell body to outside.
d) Carries impulses to the synaptic knob. **or** Branches of axon.
e) Part which secretes neurotransmitter. **or** Tip of axonite.
f) Cell which encircles the axon.

Scoring indicators



Page: 12 Table 1.1 Nerves and their functions (3 Score)

3) Rearrange Column **A** with Column **B** according to the functions of different types of nerves

A	B
Nerve	Function
Sensory nerve	carries impulses from brain and spinal cord to various parts of the body.
Motor nerve	carries impulses to and from the brain and spinal cord.
Mixed Nerve	carries impulses from various parts of the body to the brain and the spinal cord.

Scoring Indicators

A	B
Nerve	Function
Sensory nerve	carries impulses from various parts of the body to the brain and the spinal cord.
Motor nerve	carries impulses from brain and spinal cord to various parts of the body.
Mixed Nerve	carries impulses to and from the brain and spinal cord.

Page: 14 Illustration 1.7 Structure and function of the brain

4) Redraw the figure and label the following parts, by writing their names

(a)
* The largest part of the brain.
* Centre of thought, intelligence, memory and imagination.
* Part which evokes sensations.
* Part which controls voluntary movements.

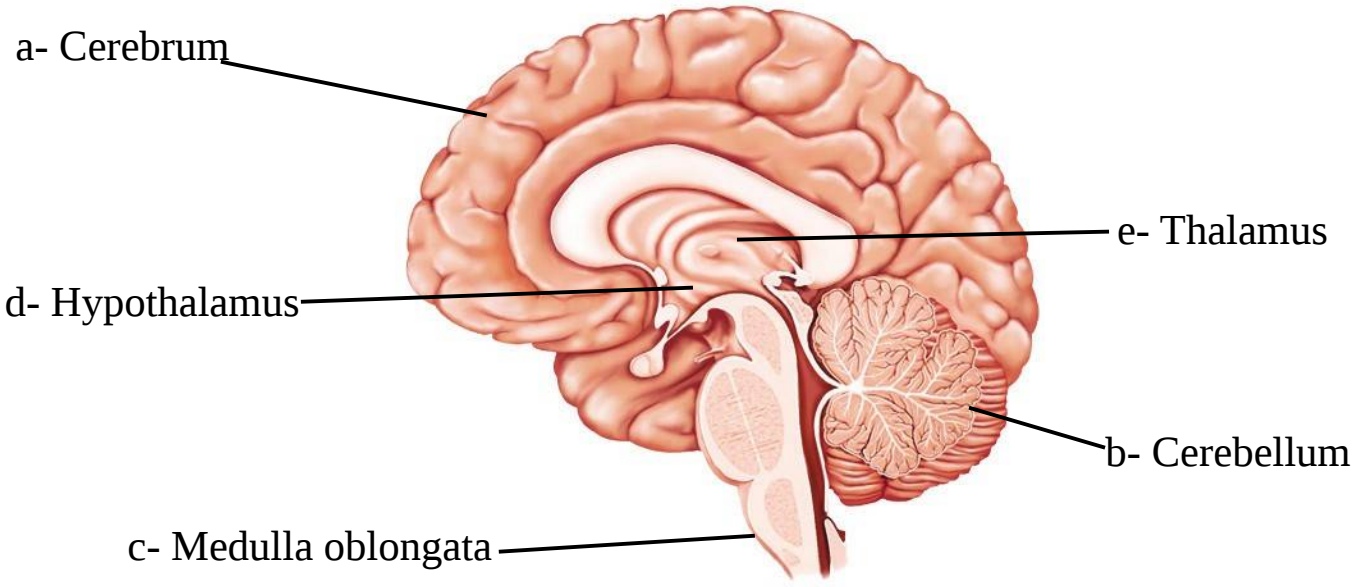
(b) Part which co-ordinates muscular activities and maintains equilibrium of the body.

(c) Part which controls involuntary actions like heart beat, breathing etc.

(d)
* Part which plays a major role in the maintenance of homeostasis.
* Part which is situated just below the thalamus

(e) Part which acts as relay station of impulses

Scoring Indicators :-



Page: 19 Table 1.3 Nervous System and its Disorders

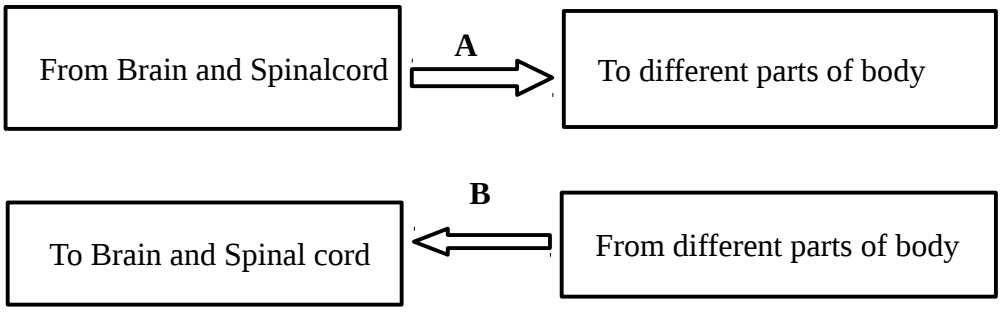
5) Complete the following table, related to neural disorders (3 Score)

Disease	Reason	Symptoms
Alzheimer's	**A**	**B**
C	* Destruction of specialised ganglions in the brain. * Production of dopamine gets reduced.	**D**
E	Continuous and irregular flow of electric charges in the brain.	**F**

Scoring Indicators :-

Disease	Reason	Symptoms
Alzheimer's	Due to the accumulation of an insoluble protein brain and Neurons get destroyed.	Loss of memory
Parkinsons	* Destruction of specialised ganglions in the brain. * Production of dopamine gets reduced.	* irregular movement of muscles * shivering of the body
Epilepsy	Continuous and irregular flow of electric charges in the brain.	*frothy discharge from the mouth * clenching of the teeth * patient falls unconscious.

6) (2 Score)



(a) Identify the nerves A and B

Scoring Indicators :-

A - Motor nerve B- Sensory nerve

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LESSON 2 : WINDOWS OF KNOWLEDGE

Page : 22 Illustration 2.1 Structure of Eye

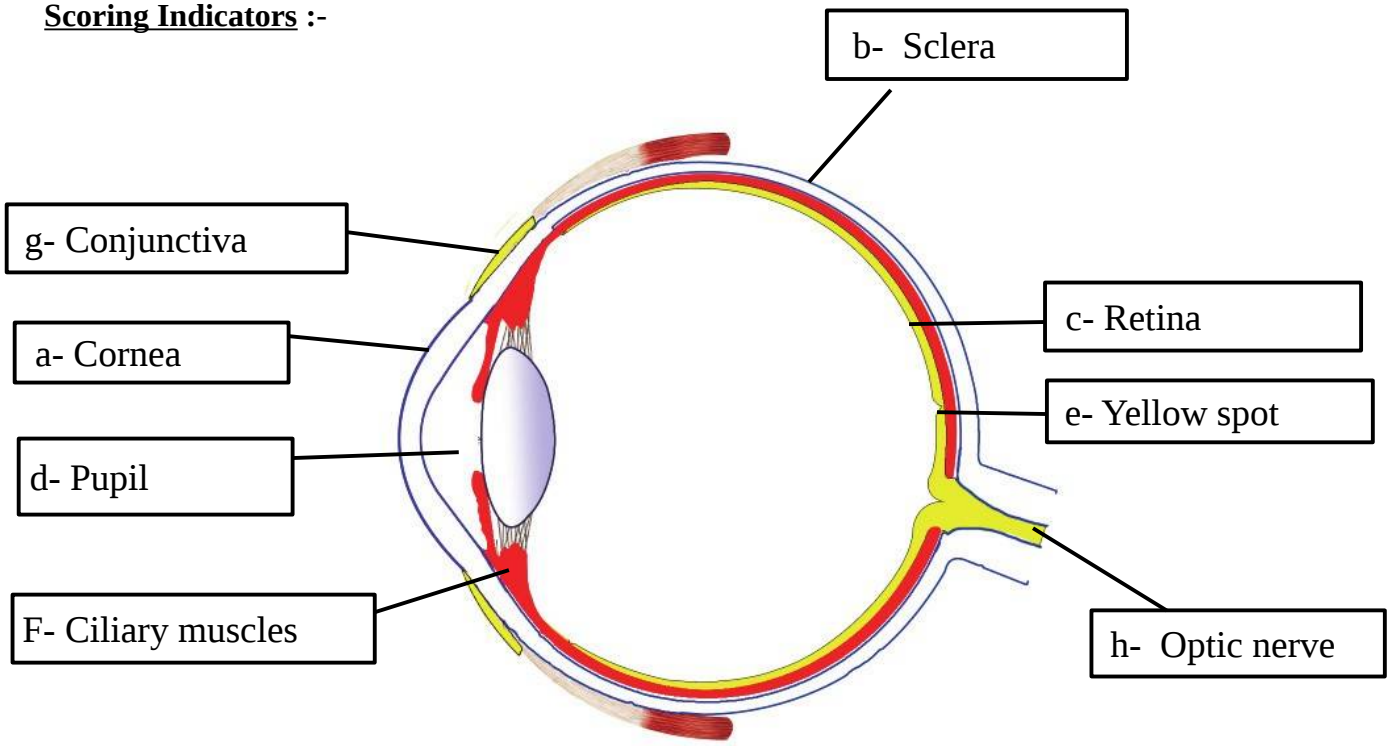
1) Redraw the figure of Eye and label the following parts by writing their name

a) The projected transparent anterior part of the sclera
b) The white outer layer which gives firmness to the eye
c) The inner layer which has photo receptors.

