DIET PALAKKAD
District Institute of Education and Training

SSLC 2022

കൊയ്ത്ത്

Supporting Study Material

BIOLOGY

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പ്രിയമുള്ളവരെ

ജീവിതത്തിന്റെ സമസ്ത മേഖലകളിലും പ്രതിസന്ധികൾ സൃഷ്ടിച്ചുകൊണ്ട് കടന്നുവന്ന കോവിഡ് മഹാമാരിയെ അതിജീവിക്കാൻ ശ്രമിച്ചു കൊണ്ടിരിക്കുകയാണല്ലോ നമ്മൾ. വിദ്യാഭ്യാസ മേഖലയിലും നമ്മൾ ഈ പ്രയത്നം തുടർന്നുകൊണ്ടിരിക്കുന്നു . ദൈനംദിന ക്ലാസ്സുകളിലും, അധ്യാപക പരിശീലനത്തിലും , പഠന സാമഗ്രികളിലും മറ്റും നമ്മൾ പുതിയ സാധ്യതകൾ കണ്ടെത്തി ഉപയോഗിച്ചുവരുന്നു.

ഈ വർഷത്തെ (2022 മാർച്ച്) SSLC പരീക്ഷ എഴുതുന്ന വിദ്യാർത്ഥികൾക്ക് വേണ്ടി പാലക്കാട് ഡയറ്റിന്റെ നേതൃത്വത്തിൽ പല വിഷയങ്ങളിലും പഠന സാമഗ്രികൾ തയ്യാറാക്കിയിട്ടുണ്ട് . ഇന്റർബെൽ ജില്ലാതല കൂട്ടായ്മകളാണ് ഈ പഠനസാമഗ്രികൾ തയ്യാറാക്കുന്നത്.

ജീവ ശാസ്ത്രത്തിന്റെ ഇന്റർബെൽ ജില്ലാതല ഗ്രൂപ്പിലെ പ്രഗൽഭരായ അധ്യാപകർ തയ്യാറാക്കിയ ഈ പഠന സാമഗ്രി പഠന വിഷയത്തെ സമഗ്രമായി സ്പർശിച്ചു കൊണ്ടും ഫോക്കസ് ഏരിയയിൽ പ്രത്യേകമായി ഊന്നി കൊണ്ടും തയ്യാറാക്കിയിട്ടുള്ളതാണ്. മാതൃകാ ചോദ്യങ്ങളും ഉത്തര സൂചികയും സ്കോറിന്റെ വിതരണ ക്രമവും മറ്റും ഉൾപ്പെടുത്തി തയ്യാറാക്കിയ ഈ പഠന സാമഗ്രി ഈ വർഷം SSLC പരീക്ഷയെഴുതുന്ന എല്ലാ കുട്ടികൾക്കും സഹായകമാകുമെന്നും ഇത് വേണ്ടവിധം ഉപയോഗപ്പെടുത്താൻ എല്ലാ അധ്യാപകരും ശ്രമിക്കുമെന്നും പ്രതീക്ഷിക്കുന്നു.

ആശംസകളോടെ

പ്രിൻസിപ്പാൾ,
ഡയറ്റ് പാലക്കാട്

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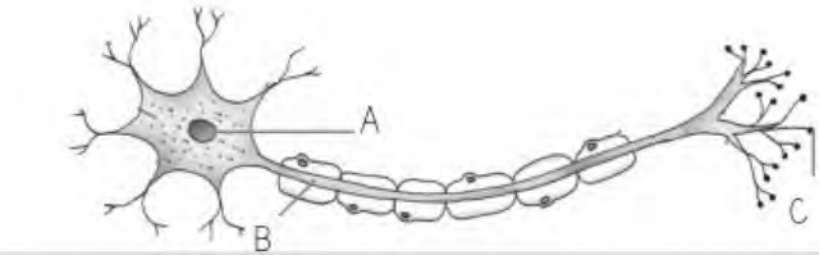
Chapter_1
Sensations and Responses
FOCUS AREA

1. Write down the functions of the parts of the neuron given below. 3 Marks

a) Dendrite b) Synaptic knob c) Axon

2. Redraw the diagram and label the parts A, B & C Write down their functions 4 Marks

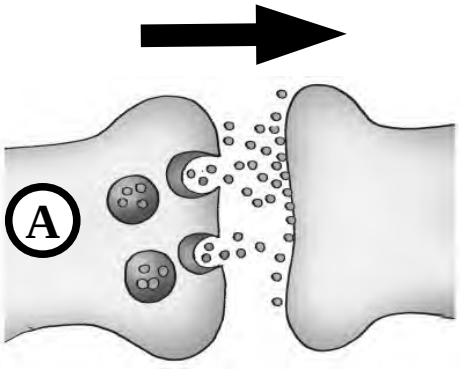


3. In the given picture the message formed in the nerve cell, enters to another nerve cell.

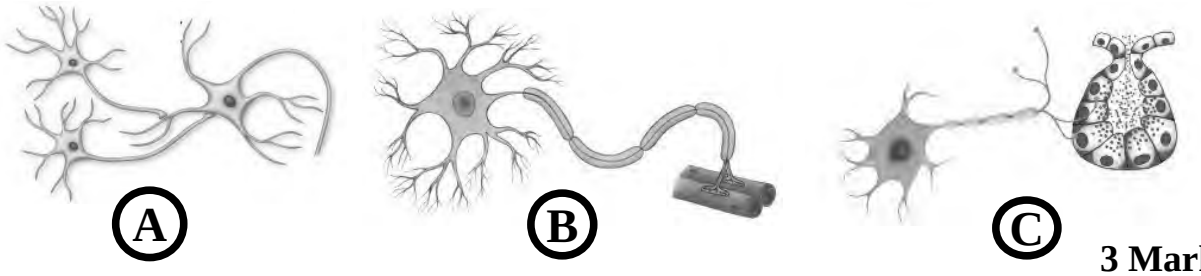
a) Which part is indicated as 'A' in the picture?

b) Write the chemical substances secreted from 'A'. Write an example.

2 Marks



4. Identify the various synapses given in the illustration and write their names.



3 Marks

5. Identify the word pair relationship and fill in the blanks. 2 Marks

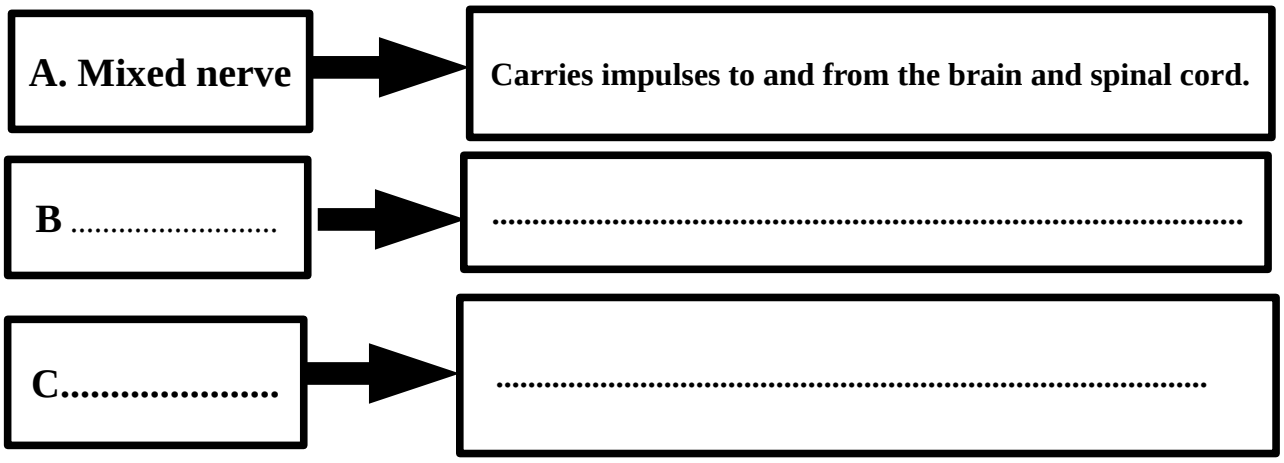
(i) a) Nerve cells that carry impulses to the brain and spinal cord : Sensory nerve cells

b) Nerve cells that carry messages from the brain and spinal cord to various organs : .....

(ii) c) Carries messages to the brain and spinal cord : Sensory nerve

d) ..... : Mixed nerve

6. Observe the following pattern and write the different types of nerves and their functions. 2 Marks



7.Write two examples of neurotransmitters. 1 Mark

8. If there is any mistake in the underlined part of the statements given below, correct and rewrite it.

a) The function of <u>neurotransmitters</u> is to regulate the speed and direction of impulses.

b) The nerve is a group of <u>dendrons.</u> 2 Marks

9. Which is the odd one? Write the reason. 1 Mark

a) Nerve cell – Nerve cell

b) Nerve cell – Muscle cell

c) Nerve cell – Glandular cell

d) Nerve cell – Schwann cell

10. Find out the odd one .Write the common features of others. **2 Marks**

a) Cerebrum

b) Thalamus

c) Axon

d) Cerebellum

11. Write down the part of the brain related to the following activities. 3 Marks

Maintains equilibrium of the body	
Controls breathing	
Maintains homeostasis	

12. Identify the word pair relationship and fill in the blanks. 2 Marks

(i) a) Cerebrum : controls voluntary movements

b) Medulla Oblongata : .....

(ii) c) Hypothalamus : maintenance of homeostasis

d) .....: acts as relay station of impulses to and from cerebrum

13. Make pairs of each part of the brain with their corresponding functions
3 Marks

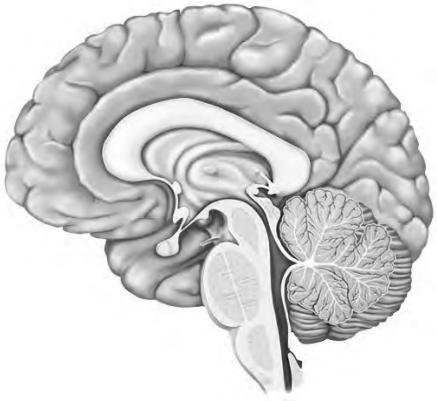
Cerebrum, maintains equilibrium of the body,
Thalamus, control involuntary actions,
evoke sensations, Cerebellum, Hypothalamus, Medulla oblongata

14. Redraw the given diagram and label the following parts. 4 Marks

a) The part that maintains equilibrium of the body.

b) Centre of thought, intelligence and memory.

c) The part that controls involuntary actions.



15. Observe the picture and answer the following questions.

a) Name the action given in this figure.

b) Prepare a flowchart showing the impulse transmission in this process.

c) Name the pathway of impulses in this process. 5 Marks

16. " All reflex actions take place under the control of the spinal cord". Evaluate the statement. Justify with suitable example. 2 Marks

17. The following are the indicators of some diseases affecting the nervous system. Examine them and complete the table by giving the name of disease as captions. 5 Marks

- **Continuous and irregular flow of electric charges in the brain.**
- **Loss of body balance.**
- **Destruction of ganglions.**
- **Loss of memory.**
- **Epilepsy due to continuous muscular contraction.**
- **Accumulation of insoluble protein in the neural tissues.**

A.....	**B.....**	**C.....**
• **Loss of body balance.** • **.....**	• **.....** • **.....**	• **Continuous and irregular flow of electric charges.** • **.....**

18. Analyse the illustration and answer the questions. 2 Marks

a) Which nerve is labelled as "X"?

b) The nerve from the spinal cord, which reaches the muscle in the leg is mixed nerve. Give reason.

19. Identify the correct flow chart related to reflex arc. 1 Mark

a) Receptor-->Motor nerve -->Sensory nerve--> Muscle--> Interneuron

b) Receptor-->Motor nerve -->Sensory nerve--> Interneuron -->Muscle

c) Receptor-->Sensory nerve-->Interneuron-->Motor nerve -->Muscle

d) Receptor-->Motor nerve-->Interneuron--> Sensory nerve-->Muscle

20. Analyse the statements A and B and identify the suitable explanation from the following. 2 Marks

Statement A – Alzheimer's disease is due to the destruction of neurons.

Statement B – Accumulation of an insoluble protein in the neural tissues of the brain of Alzheimer's patient occurs.

i) Statements A and B are true and statement B is the cause of statement A.

ii) Statements A and B are incorrect.

iii) Statement A is correct and B is incorrect.

iv) Statements A and B are true, but statement B is not the cause of statement A.

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CHAPTER _ 2

WINDOWS OF KNOWLEDGE

FOCUS AREA

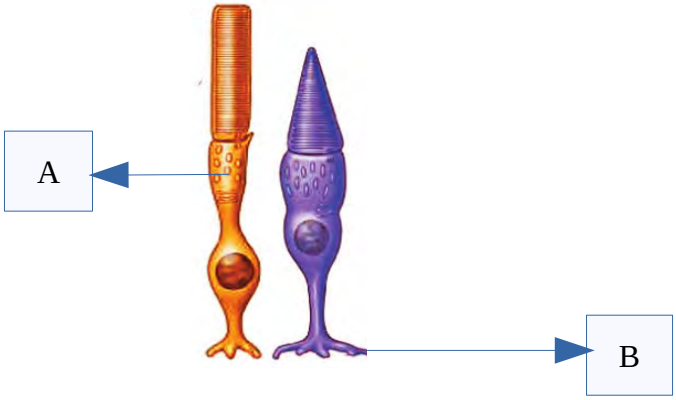
1 **Identify the word pair relationship and fill in the blanks.** **(1x7=7)**

a) Retina : The inner layer which has photoreceptors.
---------- : The transparent anterior part of the sclera.
b) Blind spot : The part from where the optic nerve begins .
---------- : The part where the image has maximum clarity.
c)Malleus : Tympanum
Stapes : .....
d) Auditory nerve : Cerebrum
Vestibular Nerve : .....
e) Cochlea : Auditory Nerve
Vestibule : .....
f) Cochlea : Hearing
Semicircular Canal : .....
g) Hearing : Cerebrum
Balancing : .....