d)
* The aperture seen at the centre of the iris.
* Aperture which automatically regulate its size according to the intensity of light

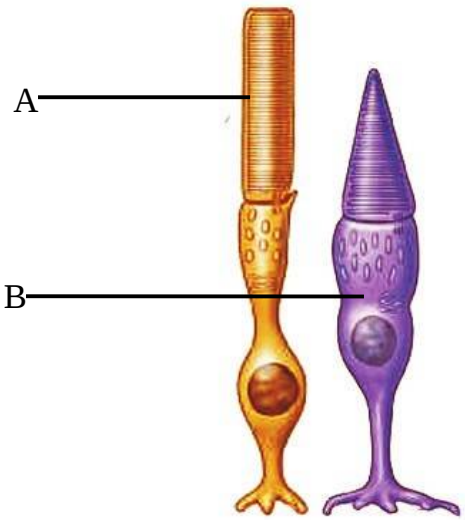
e) The part of the retina where plenty of photo receptors are present.
f) Muscles which alter the curvature of lens. **or** Circular muscles seen around the lens
g) The layer which covers and protects the front part of sclera except the cornea.
h) Transmits impulses from photo receptors to the visual centre in the brain.

Scoring Indicators :-



Page : 26 Figure 2.4 Rod cell and Cone Cells

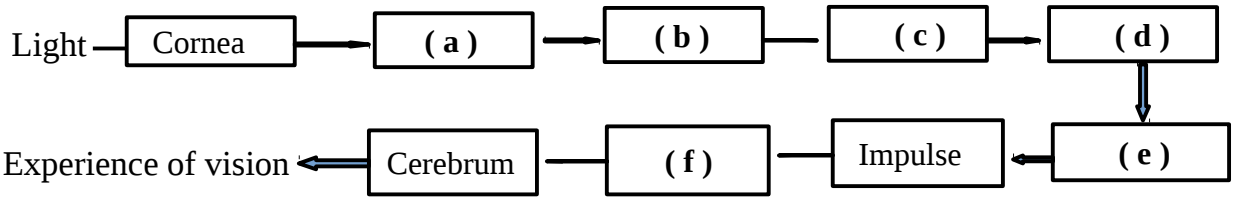
2) a) Identify A and B (3 Score)
b) Write the pigments present in A and B
c) Which cell among these helps in dim light vision ?
d) Which cell among these helps in coloured vision ?



Scoring Indicators :-

a) A- Rod cell B- Cone cell
b) A - Rhodopsin B- Photopsin **or** Iodopsin
c) Rod Cell (**A**) (d) Cone cell (**B**)

3) Complete the following Flow Chart related to vision (3 Score)

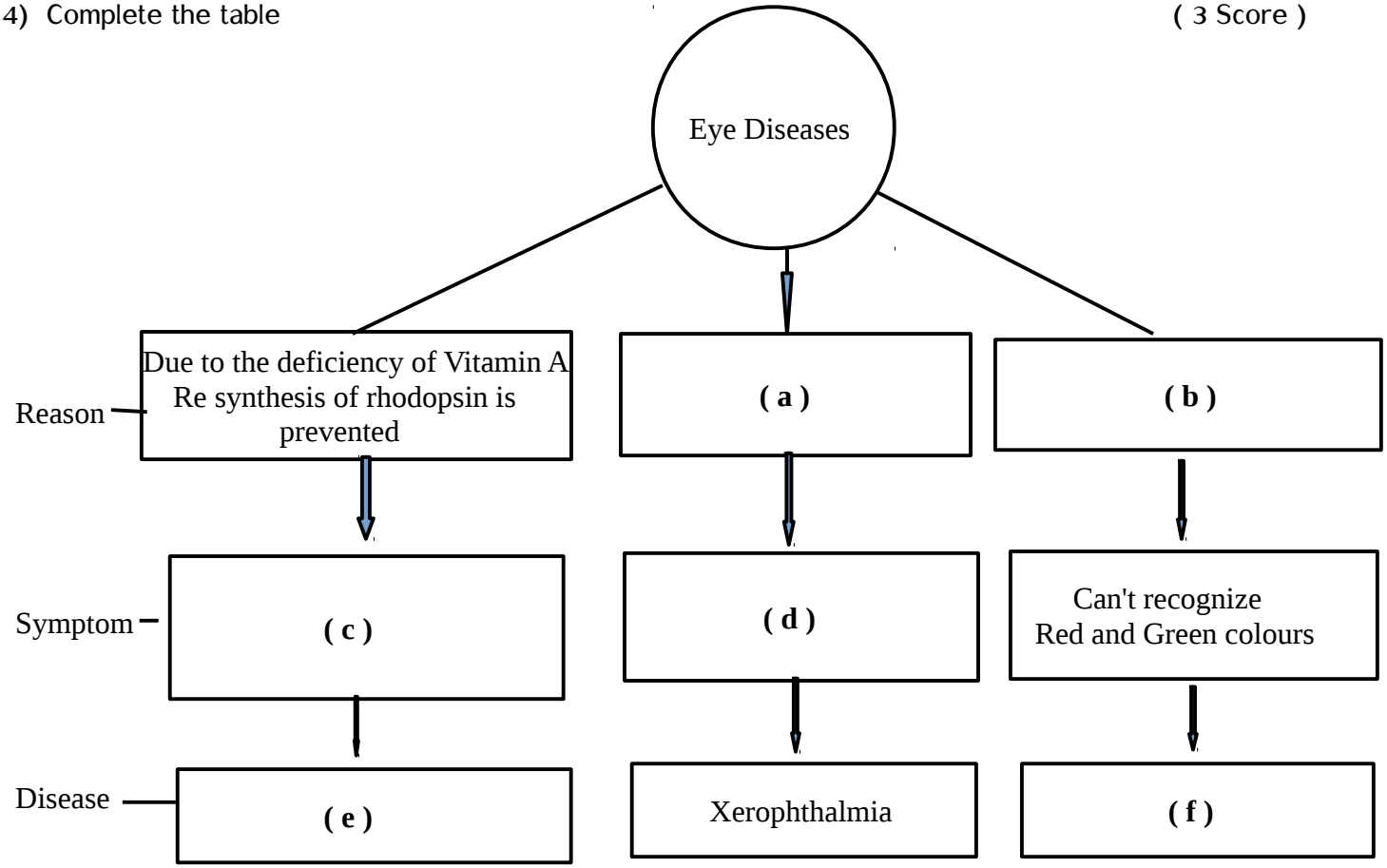


Scoring Indicators :-

(a) Aqueous humor (b) Pupil (c) Lens (d) Vitreous humor (e) Retina (f) Optic nerve

Page : 28 Eye – Defects and Diseases

4) Complete the table (3 Score)



Scoring Indicators :-

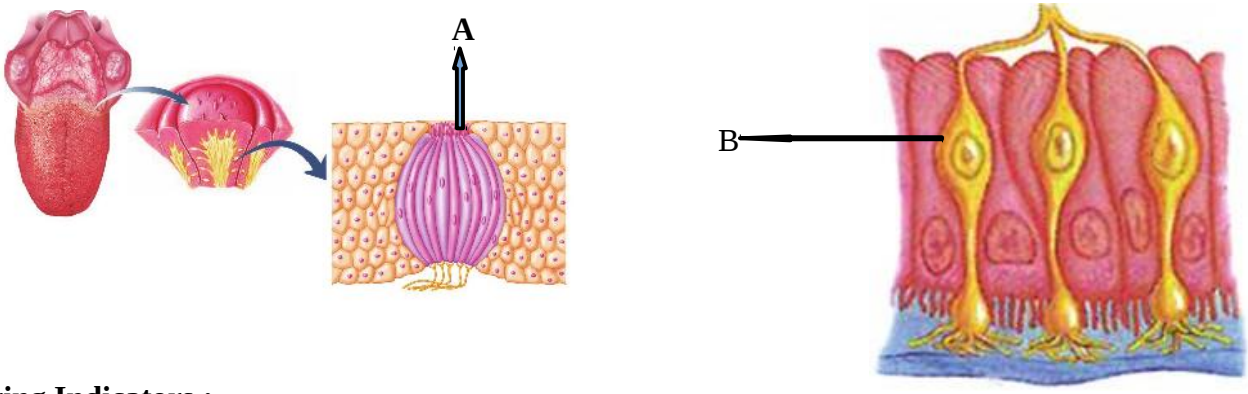
(a) Prolonged deficiency of Vitamin A (b) Genetic defect of Cone cells
(c) Objects cannot be seen clearly in dim light
(d) The conjunctiva and cornea become dry and opaque which leads ultimately to blindness
(e) Night blindness (f) Colour blindness

5) Persons with colour blindness are not selected for military or for jobs like that of a driver, pilot etc
What may be the reason ? (2 Score)

Scoring Indicators :-

Due to the defect of cone cells these persons can't recognize Red and Green colours.
So they can't recognize traffic signal lights, Red and Green .

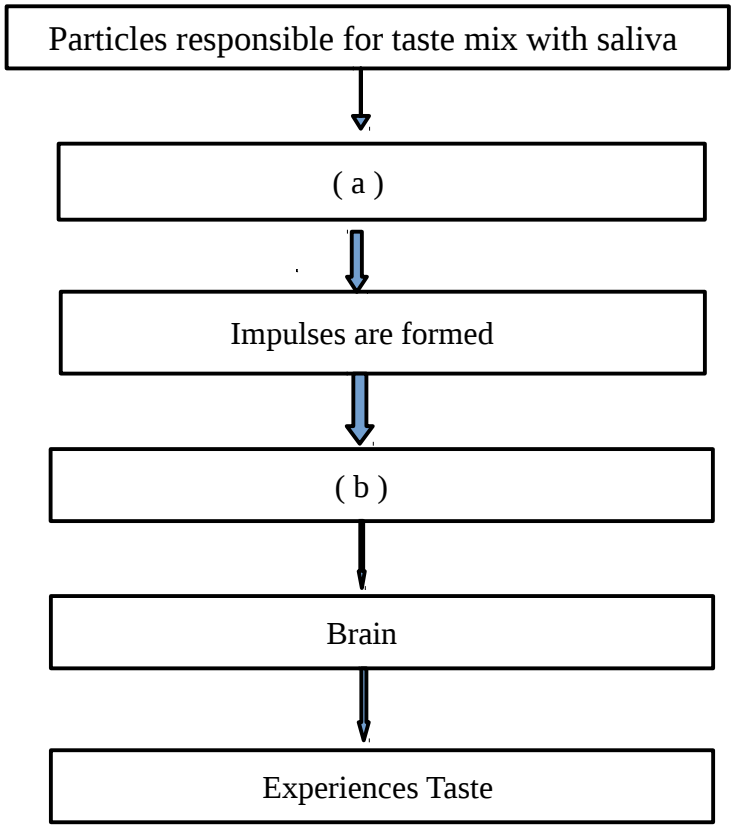
6) Identify **A** and **B** in the following figure (2 Score)



Scoring Indicators :-

A - Taste bud B- Olfactory receptor

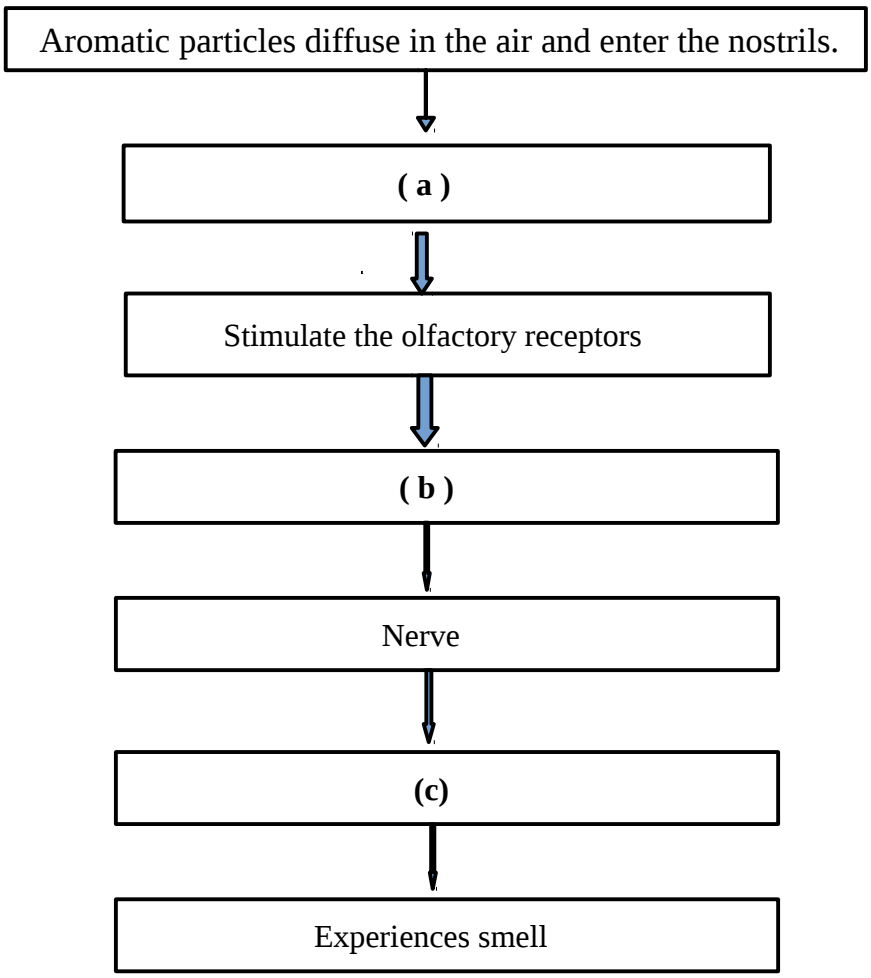
7) Complete the flow chart related to taste (2 Score)



Scoring Indicators :-

(a) chemoreceptors are activated (b) Nerve

8) Complete the flow chart related to Smell (2 Score)



Scoring Indicators :-

(a) Aromatic particles dissolve in the mucus inside the nostrils. (b) Impulses are formed
(c) Brain

9) Rod cells : Rhodopsin , Cone cells : ..... (1 Score)

Scoring Indicators :-

Photopsin (Iodopsin)

10) what is the reason for the diversity in Cone cells ? (1 Score)

Scoring Indicators :-

Difference in amino acids in the opsin molecule

11) Which is the point of maximum visual clarity in the Retina ? (1 Score)

Scoring Indicators :-

Yellow spot

12) Layer which give firmness to the eye : Sclera, Layer which has photoreceptors : ..... (1 Score)

Scoring Indicators :-

Retina

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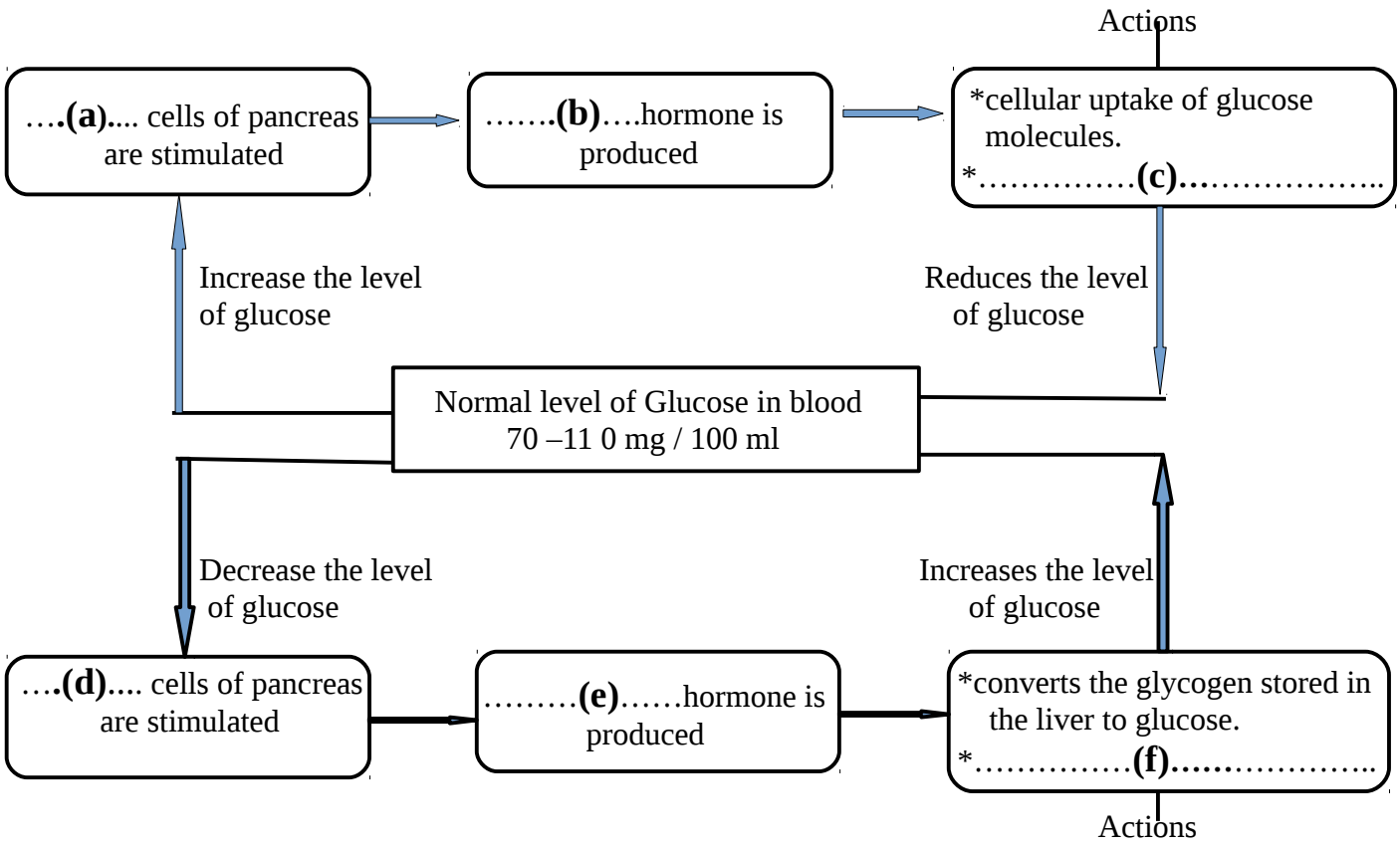
LESSON 3 : CHEMICAL MESSAGES FOR HOMEOSTASIS