2 **Match the following,** **(1/2 X 4=2)**

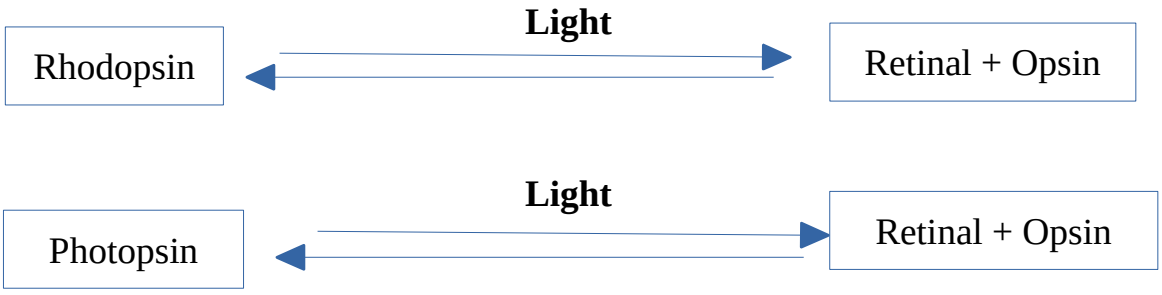
A	B
Conjunctiva	Slightly projected anterior part of the sclera.
Ciliary muscles	The aperture seen at the centre of the iris.
Cornea	The layer which protects the front part of the sclera except the cornea.
Pupil	Circular muscles seen around the lens.

3 **Identify A and B and complete the table**



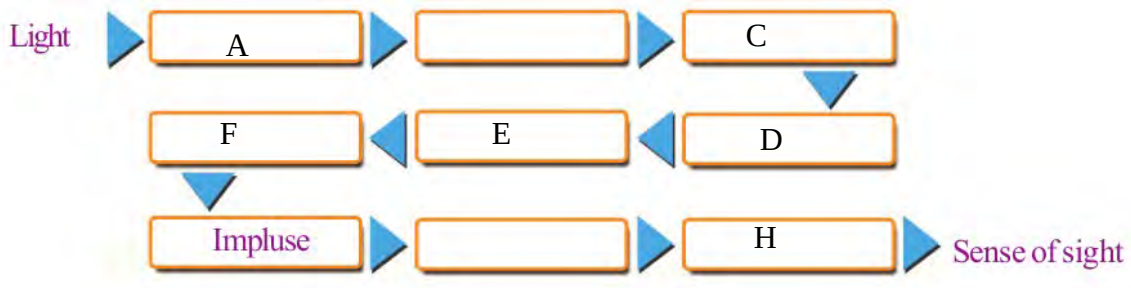
	A	B	mark
Figure			**1/2+1/2**
Pigment			**1/2+1/2**
Shape			**1/2+1/2**
Function			**1+1**

4 Observe the illustration and answer the following.



a) How is this reaction related to vision? (2)
b) How does the deficiency of vitamin A cause poor vision in dim light? (2)

5 Complete the flow chart properly. (1/4 X 8=2)



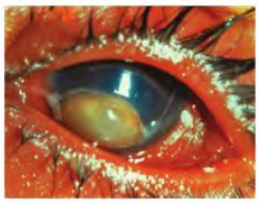
6 **Identify the eye defects and complete the table using the details given below. (1/2 X 6=3)**

a) deficiency of vitamin A
b) defective cone cells
c) cannot distinguish colours

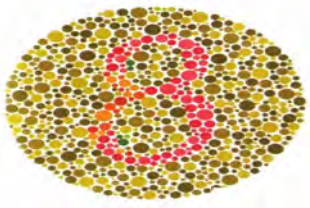
d) cannot see in dim light

	EYE DEFECT	REASON	SYMPTOM
1			
2			

7 Observe the figures and answer the questions given below.



A



B

a)Write the name and reason for the eye disease labelled as A. (1/2 + 1)
b) Which is the eye disorder related to B?
Write down the reason for it. (1/2 + 1)

8 complete the flow charts a and b after analysing the statements given in the box. (1/2 X 7=3 1/2)

low production of retinal , prevents the re synthesis of rhodopsin
objects cannot be seen clearly in dim light , Xerophthalmia
conjuctiva and cornea become dry and opaque,
prolonged deficiency of
retinal

deficiency of Vitamin A

(a)

1

2

3

4

prolonged deficiency of Vitamin A

(b)

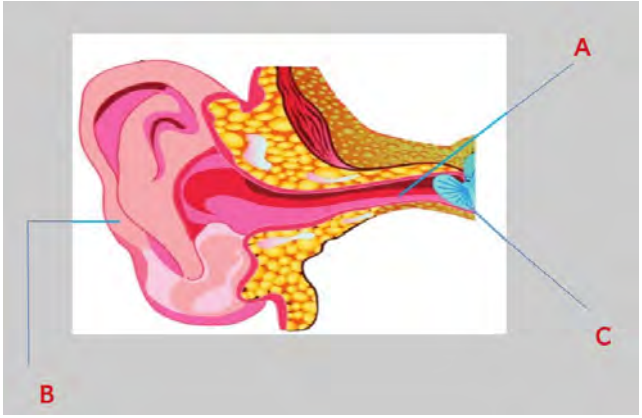
X

Y

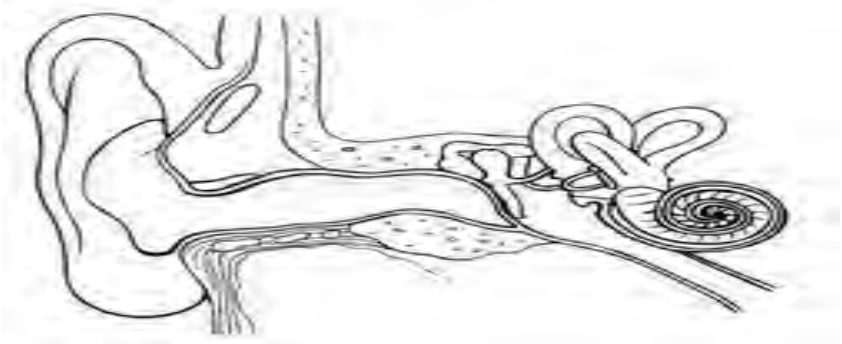
Z

9 There is no vision at the point where the optic nerve starts. Why? (2)

10 Identify the parts of External ear **(1/2 X 3=1 1/2)**



11 Redraw the diagram given below. Identify the parts and label it.



A)The part where sound receptors are located. (1)
B) The part that maintains the pressure on both sides of the ear drum. (1)
C)The part that leads sound waves to auditory canal (1)
D)The part that vibrates in resonance with sound waves. (1)

12 Classify the given parts of ear under suitable heading. **(1/2 X8=4)**

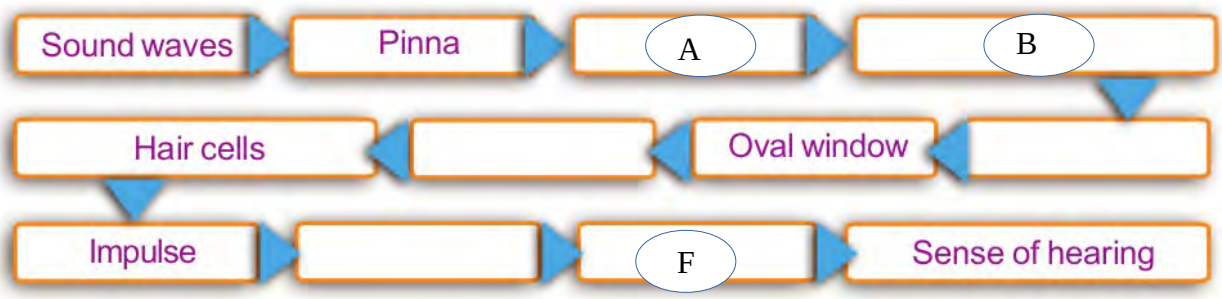
Auditory canal, Ear ossicles, Eustachian tube, Cochlea, Vestibule, Tympanum, Semicircular canals, Pinna

EXTERNAL EAR	MIDDLE EAR	INTERNAL EAR

13 **Rearrange column B in accordance with A.** (1/2 X 7=3 1/2)

A Part	B Function
Pinna	**Amplify and transmit the vibrations of the tympanum to the internal ear**
Auditory canal	**Protects the tympanum by balancing the pressure on either side of the tympanum**
Tympanum	**Carries sound waves to the tympanum**
Ear ossicles	**A thin circular membrane. It vibrates in resonance with sound waves.**
Eustachian tube	**Helps in the movements of fluid inside the cochlea**
Oval window	**Carries sound waves to the auditory canal**
Round window	**Spreads the vibrations of the ear ossicles to the inner ear**

14 **Complete the flowchart given below related to sense of hearing.** (1/2 X 6=3)



15 The activities related to the sensation of taste is given below. Arrange them in the correct order. **(1/2 X 5= 2 1/2)**

a) The impulses reach the brain through the respective nerves.
b) Substances responsible for taste dissolves in saliva.
c) The substances reach the taste buds through the saliva.
d) Forms the experience of the taste.

e) The taste detecting chemoreceptors are stimulated.

f) Impulses are generated.

16 **Complete the flowchart related to the sense of smell.** (1/2 X3=1 1/2)

a.**aromatic particles dissolve in the mucus inside the nostrils.**

↓

b

↓

c.olfactory receptors are stimulated

↓

d

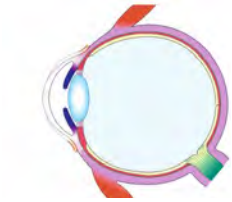
↓

e

↓

f.sense of smell is experienced

17 **Redraw the diagram and label the parts given below..**

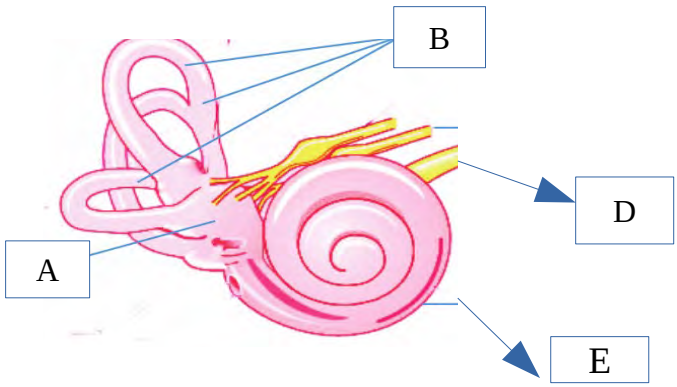


a. **part where photoreceptors are seen.** (1)

b. **part where jelly like fluid is seen** (1)

c. **elastic and transparent part.** (1)

18 **Observe the figure and answer the following questions.**



a. **Identify A, B, D, E.** (1/4 X 4=1)

b. **Write down the function of D, E** (1/2 X 2=1)

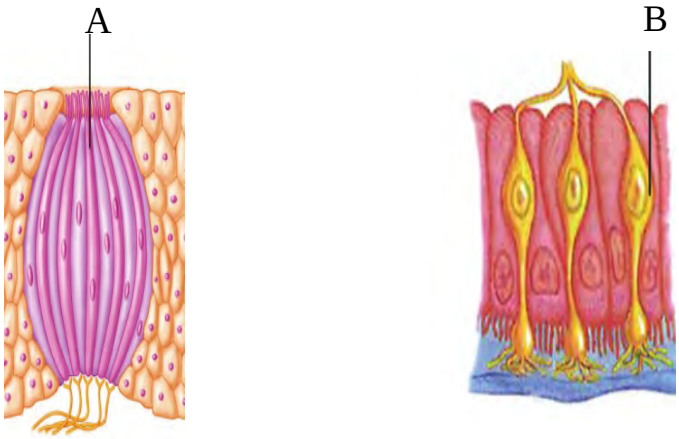
C. Write down the role A, B in body balancing. (2)

19 **Findout the odd one and write the common features of others.**

a **Stapes, Malleus, Cochlea, Incus** (1)

b **vestibule, Cochlea ,Semicircular canals** (1)

20. **Identify A, B and write down their function.** (1/2 + 1/2 =1)



21. **Correct the errors in the underlined terms in the following statements.**

a) Cornea is the transparent part in front of the <u>choroid</u>. 1/2

b) <u>Sclera</u> is the layer of the eye with large number of blood vessels. 1/2

22. **Analyse the statements in the box and categorise them under suitable heading.** (1/4 X 8=2)

Found between the lens and the cornea **The jelly like substance** **Helps in maintaining the shape of the eye.** Between the retina and the lens. Water like fluid **Provides oxygen and nourishment to the tissues of the eye.**

CHAPTER 3

CHEMICAL MESSAGES FOR HOMEOSTASIS

FOCUS AREA

1. Complete the statement suitably. **2**

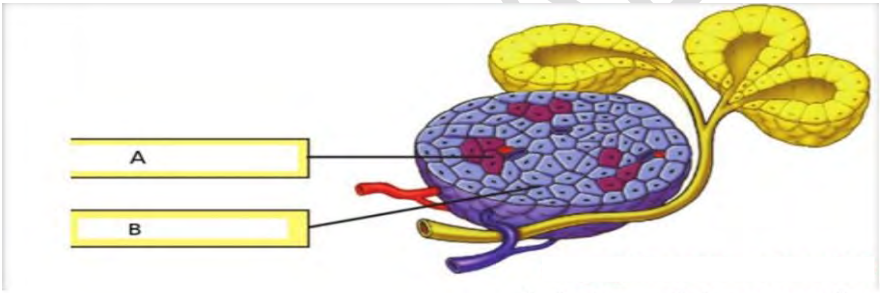
"In ...(a)...., the specialised part in pancreas two types of cells are found. Of these ...(b)... cells produce insulin".

2.

$$\text{GLUCOSE} \xrightarrow{\text{A}} \text{GLYCOGEN}$$ **2**

a) Which is the hormone indicated as "A" ?
b) Write two functions of "A"

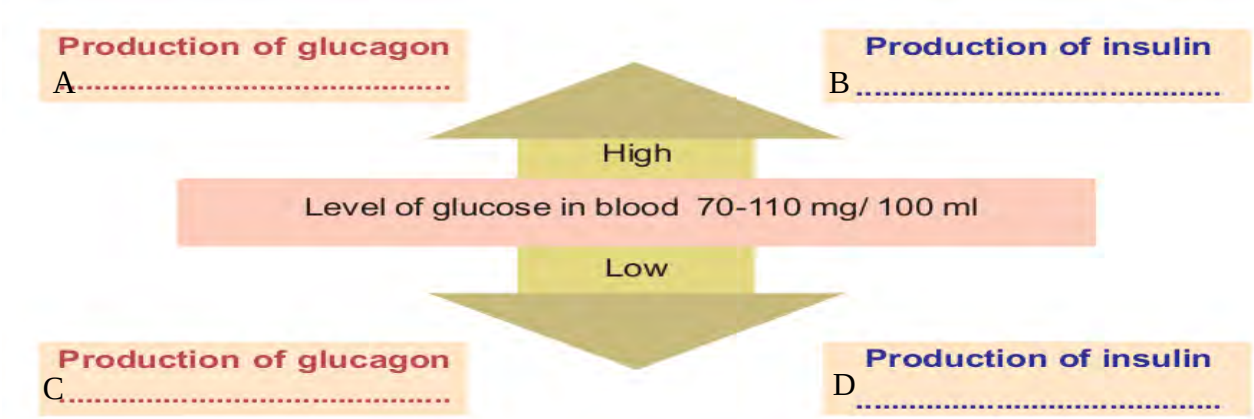
3. Observe the figure and answer the following questions . **3**



Islets of Langerhans

a) Name the cells "A" and "B".
b) Which are the hormones they produce?
c) Write the functions of hormones produced by "A".

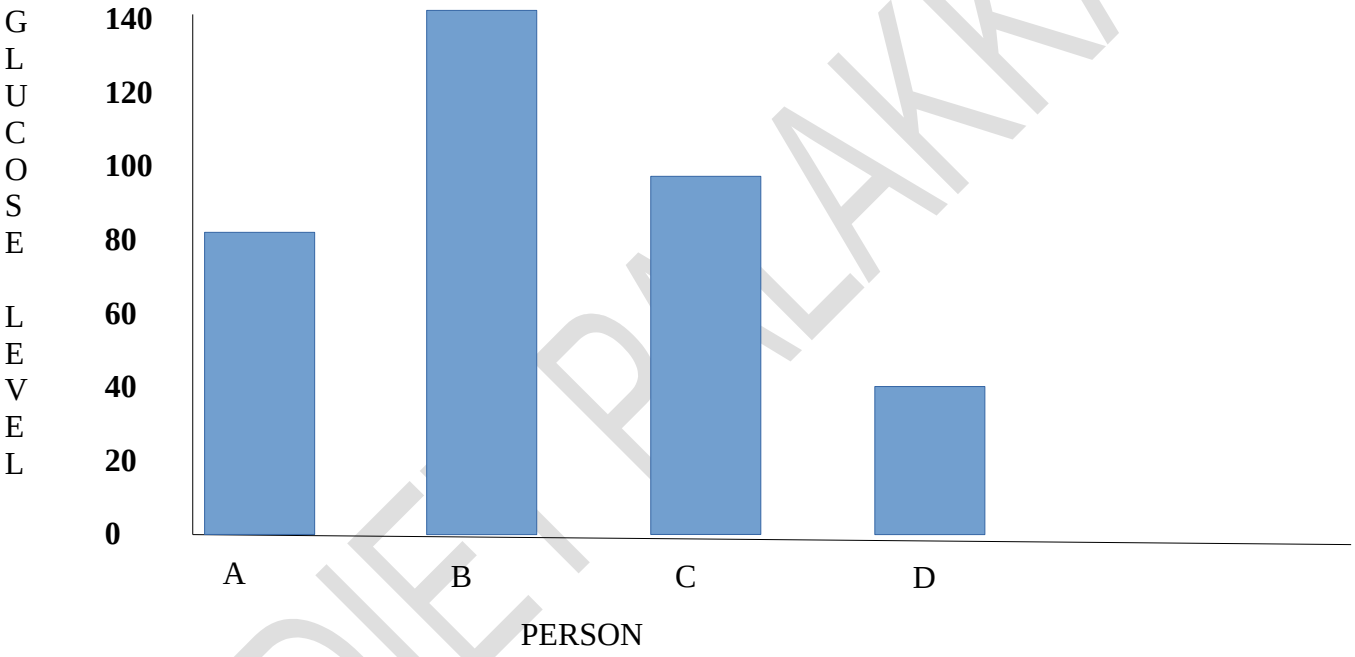
4. Illustration showing the maintenance of blood glucose level is given below. **3**
Analyse the illustration and answer the questions .



a) Complete A,B,C,D

b) How does the deficiency of insulin affect the body?

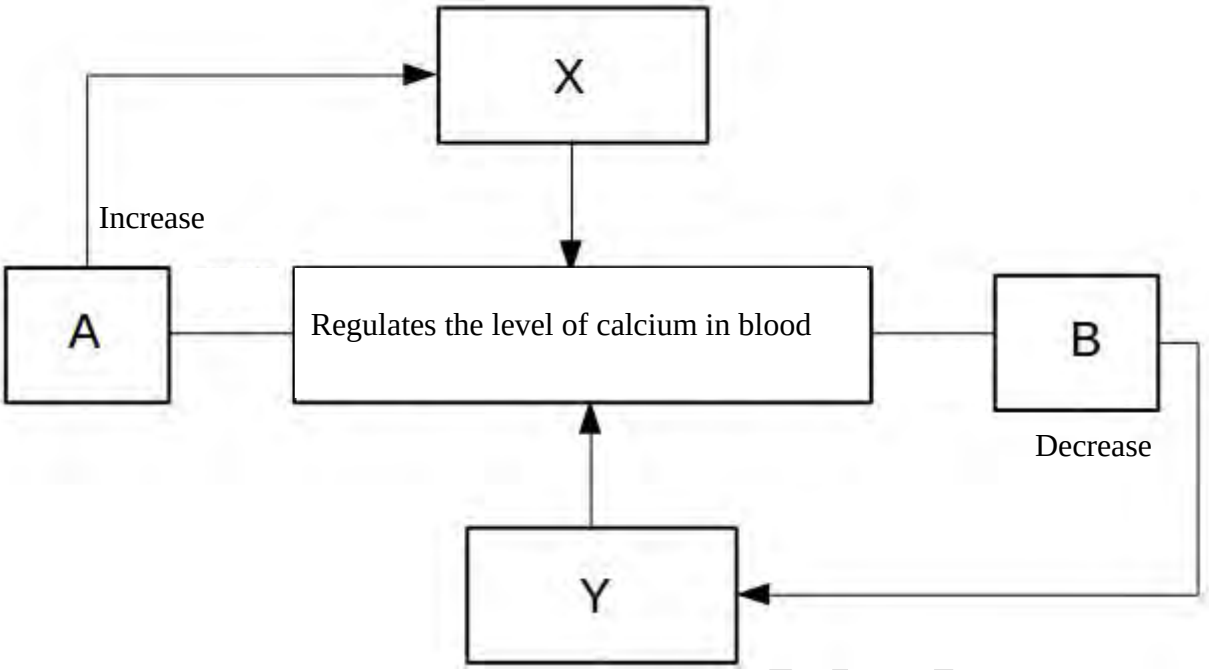
5. Examine the graph indicating the blood glucose level of different persons before breakfast and answer the following questions. 3
(Normal level of glucose in blood 70 – 110 mg / 100 ml blood)



a) Which person is affected by diabetes ?

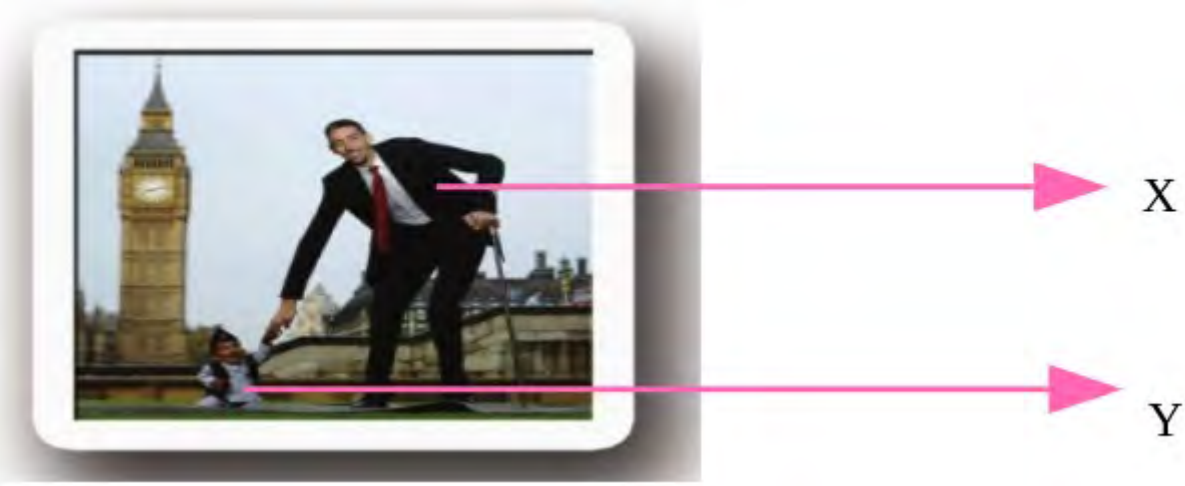
b) Write the major symptoms of diabetes.

6. Observe the picture shown below and answer the questions. 4



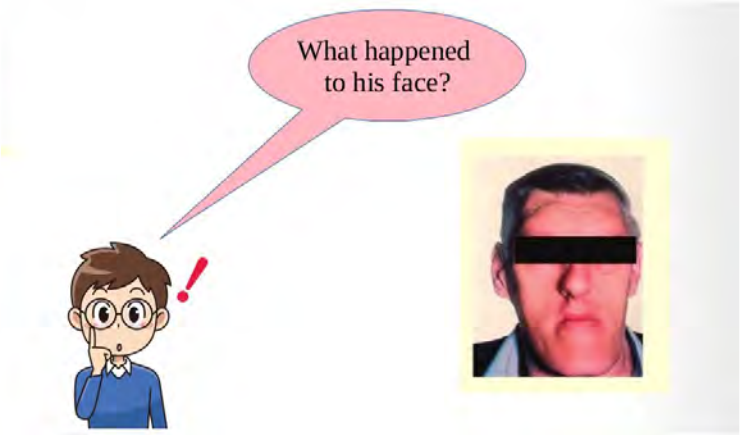
a) What is the normal blood calcium level ?
b) Name the glands marked as "A" and "B".
c) Name the hormones marked as "X" and "Y".
d)What is the action of hormone "X" in regulating blood calcium level to normal?

7. Observe the picture shown below and answer the questions. 3



a) Name the conditions of persons labelled as X and Y.
b) Write down the reasons and symptoms associated with their condition.

8. Analyse the cartoon given below and answer the following questions. 3



a) Write down the name, causes and symptoms of his health problem.