(3 score)

1) Complete the illustration related to the method of regulation of blood glucose level



Scoring Indicators :-

(a) Beta **(b)** Insulin **(c)** converts glucose into glycogen in the liver and muscles.

(d) Alpha **(e)** Glucagon **(f)** synthesizes glucose from amino acids.

2) In a person, level of glucose before breakfast is seen above 126mg/100ml of blood. (3 Score)

a) Name the disease of this person ?
b) What are the reasons for this disease ?
c) What are the symptoms of this disease ?

Scoring Indicators :-

a) Diabetes

b) * Decreased production of insulin due to the destruction of beta cells
* Inability of cells to utilize the insulin produced

c) * Increased appetite and thirst
* Frequent urination

3) Which hormones are responsible for maintaining normal Calcium level in blood ? (1 Score)

Scoring Indicators :-

Calcitonin, Parathormone

4) Complete the following table related to Somatotropin (3 Score)

Condition	Reason	Symptoms
Gigantism.	**A**	**B**
C	Production of Somatotropin decreases during the growth phase	**D**
E	**F**	Growth of the bones on the face, jaws and fingers.

Scoring Indicators :-

Condition	Reason	Symptoms
Gigantism.	Somatotropin increases during the growth phase	Excessive growth of the body
Dwarfism	Production of Somatotropin decreases during the growth phase	Stunted growth
Acromegaly	Excessive production of Somatotropin after the growth phase	Growth of the bones on the face, jaws and fingers.

5) Certain organisms produce chemical substances to the surroundings (3 Score)

a) Write the name of this chemical substances
b) What are the uses of them ?
c) Give two examples for these substances

Scoring Indicators :-

a) Pheromones

b) * To attract mates
* Informing the availability of food
* Determining the path of travel
* Signalling dangers (**Any Two**)

c) * Muscone in the musk deer
* Civeton in the civet cat
* Bombykol in the female silk worm moth **(Any Two)**

6) Complete the table related to functions of Plant hormones (2 Score)

Plant Hormone	Functions
A	Stimulates break down of stored food to facilitate germination,Sprouting of leaves
Auxin	**B**
C	Cell division, Cell differentiation.
D	* Dormancy of embryo, * Dropping of ripened leaves and fruits.
Ethylene	Ripening of leaves and fruits

Scoring Indicators :-

Plant Hormone	Functions
Gibberellin	Stimulates break down of stored food to facilitate germination,Sprouting of leaves
Auxin	* Cell growth, cell elongation, * Promoting the growth of terminal buds, * Fruit formation.
Cytokinin	Cell division, Cell differentiation.
Abscisic acid	* Dormancy of embryo, * Dropping of ripened leaves and fruits.
Ethylene	Ripening of leaves and fruits

7) Plant hormone in Gaseous form (1 Score)

Scoring Indicator ;

Ethylene

8) Calcitonin : Thyroid gland , Parathormone : ……. (1 Score)

Scoring Indicator ;

Parathyroid gland

9) Chemical substances which help honey bees and termites to live in colonies. (1 Score)

Scoring Indicator ;

Pheromones

10) Find the odd one and write the common feature of others (1 Score)

Muscone , Insulin, Civeton , Bombykol

Scoring Indicator ;

Insulin , Others are Pheromones

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Lesson 4. KEEPING DISEASES AWAY

1. Complete the table Score -2

Disease	Causative orgaanism	Symptoms
Tuberculosis	**A.**	Weight loss , Fatigue , Persistent cough.
Malaria	Protozoa (Plasmodium)	**B.**

Scoring Indicators ;

A. Mycobacterium tuberculosis**.** (Bacteria)

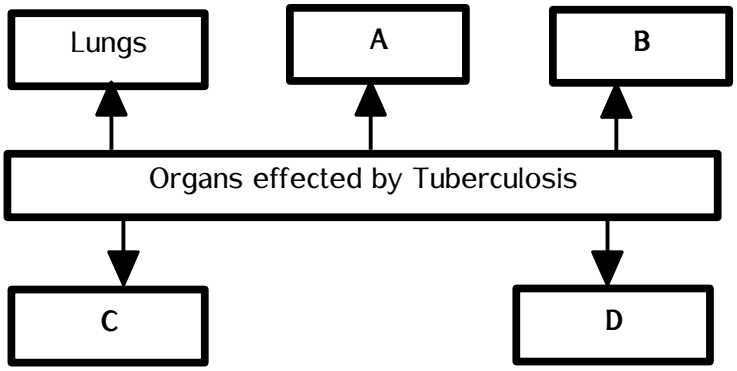
B. High fever with shivering , Profuse sweating, Headache, Vomitting, Diarrhoea, Anaemia

2. How did Tuberculosis transmitted from patient to another person ? Score -2

Scoring Indicators :

When the patient speaks, coughs or sneezes, the pathogens spread into the air and there by to others.

3. Complete table related to the organs, which are effected by Tuberculosis Score -2



Scoring Indicators :

A. Kidneys, **B.** Bones, **C.** Joints, **D.** Brain

4. Vaccine against Tuberculosis Score - 1

Scoring Indicators :

BCG

5. Causative organism (pathogen) of AIDS Score - 1

Scoring Indicators :

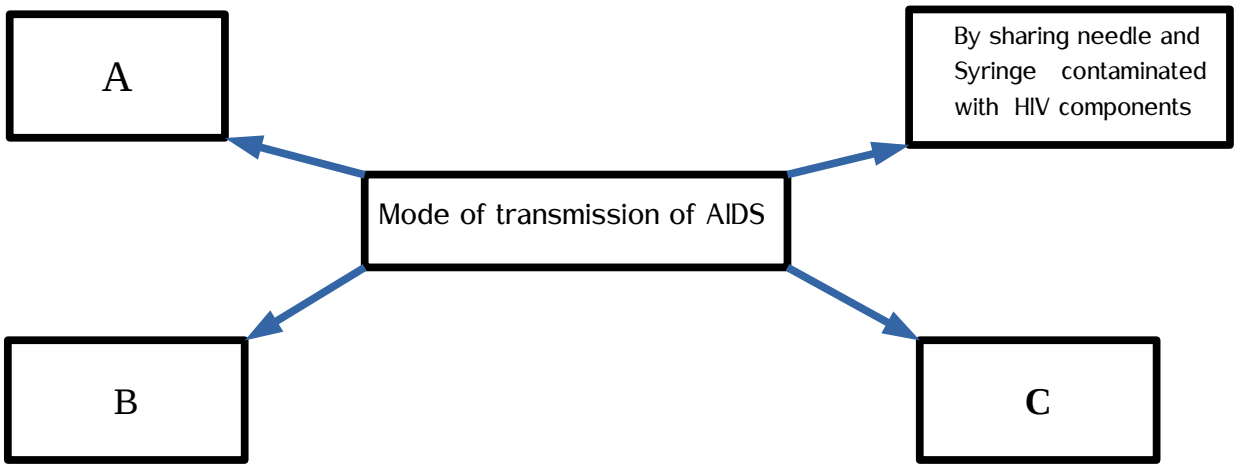
HIV (Human Immuno deficiency Virus)

6. How does HIV multiplies in the host ? Score - 2

Scoring Indicators :

When HIV enters the body , it multiplies using the genetic mechanism of lymphocytes

7. Complete the Illustration ? Score - 3



Scoring Indicators :

A) Through sexual contact with HIV infected person .

B) From HIV infected mother to the foetus

C) Through the reception of blood and organs contaminated with HIV.

8. Should we be scared of AIDS patients ? What should be our attitude towards them ? Score -3

Scoring Indicators :

Don't scare AIDS patients. Scare the disease and keep away from the situations through which AIDS spread

* AIDS will not spread by touch, shaking hands, coughing, sneezing etc
* It will not spread through insects like mosquitoes, houseflies etc.
* It will not spread by by staying together and sharing food
* It will not spread by using the same toilet or by taking bath in the same pond.

9) What make the condition of AIDS even more fatal.? Score -2

Scoring Indicators :

HIV, multiplies using the genetic mechanism of lymphocytes. Hence the number of lymphocytes decreases considerably and reduces the immunity of the body. Various other pathogens which enter the body make the condition more fatal

10 . Name the causative organism of Malaria. How does it spread ? Score -2

Scoring Indicators : .

Causative organism of Malaria is Protozoa (Plasmodium)

It spreads through the vector of the pathogen Female Anopheles mosquito.

11. What is Haemophilia ? What is the reason for this disease ? What is the remedy for this disease ?

Scoring Indicators : . Score -3

Haemophilia is the condition in which excess blood is lost even through minor wounds.

Reason.

Genes that control the synthesis of a protein needed for blood clotting become defective

Remedy

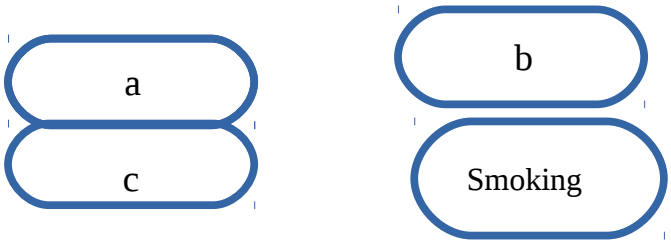
No complete cure for this disease. Temporary relief can be given by identifying and injecting the deficient protein in patients .

12. What is cancer ? How do Normal cells become Cancerous cells ?

Scoring Indicators : .

Cancer is caused by the uncontrolled division of cells and their spread to other tissues. The normal cells get transformed into cancerous cells when the control system of cell division fails.

13. Complete the boxes related to the factors responsible for Cancer Score -3



Scoring Indicators : .

* Environmental factors
* Radiations
* Virus
* Hereditary factors **(Any Three)**

14. Which are the treatment methods of Cancer ? Score -2

Scoring Indicators : .

Surgery, Chemotherapy, Radiation therapy

15. Early diagnosis of the disease is crucial in the treatment of cancer. Substantiate this statement

Score -1

Scoring Indicators :

This statement is correct. Recovery from Cancer is difficult if the disease becomes severe.

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LESSON : 5 SOLDIERS OF DEFENSE

1) " Skin is the protective covering of the body. It is a safety shield that prevents the entry of germs."
List out the peculiarities of Skin to prevent germs (Score 3)

Scoring Indicators :

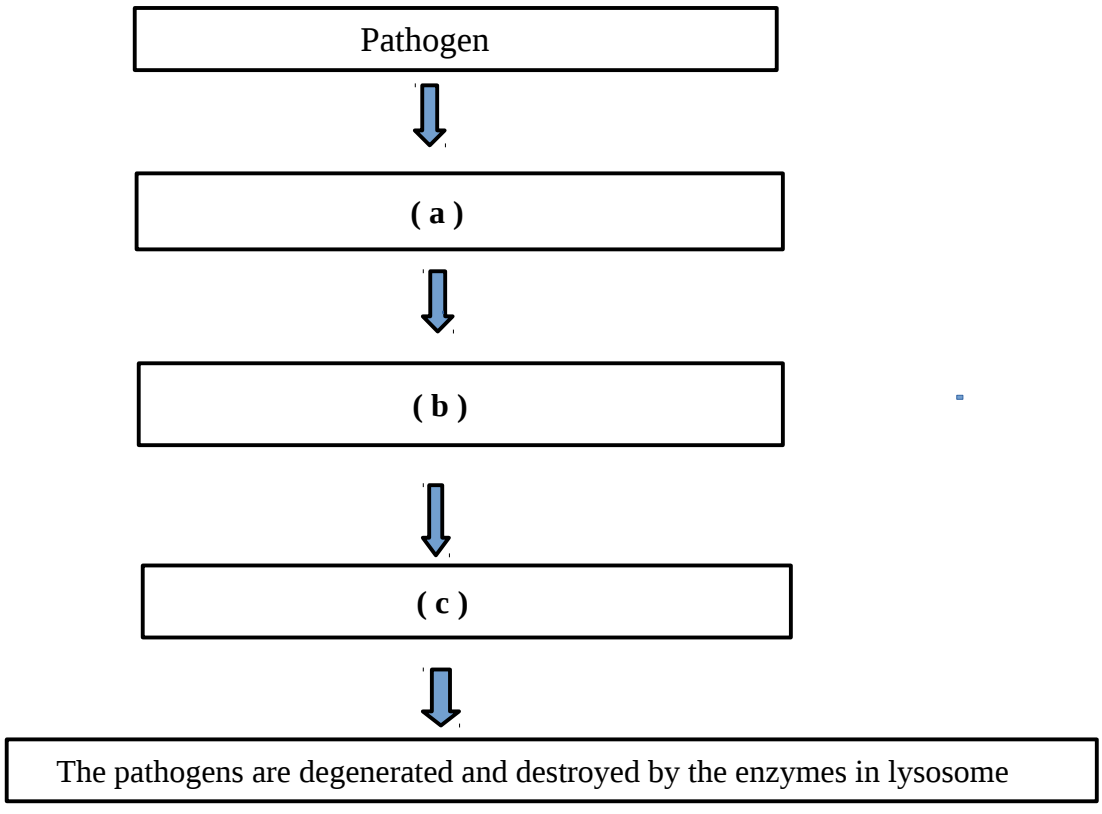
* Epidermis : A protein called keratin prevents the entry of germs.
* Sebaceous gland : Sebum produced by the gland makes the skin oily and water proof.
* Sweat gland : The disinfectants present in the sweat destroys the germs.

2) Complete the table showing the body parts and the body secretions produced in them. (Score 3)

Scoring Indicators :

Body parts	Body Secretions
Ear	Ear wax
Eye	Lysozyme in tears
Mouth	Lysozyme in saliva
Nose	Mucus
Trachea	Mucus
Stomach	HCl

3) Complete the flow chart related to Phagocytosis (Score 3)



Scoring Indicators :

(a) Engulfs pathogen in the membrane sac.
(b) Lysosome
(c) Lysosome combines with membrane sac.

4) " Invention of Covid vaccine " New hopes in the world (Score 3)

(a) What are Vaccines ?
(b) Name any two components of vaccines
(c) How do vaccines act ?

Scoring Indicators :

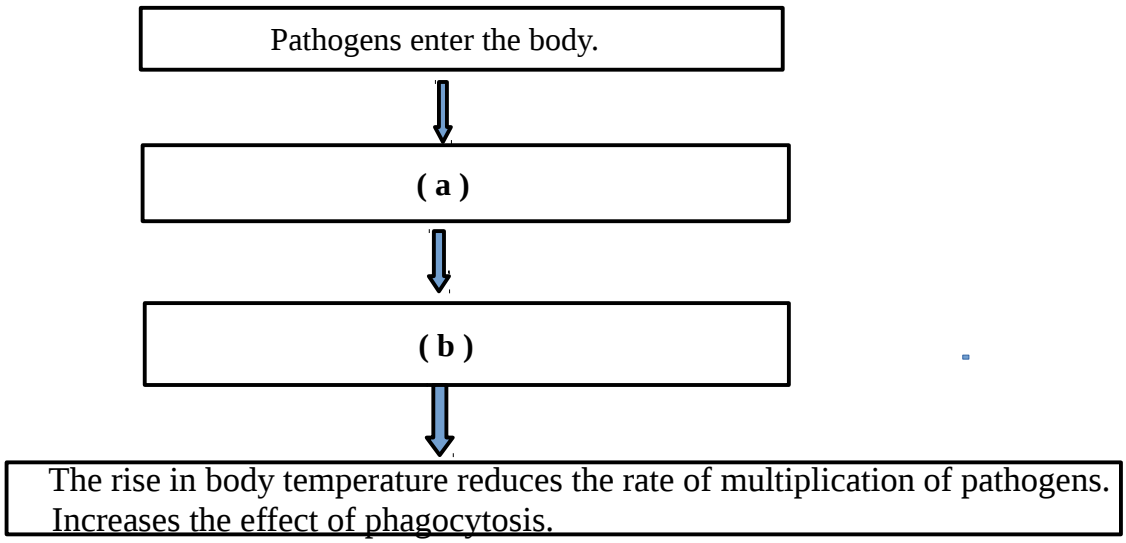
(a)Vaccines are the substances used for artificial immunization.
(b) * Alive germs
* Dead germs
* Neutralised germs
* Neutralised toxins
* Cellular parts of the pathogens (**Any Two**)
(c) Vaccines act as antigens that stimulate the defense mechanism of the body. Antibodies are formed in the body and they protects the body from the pathogen responsible for the same disease in future

5) Write the names of the diseases in which following vaccines are used ? (Score 3)

(a) BCG : ……
(b) OPV : ……
(c) T T : …….