9. Identify the word pair relation and fill in the blanks **1**

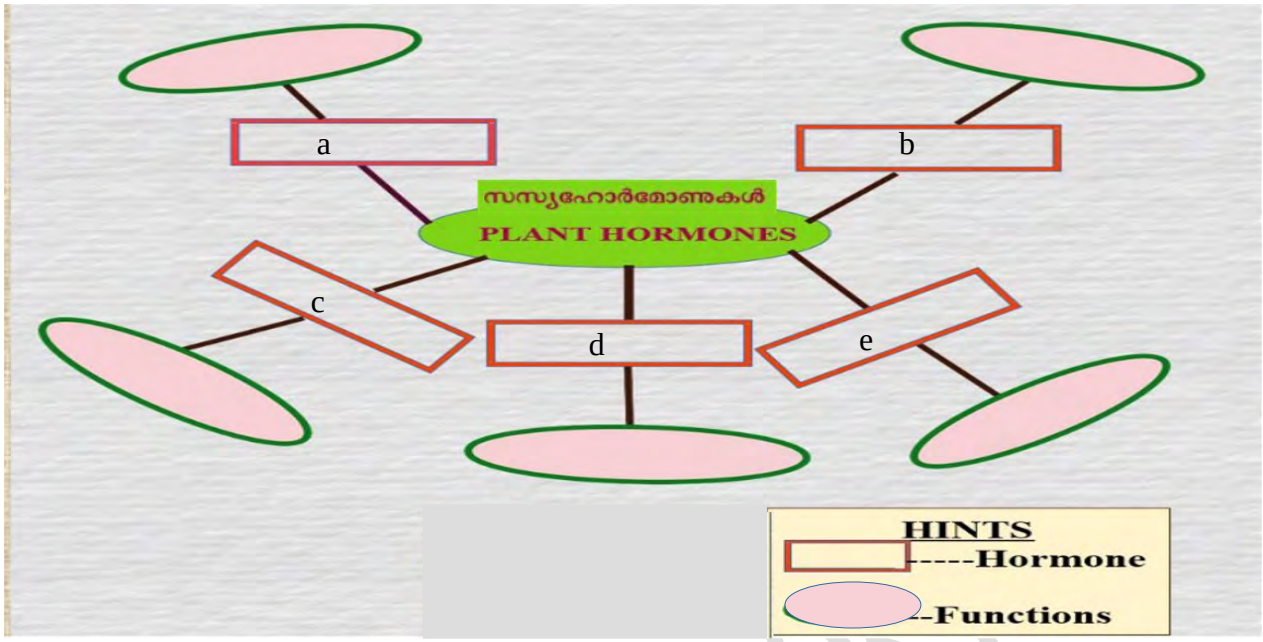
(a) Civeton : Civet cat
--------- : Female silkworm moth

10. Bees and termites are maintaining the colony life by using some chemical substances as chemical messages. **4**

(a) What are these chemical substances?
(b) Write the other uses of these chemical substances.
(c) Give two examples for these chemical substances.

11. Complete the illustration using the words given in the box. **5**

Abscisic acid, promoting the growth of terminal buds,
Gibberellins, Auxin, Breaking up of stored food in Seeds,
Ethylene, Cell differentiation, Dropping of ripened fruits and leaves, Cytokinin, Helps in ripening of fruits.



12. Analyse the table and give proper headings to column A and B. 2

A	B .....
Musk	Ethylene
Bombykol	Gibberellin

13. Choose the correct statements related to pheromones from the options given below. 2

(A) Pheromones are chemical substances secreted inside the body for communication.
(B) This is the message to attract mates, determining the path of travel etc.
(C) Musk in civet cat is a pheromone.
(D) Bombykol is the pheromone secreted by the female silk worm moth.

14. Find out the odd one and write the common features of others. 1

Auxin, Ethylene, Cytokinin, Gibberillin.

Chapter_4
Keeping diseases away

FOCUS AREA –QUESTIONS

1. Complete the table by giving the causative organism and the symptoms of disease. 1

Disease	Pathogen	Symptom
Tuberculosis		

2. Arun got BCG vaccination. Identify the disease he has to get vaccinated for ? 1

3. Tuberculosis only affects the lungs .Is this statement is correct? What is your opinion about this statement ? 1

4. 3

" This microbe disrupts the immunity power of the body. No need to worry.....Let's live carefully.".

Shown above is one of the presentation slides prepared by Anu, as a part of the International year of microbes.

a) Which is the microbe mentioned in the slide?

b) Which disease is caused by the microbe?

c) How does this affect the immunity of the body?

5. Analyse the illustration and make a note about the malaria epidemic. 3

6. Analyse the statements related to the spread of AIDS and classify them suitably. 3

a) Through mosquitoes and house flies.

b) Through body fluids.

c) Through sexual contact with HIV infected person.

d) By touch, shaking hands, coughing etc

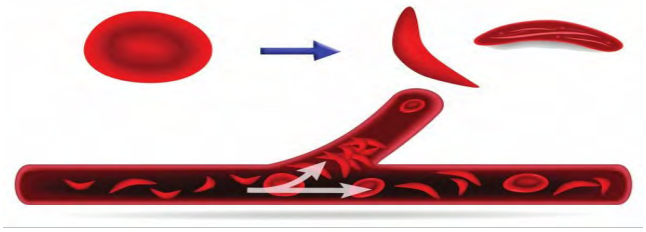
e) From HIV infected mother to foetus.

f) When you sit near HIV infected friend in the school

Situations where HIV spreads	Situations where HIV does not spread

7. What is the significance of observing 'Dry Day' in schools and at home? 1

8. Change in the shape of RBC due to a genetic disease is shown in the figure. 3



a) Name the disease shown in the figure.

b) What is the cause of this disease?

c) How does the deformity of RBC affect the body?

9. You are invited to prepare presentation slide for the cancer awareness class, conducted by the health club. What explanation will you give to the idea given below? 3

1. The disease cancer.

2. Reasons for cancer.

3. Treatment for cancer.

10. 'An early diagnosis of the disease is crucial in the treatment of cancer'. Why? 1

11. Identify the word pair relationship and fill in the blanks. 1

Anthrax : Bacteria

Foot and mouth disease : .....

Malaria : .....

12. Match the following. 3

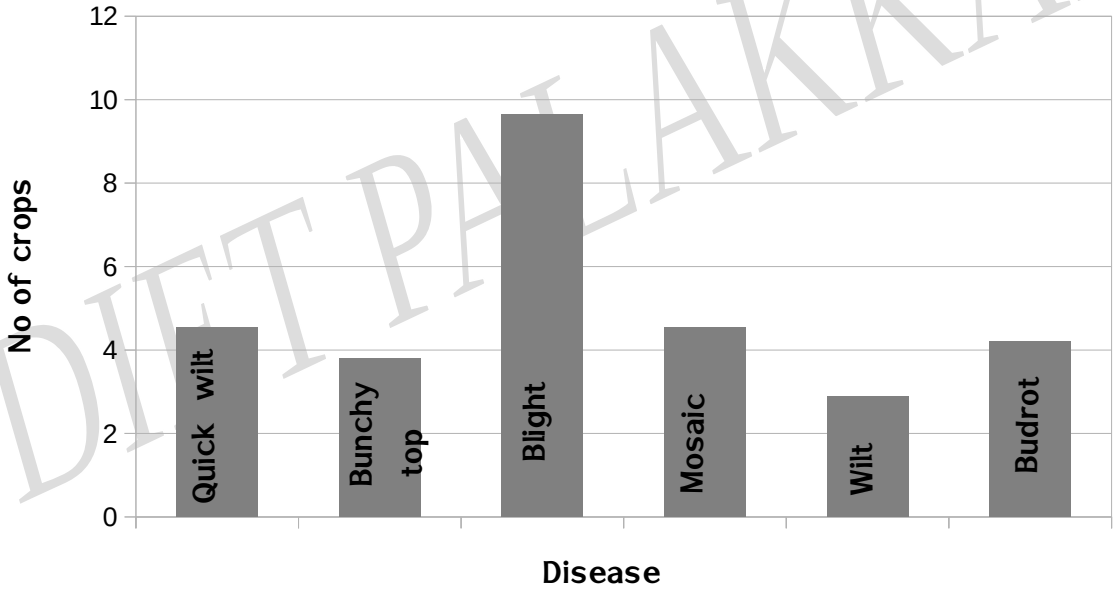
Pathogen	Disease
Bacteria	Bud rot of coconut
Fungus	Bunchy top of banana
Virus	Wilt disease in brinjal

13. Find the odd one and write the common feature of others. 2

a) Anthrax, Quick wilt in pepper, Inflammation of udder,Wilt disease in brinjal

b) Diabetes, Fatty liver, Hypertension , Filariasis

14.A study of the Agriculture Department on plant diseases in a panchayath is given below as a graph. Analyse this and answer the questions. 3



a)Which is the mostly affected crop?

b)Name the disease that affects pepper.

c) Which are the viral diseases that affected the plants of that area?

15.Anthrax is a disease transmitted through contact with animals. 3

a) Which microbe causes this disease?

b) Name two other diseases caused by the same type of microbe and the mode of transmission.

16. Read the news paper report and answer the question given below. 2

School authorities refused the stay of HIV infected student in school hostel, as the disease may get transmitted to other students.

What is your response to this ? Justify your answer with relevant scientific points .

17.Some life style diseases and their reasons are given in the box.Make suitable word pairs as given in example. 3

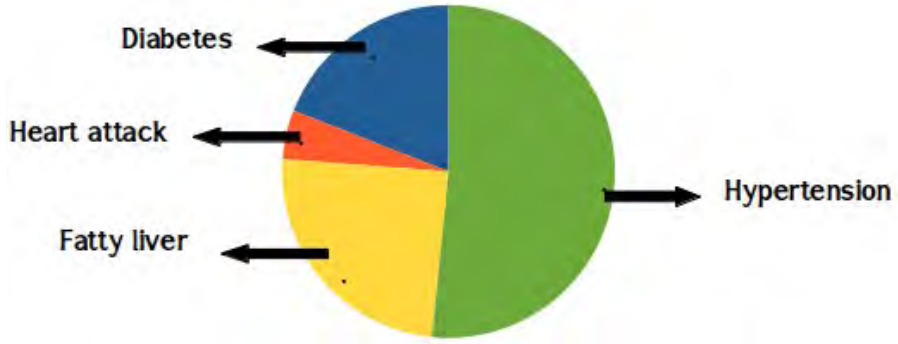
Eg: Diabetes: deficiency of insulin or its malfunctioning

Deposition of excess fat in the liver,Decrease in the diameter of arteries due to deposition of fat,Rupture of blood vessels in the brain, block of blood flow.Hypertension,Stroke, Fatty Liver

18.Complete the table given below. 2

Tuberculosis	--- A-----	Through air	-----B-------
---C-----	Protozoa	-----D--------	High fever with shivering and profuse sweating

19.The Pie diagram given below shows the report of health survey in a city. Analyse the diagram and answer the questions given below. 3



a) Identify the disease that affected most of the people.

b) The diseases mentioned in the diagram falls under which category?

c) Write any two health habits that should be followed to fight against this kind of diseases.

20. Write down the ideas that need to be included in the poster that is being prepared to raise awareness about the ill effects of smoking on our organs.

Brain : Stroke , Addiction to nicotine 2

..... : ..... , ...

..... : ..... , ...

Chapter_5
Soldiers of Defense

FOCUS AREA

1. Find the word pair and fill in the blanks. **1**

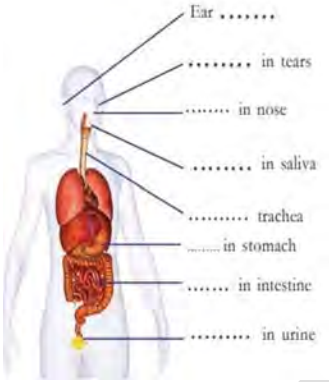
a) Sweat gland: sweat

Sebaceous gland: .....

b) Stomach: hydrochloric acid

Intestine ; ……..…

2. Complete the illustration using the given words in the box. **2**

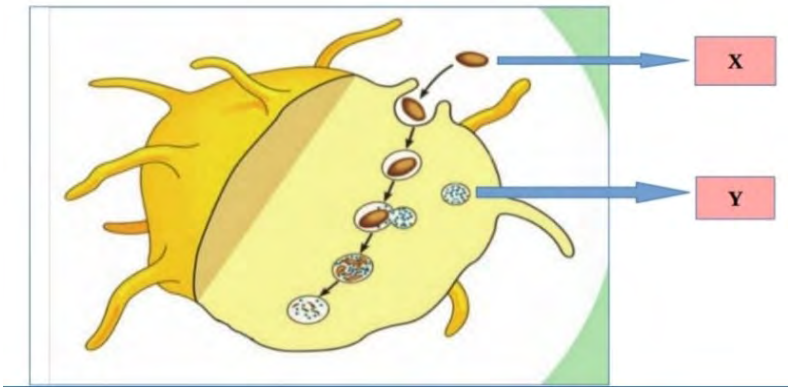


Wax
Lysozyme
mucus
HCl

3.Complete the table showing the body parts and their secretions. **2**

PART OF THE BODY	SECRETION
Ear	**A).....**
B)	Lysozyme in Saliva
Eye	**C) .....**
D).....	**HCL**

4. Observe the illustration and answer the questions. **4**



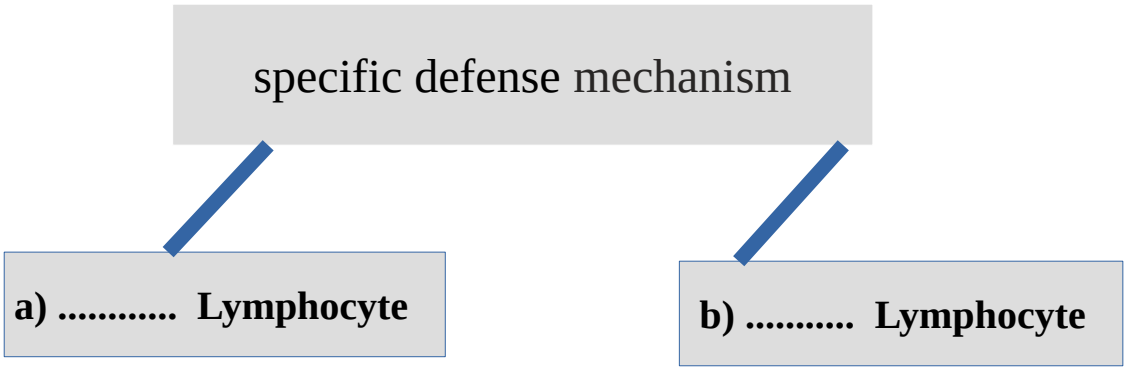
i) Which is the process illustrated ?
ii)What does X and Y indicate ?
iii) Name the white blood cells involved in the process.
iv) Rearrange the steps involved in this process in correct sequence and prepare it in a flow chart.
a) Lysosome combines with membrane sac.
b) They engulf pathogen in the membrane sac.
c) The pathogens are degenerated and destroyed by the enzymes in lysosome.
d) Phagocytes reach near the pathogen.