Scoring Indicators : (a) Tuberculosis (b) Polio (c) Tetanus

6) Complete the flow chart related to fever (Score 3)



Scoring Indicators :

(a) The presence of toxins produced by the pathogens stimulates the white blood cells.
(b) The chemical substances produced by the white blood cells raises the body temperature.

7) Penicillin is the first Antibiotic (Score 3)

(a) Name the scientist who discovered penicillin ?

(b) What are Antibiotics ?

(c) What are the side effects of their regular use ?

Scoring Indicators :

(a) Alexander Fleming

(b) Medicines that are extracted from microorganisms like bacteria, fungi, etc. they are used to destroy bacteria .

(c) * Regular use develops immunity in pathogens against antibiotics.
* Destroys useful bacteria in the body.
* Reduces the quantity of some vitamins in the body. (Any Two)

8) Complete the table related toBlood groups , Antigen and Antibody (Score 3)

Blood groups	Antigens	Antibodies
(i)	**A**	(ii)
AB	(iii)	(iv)
B	(v)	**a**
O	(vi)	**a and b**

Scoring Indicators :

(i) A (ii) b (iii) A and B (iv) Nil (v) B (vi) Nil

9) " Everyone cannot receive blood from all blood groups " Write your opinion about this statement . (Score 3)

Scoring Indicators : :

I agree with this statement. On receiving unmatching blood, the antigen present in the donor's blood and the antibody present in the recipient's blood will react with each other and form a blood clot

10) "Blood donation Life donation" What are the things we should take care of while donating blood (Score 3)

Scoring Indicators :

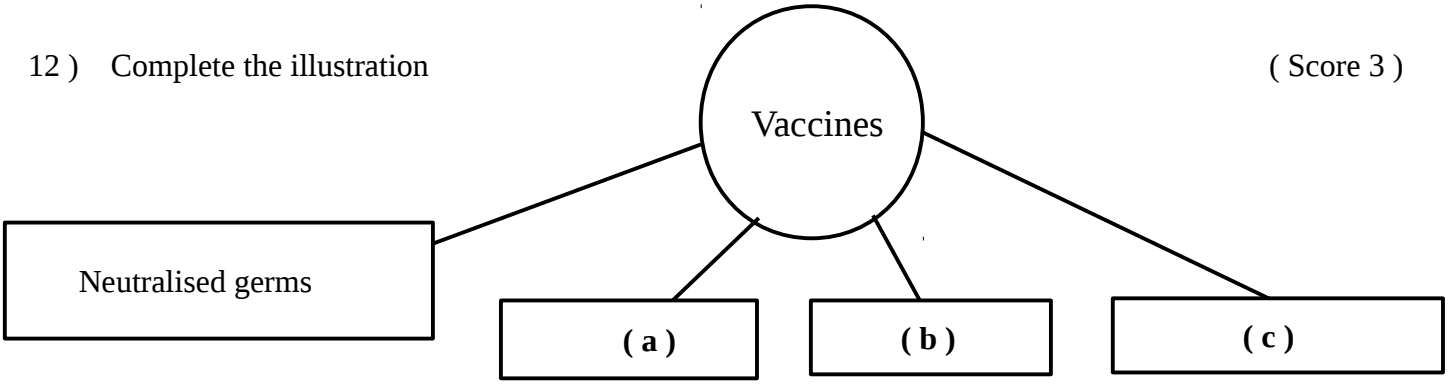
* People must be in the age group of 18-60 .
* Blood donation can be done once in three months.
* Pregnant women and breast feeding mothers should not donate blood.
* Persons with communicable diseases (transmitted through blood) should not donate blood. (**Any Three**)

11) " Phagocytosis is a defense mechanism" Write the names of two White blood cells which act as Phagocytes

Scoring Indicators : (Score 1)

Monocytes and Neutrophils

12) Complete the illustration (Score 3)



Scoring Indicators :

(a) Alive germs (b) Neutralised toxins (c) Cellular parts of pathogens

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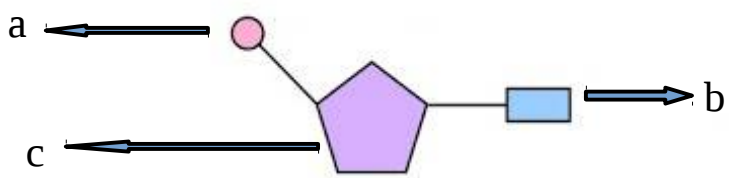
LESSON 6 : UNRAVELLING GENETIC MYSTERIES

1)



(i) Identify this Figure (Score 4)

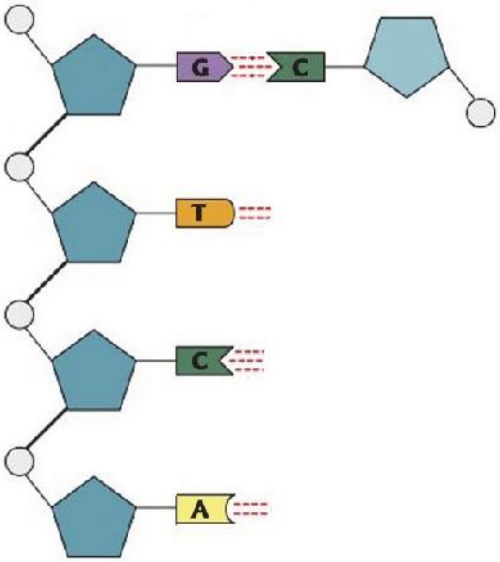
(ii) Identify a,b and c

Scoring Indicators :

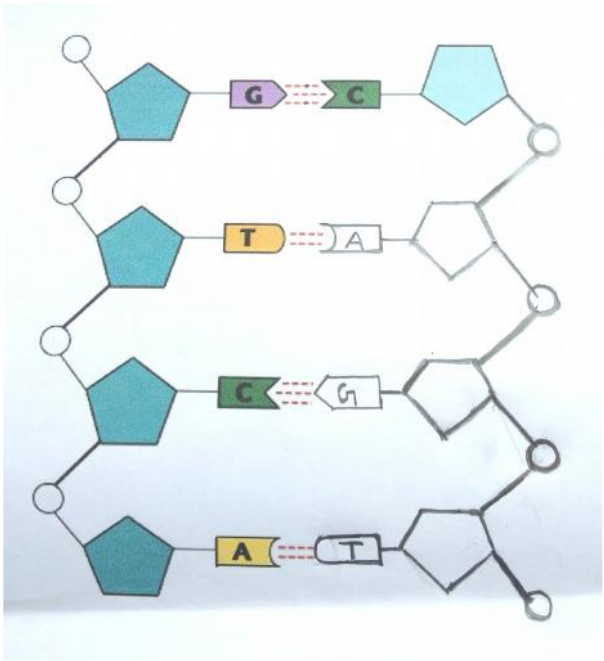
(i) Nucleotide

(ii) **a)** Phosphate **(b)** Nitrogen base **(c)** Sugar molecule

2) Re-draw the figure by adding second strand of DNA (Score 3)



Scoring Indicator



3) Complete the table related to DNA and RNA (Score 3)

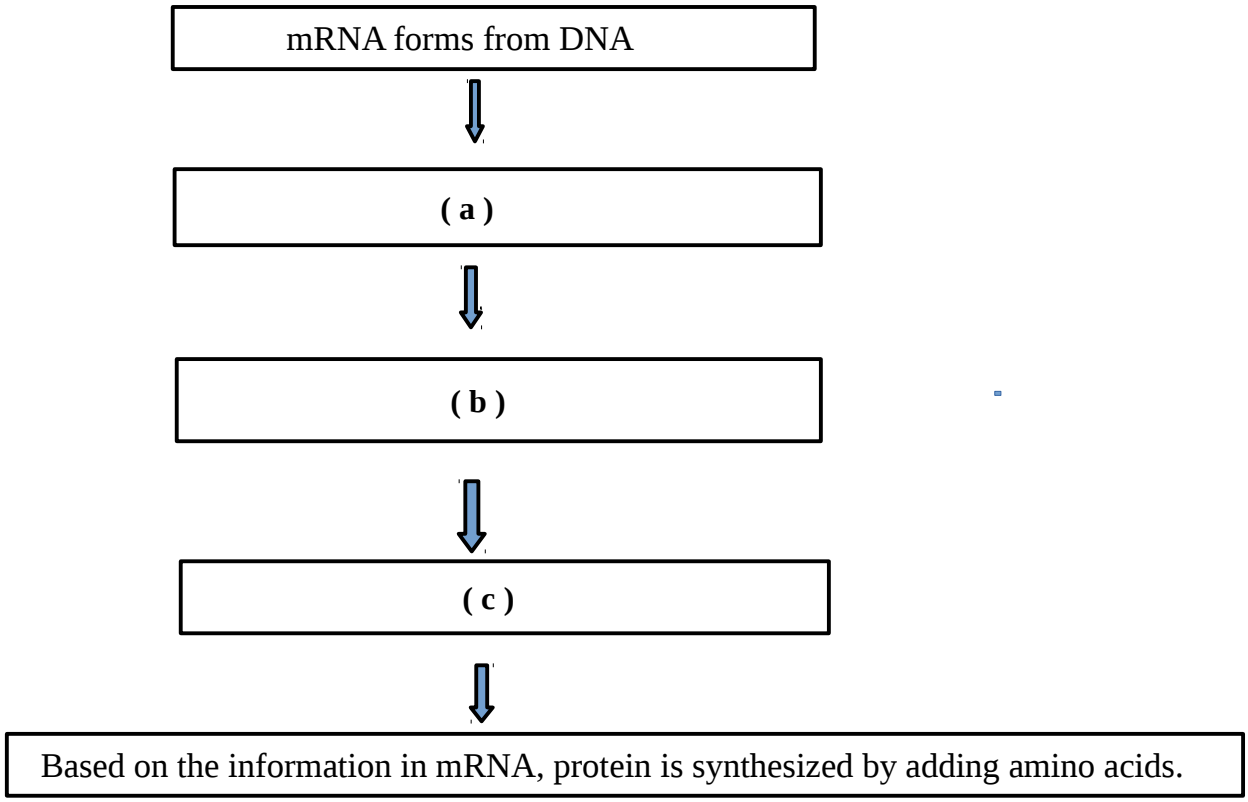
	Number of strands	Type of sugar	Nitrogen bases
DNA	Two	Deoxy ribose sugar	**(a)**
RNA	**(b)**	**(c)**	Adenine uracil Guanine Cytosine

Scoring Indicators :

(a)Adenine, Thymine, Guanine , Cytosine (½ **mark each**)
(b) One (c) Ribose sugar

4) Complete the flow chart related to Action of genes (Protein Synthesis)

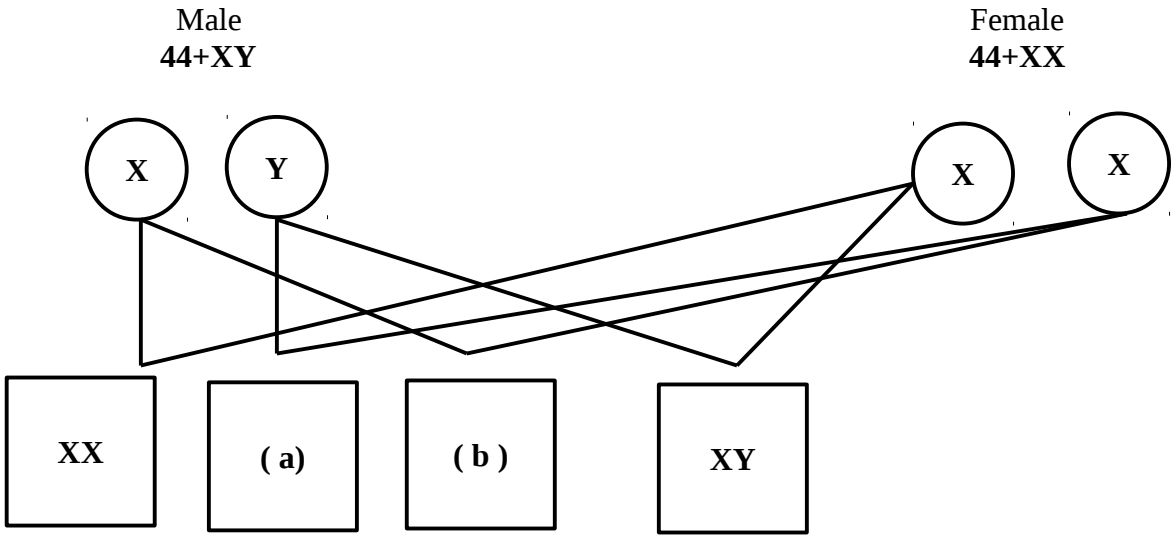
(Score 3)



Scoring Indicators :

(a) mRNA reaches outside the nucleus. **(b)** mRNA reaches ribosome
(c) tRNA brings different kinds of amino acids to ribosome.

5) Complete the illustration related to Determination of sex (Score 3)



(i) Fill **a** and **b**
(ii) Chromosomes of male child in the illustration
(iii) Chromosomes of female child in the illustration

Scoring Indicators :

(i) (a) **XY** (b) **XX** (½ **mark each**)

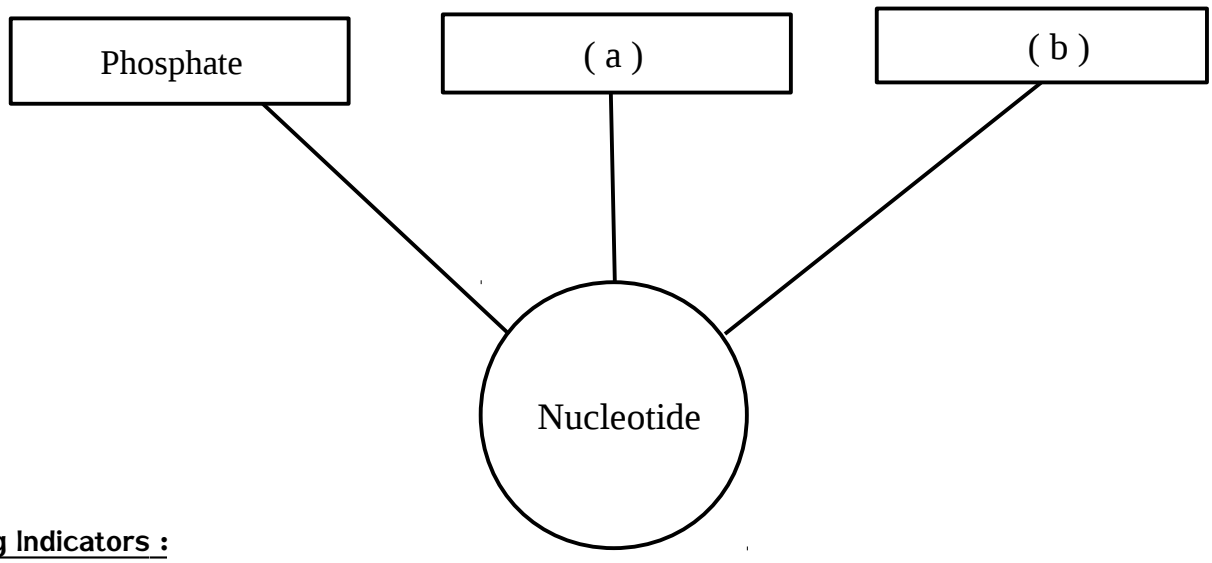
(ii) **XY** (iii) **XX** (**1 mark each**)

6) Scientists, who presented the double helical model of DNA (Score 1)

Scoring Indicators :

James Watson and Francis Crick

7) Complete the illustration (Score 2)

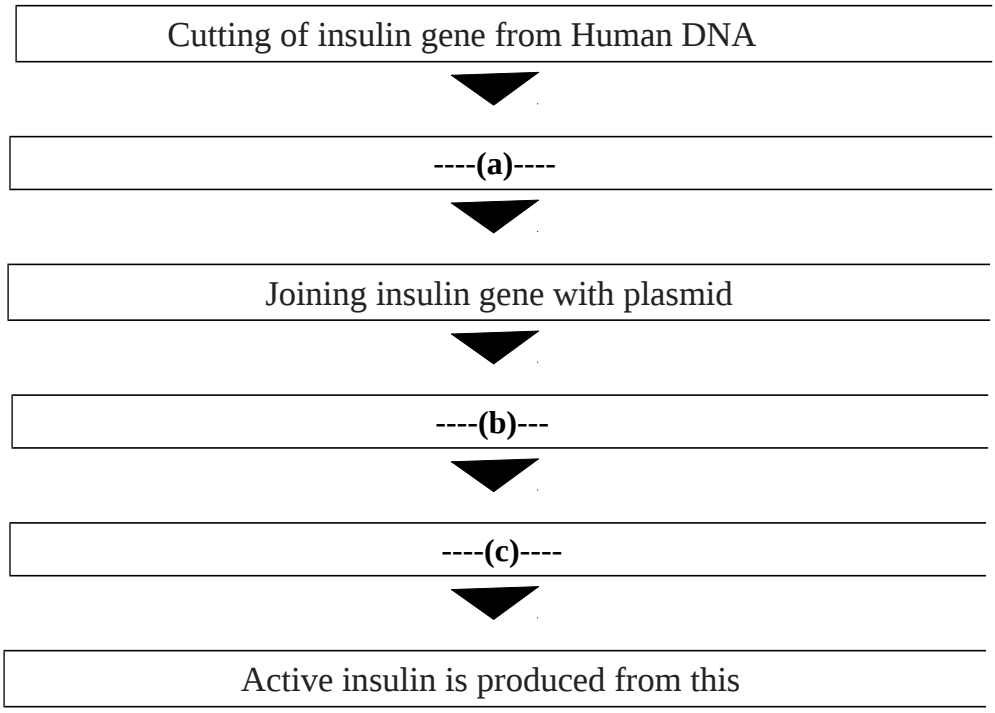


Scoring Indicators :