5. Some of the defense mechanisms that prevent pathogens from entering the body are given in column A. Add their functions to column B and complete the list. **2**

A defense mechanisms	B function
Sebum	**i) .....**
Keratin	**ii) .....**
Mucus in nose	**Iii) .....**
Ear Wax	**iv) .....**

6. Given below are the body parts to destroy germs. Write the name of the **secretions found in each.** **2**
a) Skin
b) Tears
c) Stomach

7. Complete the illustration **3**



*** Neutralise the toxin of the antigens.**
*** c)**
*** e)**

*** Destroy cancer cells.**
*** d)**
*** f)**

8. Find the word pair and fill in the blanks. **1**

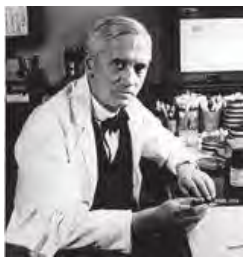
a) B Lymphocytes : mature in bone marrow
T Lymphocytes : .....…
b) Vaccination : Edward Jenner
Antibiotics : .....…

9. Dead and alive pathogens are used for vaccination. Justify the statement with the examples of vaccines used for rabies and tuberculosis. **2**

10. National Immunization Schedule of preventive vaccines be taken at different stages of childhood from birth. Complete the vaccines table. **3**

VACCINE	DISEASE
B.C.G	
O.P.V	
PENTAVALENT	
M.M.R	
T.T	

11. Identify the scientist and write his contribution to the medical field. **1**



12. Select the correct statements about antibiotics. **2**

(a) Medicines extracted from microorganisms like bacteria, fungi etc.
(b) They are used to destroy bacteria.
(c) They are used to destroy viruses and fungi.
(d) They can be used externally and internally.

13. Ravi uses antibiotics regularly without the recommendation by a doctor. Is it a good practice? Why? **2**

14. Name the antigens which help to detect A positive blood group. **2**

15. Antigens present on the surface of RBC has a prominent role in detecting the blood group. Substantiate the statement. **1**

16. "Nobody can receive blood from everybody". To substantiate the statement, choose suitable facts from those given below. **1**

a) Antibody of the donor's blood and antigen of the recipient's blood react with each other to form blood clots.
b) Blood clots form due to the reaction of the antigen and antibody in the donor's blood with the blood of the recipient.
c) Antigen of the blood of the donor and the antibody of the recipient's blood react with each other to form blood clots.

17. "There are four main types of blood group in human beings". **3**

a) what is the basis of giving separate names to each of them?
b) What is the basis for classifying blood groups as positive and negative?
c) What is the significance of antibodies in blood transfusion?

18. Analyse he blood groups and answer the questions. **2**

AB+ve, AB-ve, B+ve, A+ve, O-ve

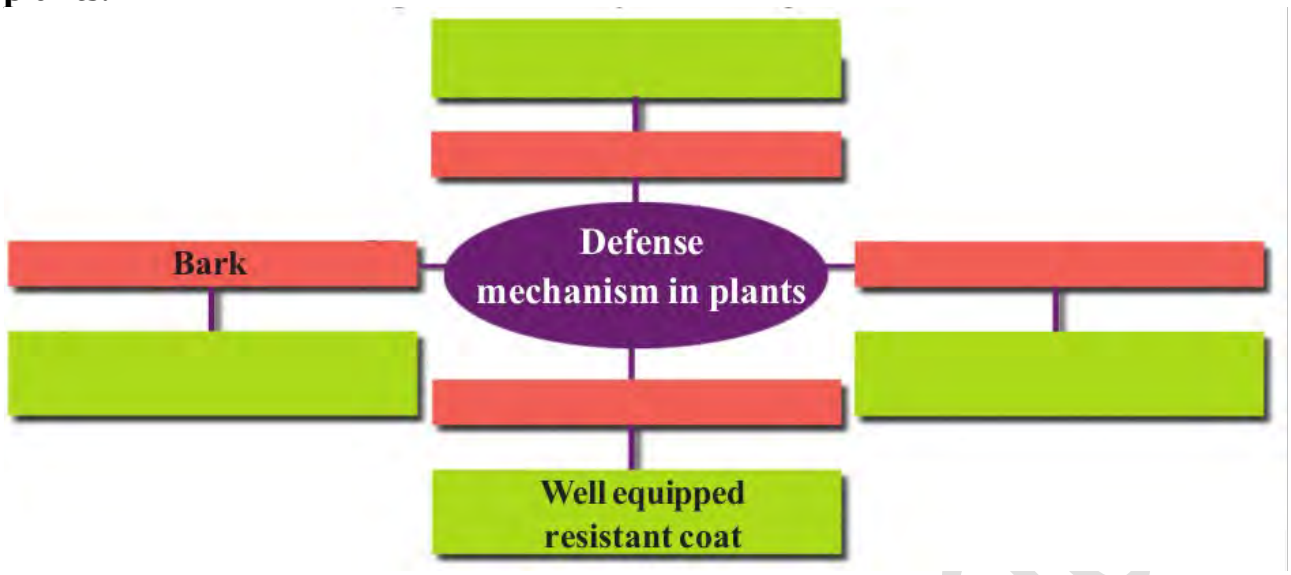
a) Blood type containing Rh factor and antibody.
b) Blood type without Rh factor and having two types of antibodies.

19. What is the role of antigen D in blood grouping? **2**

20. Write a poster showing the things should be taken care of while transfusing blood. **2**

21. There are different methods in plants to prevent the entry of germs. Justify the statement giving two evidences related to cell wall. **2**

22. Complete the diagram by including different defense mechanisms in plants. **3**

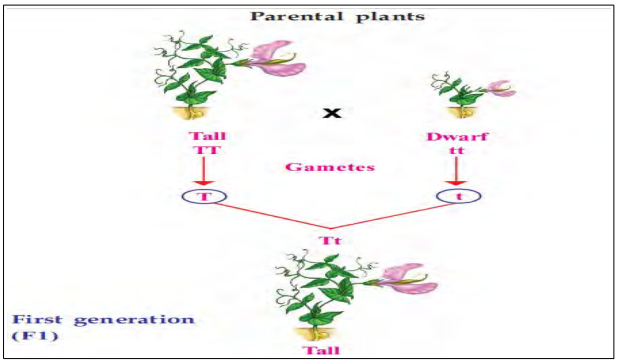


Chapter_6

UNRAVELLING GENETIC MYSTERIES

FOCUS AREA

1. Observe the image and answer the questions mention below **4**



Mendel crossed tall pea plant with dwarf pea plant in one of his experiment.

a) The trait those were apparent in the first generation.

b) Which are the different alleles of the gene that controls the character, height?

c) How do the allele combination of the first generation differ from parental plants?

2. The note prepared by Shahana on ‘ Mendel's inferences ’ during the classroom analysis of Mendel's hybridization experiment in pea plants, based on a single trait is given below. Analyse the statements in the note and correct those that are wrong ones. **2**

a)One trait is controlled by a specific character.

b)One character is expressed and other remains hidden in the first generation.

c)The character that remains hidden in the first generation does not appear in the second generation.

d)The ratio of characters in the second generation is 3:1.

3. Find the word pair relationship and fill in the blanks appropriately. **1**

a) The character which is expressed : Dominant

The character which remains hidden: ----------

b) Transmission of features of parents to offspring: Heredity

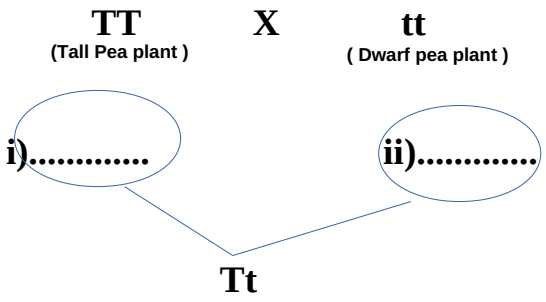
----------: Variation

4.Peculiarities and building blocks of nucleic acids are given below. Arrange them in the table suitably. **3**

Double helical model, Ribose sugar
Thymine, Single strand
Uracil, Deoxyribose sugar

DNA	RNA

5.Complete the illustration of the hybridization experiment given below **1**



6.

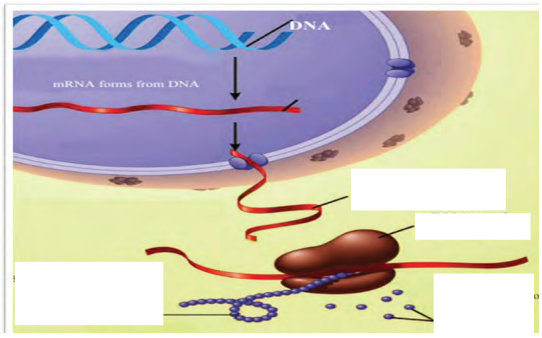
Complete the table. **3**

Nucleic acid	Number of strands	The type of sugar	Nitrogen bases found
A.....	2	B.....	Adenine, Cytosine, Guanine, C) .....
RNA	D.....	E.....	Adenine, Cytosine, Guanine, F) .....

7. The different stages of protein synthesis are given below. Rearrange them appropriately. **3**

a) tRNA carries different types of amino acids to the ribosome.
b) mRNA come out from the nucleus.
c) mRNA is formed from DNA.
d) Amino acids are joined together based on the message in mRNA.
e) mRNA reaches the ribosomes.
f) protein is synthesized.

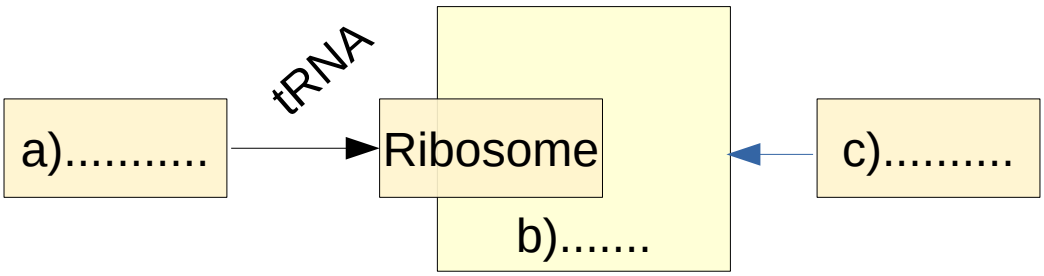
8.Observe the illustration and answer the questions. **3**



a) Name the process mentioned here.

b) Write down the different steps of this process in correct order.

9.Complete the illustrations related to protein synthesis according to the indicators. **3**

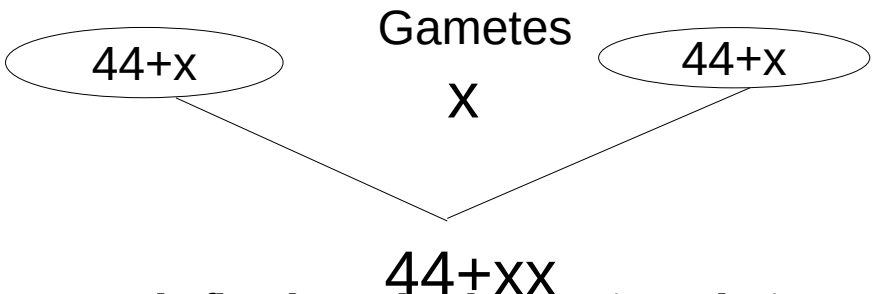


a) Molecules that are carried by tRNA to the ribosome

b) RNA which is part of the ribosome

c)RNA that carries the messages to the ribosome

10.The chromosomal fusion that makes up the genetic constitution of female is illustrated. Correct mistakes If any in the illustration. **1**



11.Properly arrange the flowchart related to protein synthesis. **3**

Protein is synthesised -----> mRNA reaches ribosome. -----> mRNA is formed from DNA-----> Different types of amino acids reach the ribosome. -----> Aminoacids are added according to messages in the mRNA. -----> mRNA reaches out side the nucleus.

12. Each species has a definite number of chromosomes. 2

a) What is the number of chromosomes in humans?

b) What are the two types of chromosomes found in human?

c) How does the genetic constitution of a woman differ from that of man?

13."There is nothing scientific in blaming mothers who only give birth to female child" Do you agree with this statement? Why? 2

14.From the given chromosome make up, find out the genetic make up of males and females respectively. 1

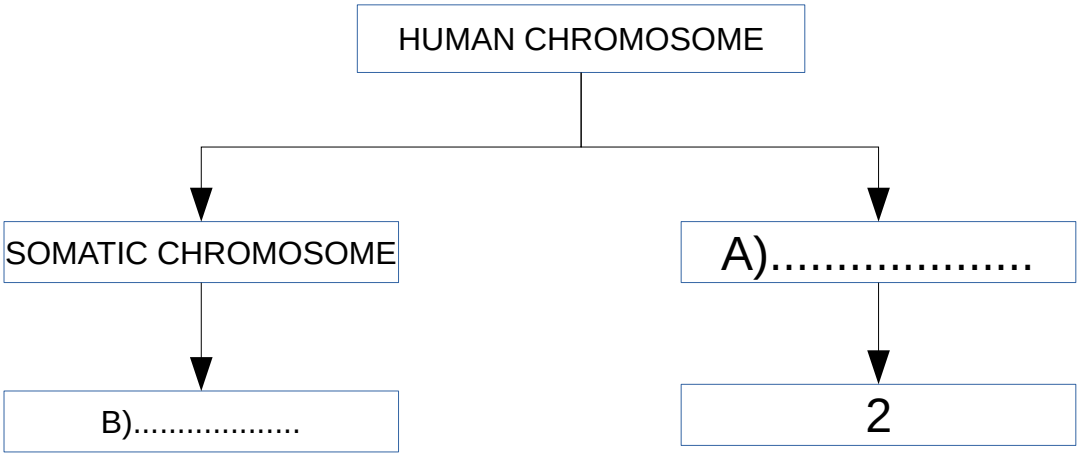
a) 22+XY, 22+ XX

b) 22+XX, 22+XX

c) 44+XY, 44+XX

d) 44+XX, 44+XY

15.Complete the illustration 1

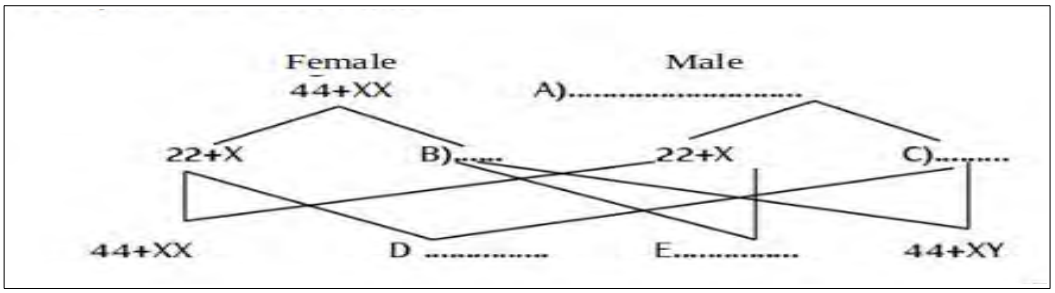


16. Identify the word pair relationship and fill in the blanks: 1

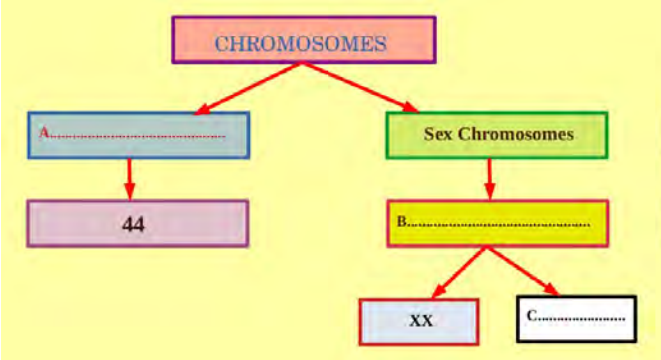
(a) Female : 44 + XX

Male : .....

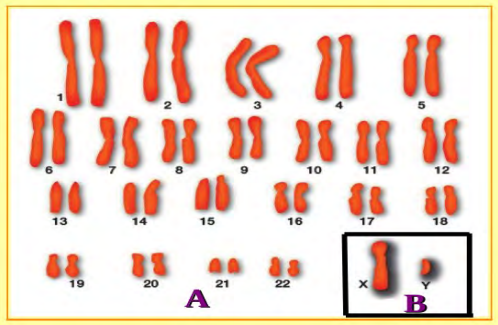
17..Complete the illustration 3



18.Fill in the blanks in the illustration related to chromosomes in man. **3**



19.Examine the picture given below and answer the questions. **2**



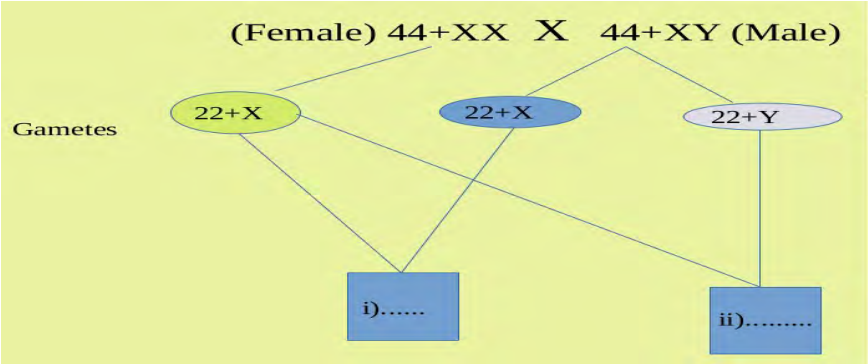
(a) Identify A and B.

(b) Write the chromosome number of human beings.

20. Analyse the table related to human chromosomes and arrange the column B in accordance with column A. **4**

A	B
Sex chromosome	22+X
Somatic chromosome	44+XY
The chromosome in sperm	22 PAIRS
The chromosome in ovum	X,Y
	22+X:22+Y

21.Observe the illustration related to sex determination in man and answer the questions. **4**



a)Fill up i &ii
b)What is the genetic mechanism that determines whether a child is male or female?
c)What does the number '44' indicate in this illustration?

Chapter_7

GENETICS OF THE FUTURE

FOCUS AREA

1. Given below are the various steps involved in the production of insulin through genetic engineering. Arrange them appropriately. 2

a) Producing active insulin from this .

b) Cutting of insulin gene from Human DNA.

c) Bacteria produce inactive form of insulin .

d) Isolating bacterial DNA(plasmid).

e) Joining insulin gene with bacterial DNA (plasmid) and inserting it into the bacterial cell.

2. "Insulin producing bacteria created". -news report . 2

Arya raises the following doubts about the news .What explanation would you give ?

a) Which is the technology that helped to create insulin producing bacteria ?

b) Will the next generation of this bacteria be able to produce insulin? Give reason .

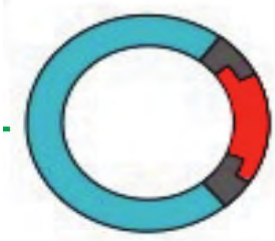
3. Analyse the word pair relationship and fill in the blanks . 1

a) Restriction endonuclease : genetic scissors.

----------: genetic glue.

2

4. Observe the given figure and answer the questions.



a) Write the role of vectors in genetic engineering?

b) Which is the commonly used vector?

5. Is Gene therapy a solution to genetic diseases? What is your response to Lakshmika's doubt? 2

6. Plasmid is used as a -----
(vector, hormone, genetic glue, genetic scissor) 1

7. Analyse the newspaper report and write down answers for the questions given below. 4

Idukki: Identified the dead bodies who lost their lives in land sliding through DNA test.

ഇടുക്കി: മണ്ണിടിച്ചിലിൽ ജീവൻ പൊലിഞ്ഞവരുടെ മൃതദേഹം DNA പരിശോധനയിലൂടെ തിരിച്ചറിഞ്ഞു.

a) What is the basis of DNA test?

b)Who developed this?

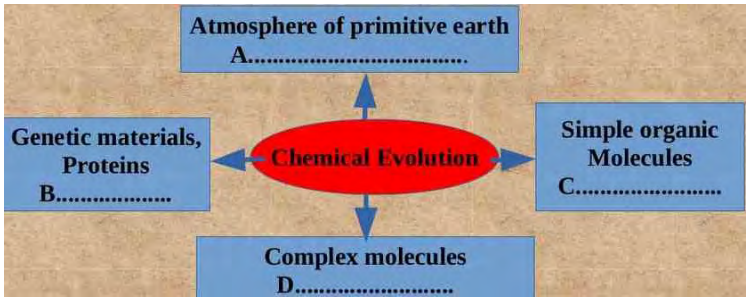
c) How is it possible to identify relations through DNA Test?

d) How could we identify the real culprit through DNA fingerprinting?

8. Write any two uses of DNA fingerprinting technology . 2

Chapter_8
THE PATHS TRAVERSED BY LIFE
FOCUS AREA

1. An illustration related to chemical evolution is given below. Complete the illustration using the information given in the box. 2



(i)RNA, DNA
(ii) Polysaccharides, peptides, fats
(iii) Presence of H 2 , N 2 , CO 2
(iv) Monosaccharides, aminoacids

2. From the elements given in the box, find and write down the element which was not present in the atmosphere of the primitive earth. 1

Water vapour, Oxygen,
Hydrogen, Nitrogen, Chlorine, Hydrogen Sulphide,
Ammonia, Carbon dioxide,
Methane

3. Identify the statements that are related to chemical evolution: 2

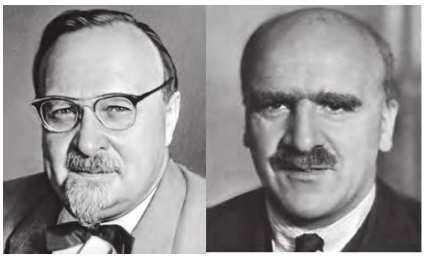
a) Life originated in some other planets in the universe and accidentally reached the earth.

b) Life originated as a result of the changes that occurred in the chemical substances in water, under specific conditions of primitive earth.

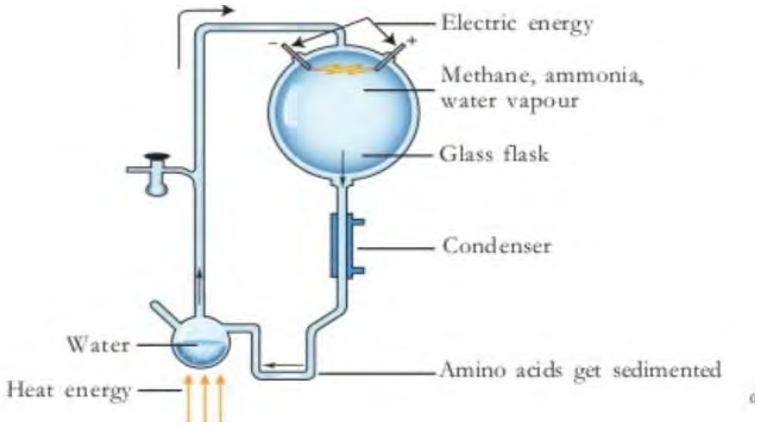
c) The theory is supported by the organic substances found in the meteors that fell on earth.

d) A I Oparin and J B S Haldane are the proponents of the theory.

4. Identify these personalities from image given below and mention the evolution theory put forward by them. **1**



5. **3**



a) Which concept of Evolution was proved by this Experimental set up?
b) Name the scientists who conducted the Experiment
c) What are the conclusions of this experiment?

6. Arrange the facts related with evolution in proper columns. **3**

.

Amino acids, Hydrogen sulphide, Peptides, Methane, Fat, Monosaccharides.

Atmosphere of primitive earth	Simple biomolecules	Complex biomolecules

7. Identify the relationship and fill in the blanks. **2**

1. **(a) Theory of Evolution : Darwin**
   (b) Chemical evolution Theory : .....

2. (a) Monosaccharide: Polysaccharide
(b) Amino acids : .....

8. Which concept is put forward by the theory of Natural selection ? 1
(a) Origin of life
(b) Origin of Species
(c) Origin of Eukaryotes
(d) Chemical Evolution of life

9. Given below is an illustration of Finches observed by Darwin in the Galapagos. Island. 2

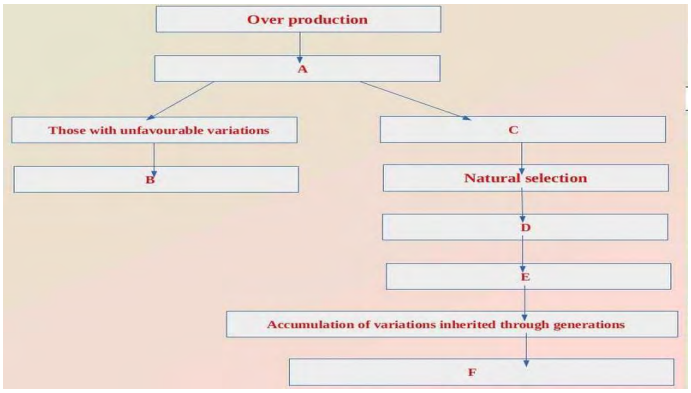
(a) Which peculiarity of the Finches attracted Darwin ?
(b) How do these peculiarities help Finches in their survival ?