(a) Sugar molecule **(b)** Nitrogen base

LESSON 7 GENETIC OF THE FUTURE

1. Complete the following flow chart related to the Production of insulin through genetic engineering ?



Scoring Indicators :

a. Isolation of plasmid from bacteria

b. Plasmid with ligated insulin gene is inserted in to bacterial cell

c. Bacteria that multiply in the culture medium produce inactive insulin

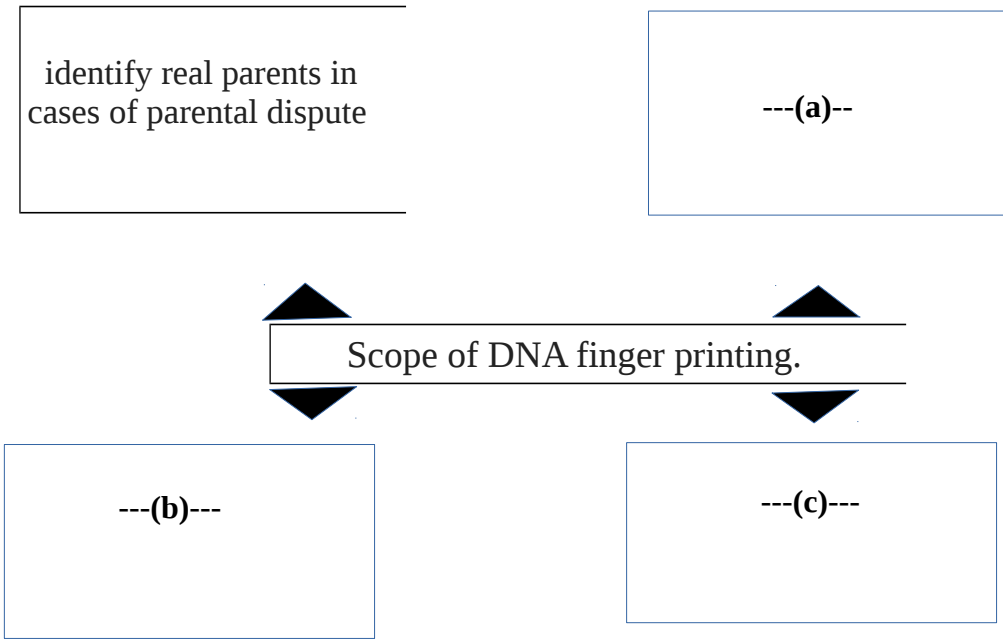
2. Complete the table

Column- A.	**Column -B**
---(a)--	Genetic scissors
Ligase	**--(b)--**
--(c)--	Plasmid of Bacteria

Scoring Indicators :

a. Restriction endonuclease
b. Genetic glue
c. Vectors

3. Complete the illustration related to DNA Finger printing



Scoring Indicators :

a. To identify hereditary characteristics of close relatives
b. Identify persons found after long periods of missing due to natural calamities or wars
c. Can identify real culprit from the DNA of the skin, hair, nail, blood and other body fluids obtained from the place of murder, robbery

Objective Questions

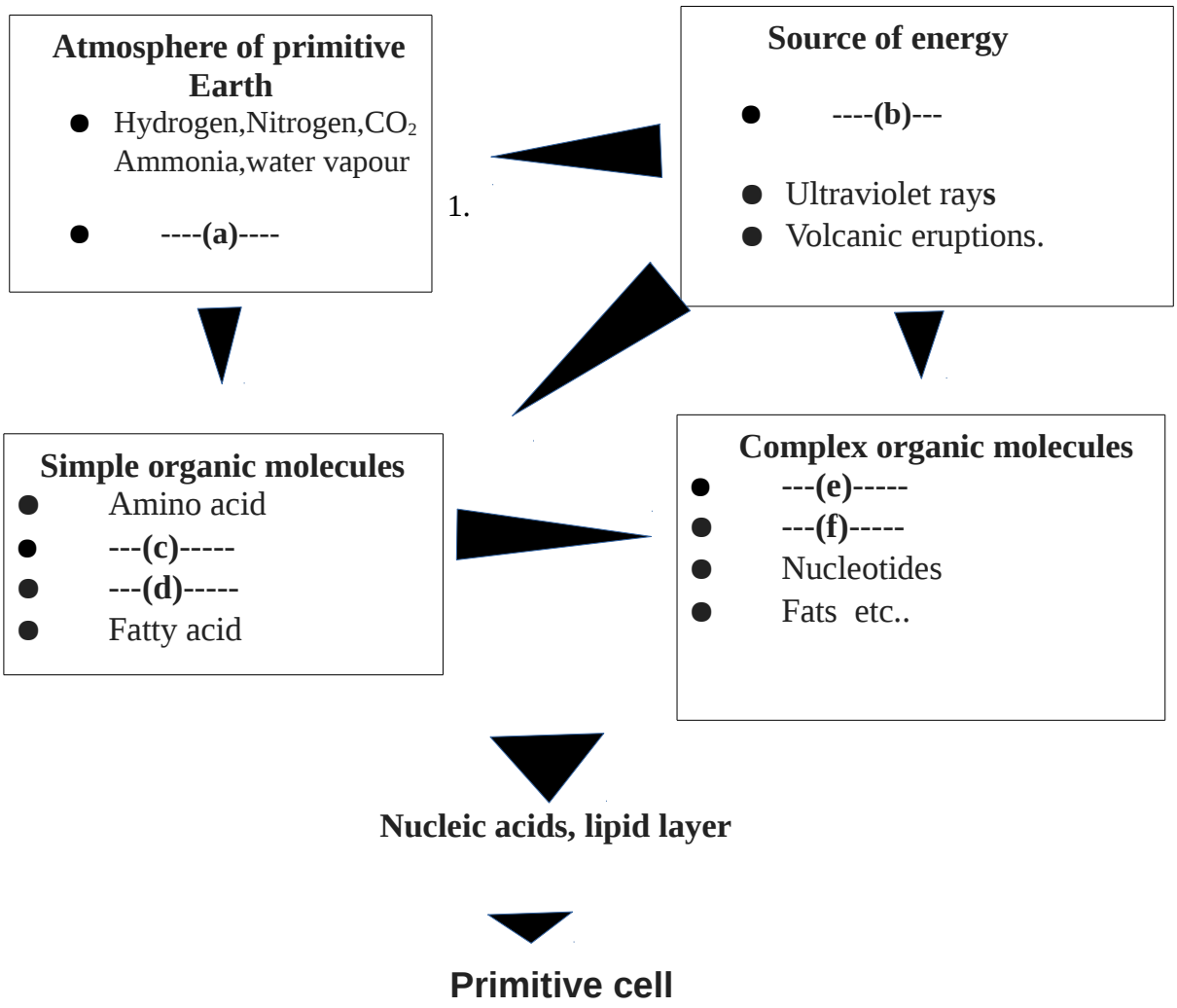
1. Technology of controlling traits of organisms by bringing about desirable changes in the genetic constitution of organisms is ----**a**------
2. Example for an Enzyme used to cut genes ------**b**-----
3. Example for an Enzyme used to join genes -----**c**-----
4. Scientist who paved the way for DNA finger printing is --**d**--
5. …**e...** is an example for a vector, used to enter ligated genes in target cells

Scoring Indicators :

a. Genetic engineering , **b**. Restriction endonuclease , **c.** Ligase
d. Alec Jeffreys **e.** Plasmids in Bacteria

LESSON 8 : THE PATHS TRAVERSED BY LIFE

1. Complete the blanks given in the following illustration related to chemical evolution



Scoring Indicators :

a. No free oxygen. **b.** Thunder and lightning. **c**. Monosaccharide
d. Nitrogen bases **e.** Protein **f.** Polysaccharide

2. Write the main ideas of Theory of Natural selection in order

a. Those with favourable variations exist and others get Destroyed

b. Overproduction

c. Favourable variations are transferred to the next generation and new species were originated

d. Struggle for existence

Scoring Indicators :

Sequence ---- **b, d, a, c**

Objective Type Questions

1. Proponents of theory of Chemical evolution are ……(i)…… and……(ii)…….

2. Which character of the Galapagos finches closely studied by Darwin

3. Ship used by Charles Darwin on his Voyage

4. Darwin wrote his enquiries, observations and studies, and his theory in the renowned text known as …….

5. Theory of Darwin is known as ……...

Scoring Indicators :

1. (i) A.I. Oparin (ii) J.B.S.Haldane

2. Shape of beaks

3. HMS Beagle

4**.** Origin of Species by Means of Natural Selection,

5. Natural selection