10. A few concepts of Scientists like Darwin and Malthus are given below. Classify them in the table given below. 2

(a) Selection by nature leads to the diversity of species.
(b) Rate of food production does not increase proportionately to the increase in population.
(c) Those organism that overcome the unfavourable situations will survive.
(d) Scarcity of food and starvation leads to struggle for existence.

Concepts of Darwin	Concepts of Malthus

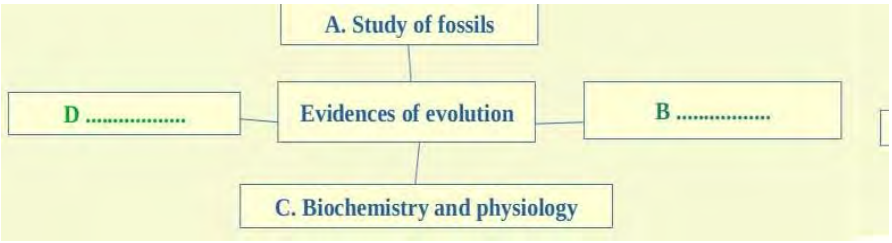
11. Observe the illustration and answer the questions below. 4



(a) Complete the illustration.
(b) Name the theory which is illustrated here .
(c) Who put forward this theory ? Explain his findings with the help of suitable example.

12.The modified version of Darwinism is known as Neo Darwinism .Explain how was Darwinism revised later. 2

13. Complete the illustration given below, related to the evidences that support the evolution of new species. 2



14. Scientific study of the remnants, body parts, and imprints of primitive organisms are evidence of evolution. 3

(a) What inferences do we arrive at, through such scientific studies?
(b) How will you explain these inferences as evidences on evolution?

15. Fossils obtained from the different layers of rocks clearly indicate the evolution of eukaryotes from prokaryote. 3

(a) What are fossils?
(b) Prokaryotes are one of the oldest living organisms. What evidence do fossils provide for this?
(c) Write the branch of science which deals with study of fossils ?

16.Identify the odd one from those given below, and write the feature common to others. 2

(a) Nitrogen ,Hydrogen, Oxygen, Carbon dioxide
(b) acquired characters, over production, struggle for existence, natural selection

Chapter_1
Sensations and Responses

NON FOCUS AREA

1. Mention any two physiological activities retarded due to the action of sympathetic system. 2 Marks

2. Mention any two physiological activities retarded due to the action of para sympathetic system. 2 Marks

3. Analyse the following statements and answer the following questions.

a) "The sympathetic system stimulates the physiological activities".

b) "The sympathetic system stimulates some physiological activities and slows down some others."

Which statement do you agree with? Justify your answer. 2 Marks

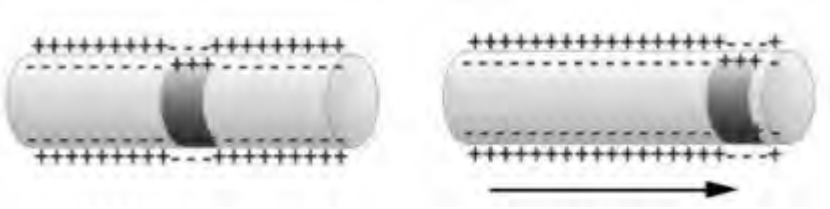
4. "Some physical activities will change when you are afraid".

a) Identify the part of autonomous nervous system that regulates the physical activities at this context.

b) What are the changes made by this system to the working of organs like heart, kidney and salivary glands? 3 Marks

5. Impulse formation in a neuron is illustrated below.

Figure A **Figure B**



a) Which factor causes charge difference in figure A?

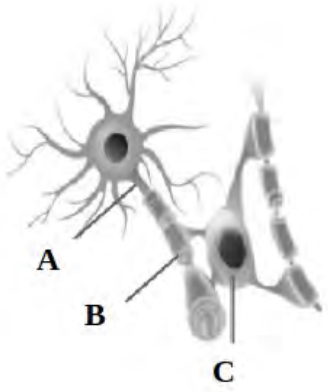
b) What difference can you observe in figure B, when compared to figure A. Give reason. 3 Marks

6. "Impulses are formed due to the change in the distribution of ions on either side of the plasma membrane of a neuron".

a) What changes occur to the charges on either side of plasma membrane during impulse formation. Which factor causes this?

b) How does charge difference transmit from one part of the neuron to the other? **3 Marks**

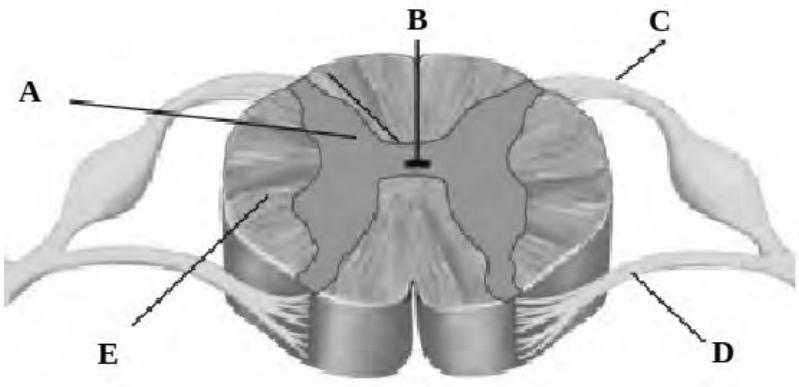
7. Identify the figure given below and answer the following questions. **2 Marks**



a) Name the parts A, B &C.

b) Name the nerve centres which contain 'C'.

8. Identify the figure given below and answer the following questions.

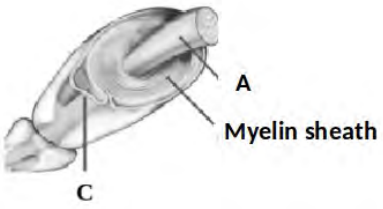


a) Name the parts A, C&E.

b) Name the fluid which fills in 'B'.

c) What is the function of 'D'. **5 Marks**

9. Observe the figure given below and identify the part C.



a) Name the part 'A'.
b) How myelin sheath is formed?
c) Write any two functions of myelin sheath. **4 Marks**

10. Read the following statements and tabulate them in the given table suitably by giving appropriate headings. **3 Marks**

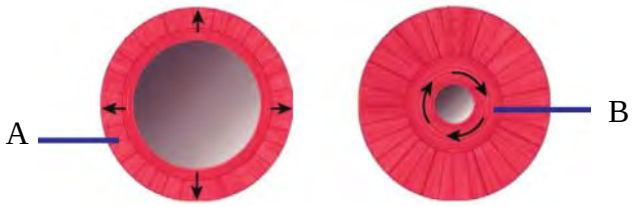
- **Pupil of eye dilates**
- **Pupil of eye contracts**
- **Heart beat increases**
- **Heart beat becomes normal**
- **Peristalsis in the intestine slows down**
- **Peristalsis in the intestine becomes normal.**

•	• .....

****

CHAPTER – 2
WINDOWS OF KNOWLEDGE
NON – FOCUS AREA

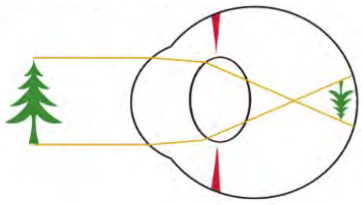
23 Observe the figure and answer the following questions.



a Identify A, B. (1/2 + 1/2 =1)

b Explain its significane. (2)

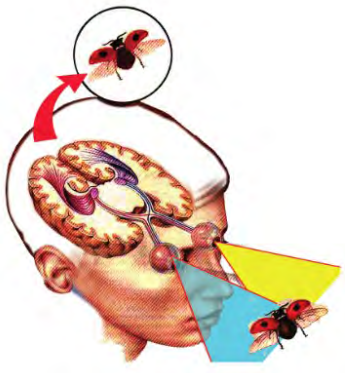
24 Observe the figure and answer the following questions.



a. What are the peculiarities of the image formed by the lens of the eye? (1)

b How could we see nearby and distant objects clearly? (2)

25 Analyse the figure and answer the following questions



a Identify the process. (1)

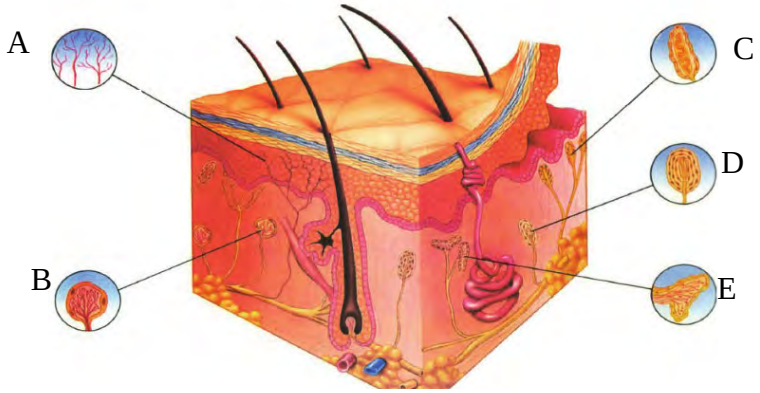
b Though two images of the same object are formed in our two eyes,we see only one image of the object. How does this happen? (2)

26 Analyse the statements in the box and categorise them under proper headings after filling the blanks properly. (1/2X6 =3)

Ciliary muscles contract	Ciliary muscles relax
Ligaments relax	Ligaments stretch
Curvature of lens	Curvature of lens .....
Focal length	Focal length .....

27 Why we didn't feel taste for foods when have cold? (2)

28



a Identify A,D (1/2 + 1/2)

b Write down the function of B&C. (1/2 + 1/2)

C How do we feel hot? (2)

29 Make suitable word pair. (1/2 X 8=4)

Eye spot,Lateral line,Planaria, Housefly,Jacobson's organ, Ommatidia,Snake,Shark

30. Fill the table suitably. (1/2 X 6=3)

A	B	C	D
Glaucoma	...P....	blindness	.....Q.....
....R....	lens become opaque	.....S.....	replacing the lens
....T....	....U.....	Redness & irritation in the eye	personal hygiene.

CHAPTER 3

CHEMICAL MESSAGES FOR HOMEOSTASIS

NON – FOCUS AREA

1. Identify the word pair relationship and fill in the blanks. **2**

a) Melatonin : Pineal gland
Epinephrine : .....

b) Salt-water level : Aldosterone
Youth hormone : .....

2. Pick out the odd one out. Write the common features of others. **1**

TSH , ACTH , GTH , ADH

3. Which of these hormones is not produced by the adrenal gland ? **1**

Aldosterone , Epinephrine , Cortisol, Vasopressin .

4. When the cow accidentally jumped across the bus , the driver suddenly breaked and the accident was avoided . Which hormone enables the driver to react appropriately in an emergency ? How it worked on the driver's body ? **3**

5. In pregnant woman , a hormone helps to contract the smooth muscles of the uterine wall and fecilitates child birth. **2**

a) Which is this hormone ?
b) Write another function of this hormone.

6. Indicators related to the Endocrine gland are given below. Analyse them and answer the questions. **3**

Situated just below the sternum. **Active during Infancy.** **Consricts at puberty.**

a) Name this endocrine gland.
b) Which is the hormone synthesised by this gland ?
c) Write the function of this hormone.

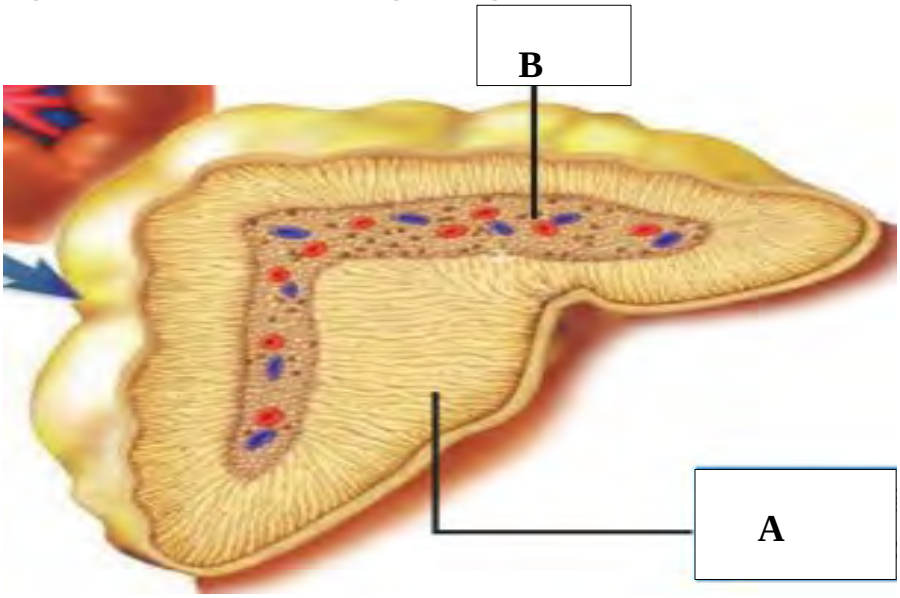
7. An individual loses large quantity of water through urine. 3

a) Which could be the disease ?
b) Analyse the conditions that lead to this disease.

8. Given below are few statements related to hormones. Pick out the correct ones. 2

a) Oestrogen helps to maintain embryo in the uterus.
b) Progesterone facilitates child birth.
c) Prolactin helps in the production of milk.
d) Oxytocin facilitates lactation.

9. Observe the diagram of the endocrine gland given below and answer the questions 4



a) Name the parts indicated as A and B .
b) Name the hormones synthesised by A . Explain their action.

10. A farmer named Balan cultivated oranges in his orchard. Now the trees are full of oranges. The price of orange is very high. 3

*** This farmer wants to harvest all fruits together .**
*** Ripen them together.**

a) Suggest two artificial plant hormones to satisfy the needs of the farmer.
b) Uncontrolled use of plant hormones must be controlled. Evaluate this statement.

Chapter_4
Keeping diseases away

NON FOCUS AREA -QUESTIONS

1.Observe the name of diseases given in the box and answer the questions given below. 2

Chikunguniya,Filariasis,Malaria,Dengue fever

a) What is the common peculiarity of these diseases?

b) How can we control the spreading of these diseases?

2. Obstruction in the flow of lymph : Filariasis 1

Inflammation in the lymph glands of throat :

3.Suitably arrange the items of column A,B and C together. 2

A	B	C
Leptospira	Filariasis	Culex mosquito
Filarial worm	Athletes' foot	Internal bleeding
Corynebacterium	Rat fever	Cough and sneeze
Fungus	Diphtheria	Contact with contaminated water and soil

4.The symptoms of a communicable disease is given below. 2

Manifestation of round, red blisters on the skin

a) Identify the disease . Name the pathogen.

b) How does this disease spread?

5.The symptoms of a disease is given in the box.Analyse it and answer the questions. 3

Fever,throat pain and inflammation in the lymph glands of the throat produced an ash coloured thick coating in the throat

a) Identify the disease and name the pathogen .

b) What is the reason for the production of an ash coloured thick coating in the throat?

c)Why is it said that vaccination is the most effective way to prevent deadly diseases like diphtheria?

6. Anjana suffered a minor injury to her leg while playing with friends.She was rushed to hospital with uncontrolled bleeding. The doctor's findings after a detailed examination are listed below.

"This is due to the fact that the blood does not clot. It is a genetic disease." 2

a) Name the genetic disease.

b) How to make a temporary relief for this condition?

7. Read the news paper report and write answer to the following questions. 3

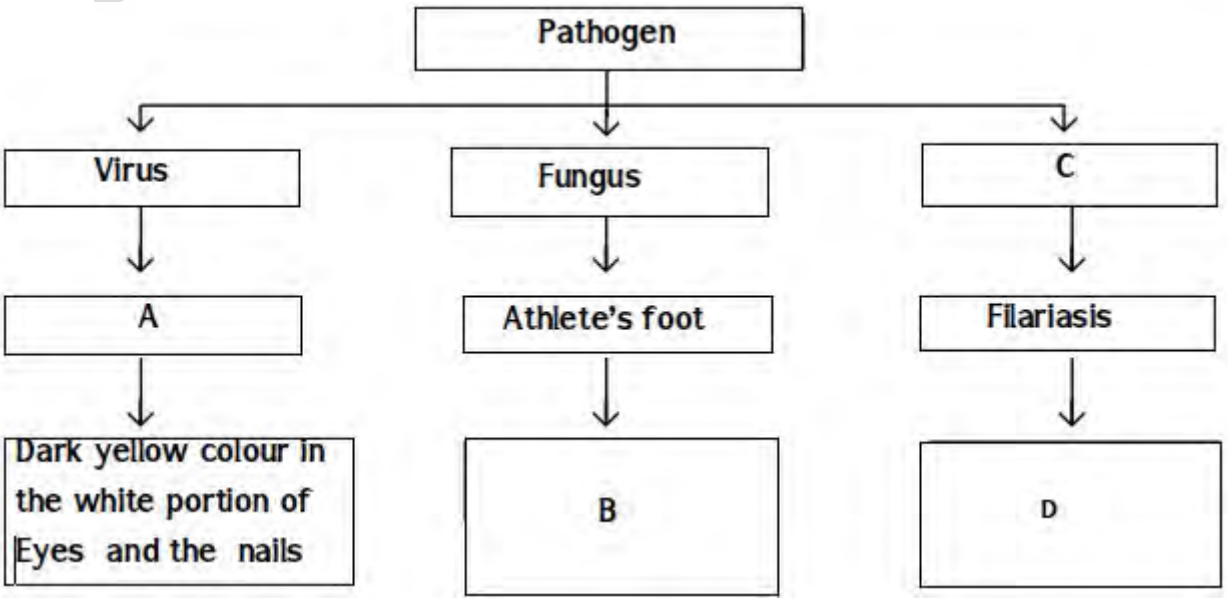
> Remembrance of Sister Lini
> Kozhikode : While caring for people with Nipah.....

a) Name the pathogen that cause the disease mentioned in the news paper report.

b) Which is the natural vector of that pathogen?

c) What are the situations that enable the pathogen to enter human body?

8. Observe the illustration and complete A, B, C & D . 2



9. Select statements related to virus from the statements given below. 2

a) Simple structure with a DNA or RNA molecule within a protein coat

b) Toxins produced by them destroy cells and cause disease

c) It is a prokaryote

d) Multiplies by taking control over the genetic mechanism of the host cells

e) No cell organelles as seen in normal cells

f) Multiply through binary fission

g) Dengue fever is a viral disease.

10.Look at the pictures and write answers to the questions given below. 2

A

B

a) Identify the diseases A & B

b) Which are the pathogens of these diseases?

CHAPTER – 5
SOLDIERS OF DEFENSE
NON – FOCUS AREA

1, Which among the following is the odd one? Why? 1
(Lymphocyte, Monocyte, Neutrophil, Basophil , Eosinophil)

2. Ammu's hand got injured in an accident. After sometime the wound area got swollen. 2
a. What is the type of activity known for.
b. Is it a defence mechanism? Why?

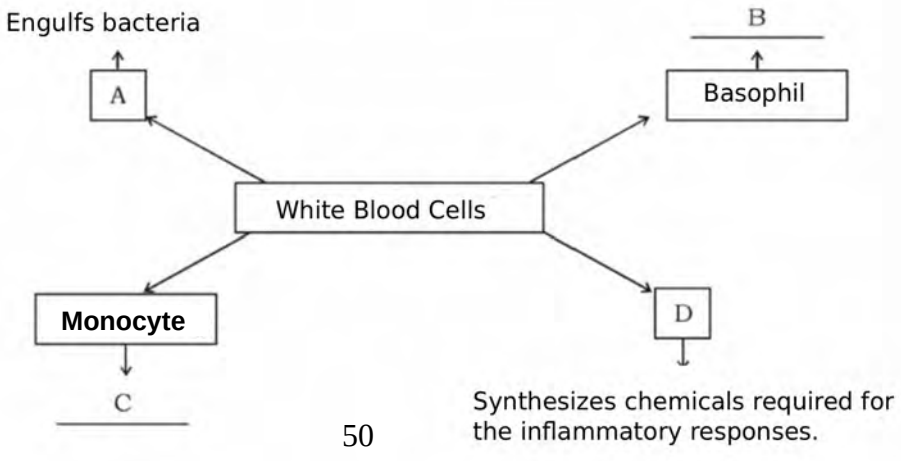
3. Blood clotting is a defence mechanism. Analyse the statement. 1

4. Prepare the flow chart of the clotting of blood using the following statements. 3
a. Thromboplastin convert prothrombin to thrombin.
b. Blood flows from the wound.
c. Blood clot is formed.
d. Thrombin converts fibrinogen to fibrin.
e. Tissues degenerate to form the enzyme called thromboplastin.
f. The red blood cells and platelets entangle in the fibrin network.

5. One of the scars of the wound obtained by Binu while playing football remained even after 19 years. What explanation will you give for the scar remaining as such? 2

6. Identify the word pair relationship fill in the blanks : 1
a) EEG : to record electric waves in brain
..... : to record electric waves in heart muscles.
b) Heart beat : Stethoscope
Blood pressure :.....

7. Complete the illustration associated with White Blood Cells. 2



8. Identify the word pair relationship fill in the blanks **1**

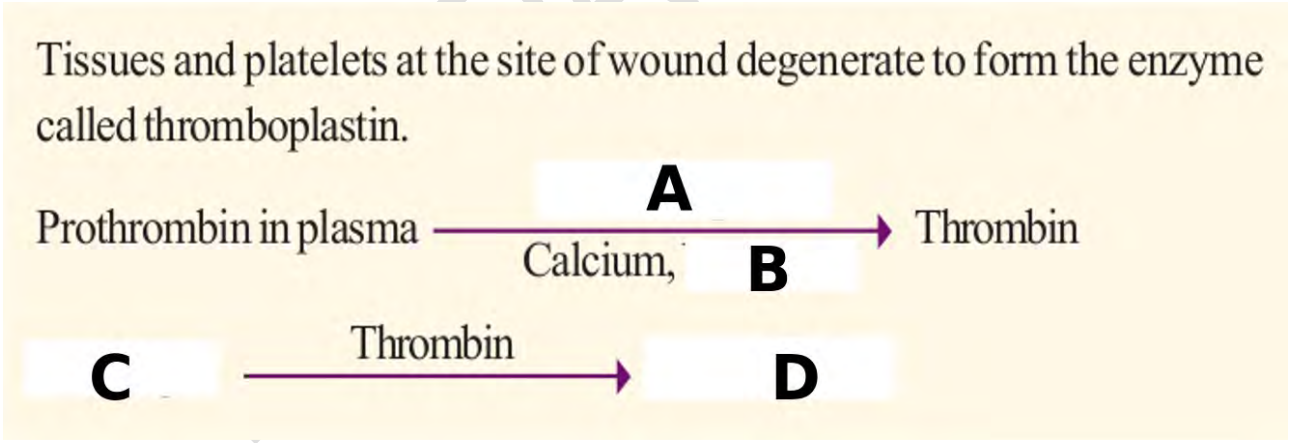
a) Modern medicine: Hippocrates
Homeopathy: .....

9. The following statements are related to the Inflammatory Response. **2**
Prepare a flow chart.

i) The cells in the injured area produce certain chemicals.
ii) White blood cells reach the wound site through the walls of the capillaries.
iii) Cells are damaged due to injury or infection.
iv) Blood capillaries dilate.
v) Neutrophils and monocytes engulf and destroy germs.

10. "Fever is a preventive measure". Validate this statement **2**

11. Observe the diagram of blood clot formation and complete A, B, C, D **2**



CHAPTER - 6
UNRAVELLING GENETICS MYSTERIES
NON – FOCUS AREA

1.Name the following **6**

(a) Father of Genetics
(b) Scientific Name of pea plants
(c) The different form of a gene that control a character
(d) The scientists who proposed double helical model of DNA
(e) The pigment protein which impart colour to the skin
(f) The hereditary factors first described by Mendel

2. The hybridization experiment conducted on the basis of two characters in pea plants is illustrated below. Observe the illustration and answer the questions below **2**

Tall with Round seed X Dwarf with Wrinkled seed

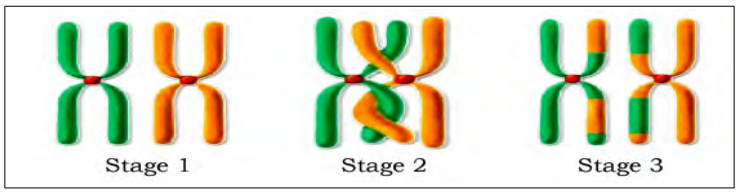
Tall with Round seed (F1 generation)

(a) Which are the new combinations of characters different from parents appeared in the second generation?
(b) What is the reason for new combinations of characters in the second generation?

3. What is the difference between the two types of chromosomes in human beings? **1**

4.What are the reasons for variations in organisms ? **2**

5.Observe the illustration and answer the questions given below **4**



(a) Identify the process
(b) When does it occur?
(c) What is the role of this process in causing variations?

6. The hybridization experiment conducted by Mendel based on two characters in pea plants, complete the table related to allele structure of second generation **4**

Self pollination in first generation

Tall plant , Axial flower X Tall plant ,Axial flower
TtAa TtAa

Gamates	TA	Ta	tA	ta
TA	**TTAA Tall with axial flowers**	**(1) ----------**	**(ii) ----------**	**TtAa Tall with axial flowers**
Ta	**(iii) ----------**	**TTaa Tall with terminal flowers**	**TtAa Tall with axial flowers**	**(iv) ----------**
tA	**TtAA Tall with axial flowers**	**(v) ----------**	**ttAA Dwarf with axial flowers**	**(vi) ----------**
ta	**(vii) ----------**	**Ttaa Tall with terminal flowers**	**(viii) ----------**	**ttaa Dwarf with terminal flowers**

7. How do fertilization causes variations in the next generation? 2

8.Mutation brings about changes in genes leading to variations in characters 3
(a) What are mutations?
(b) What are the causes of mutations?
(c)What is the role of mutation in causing variations?

9. What may be the reason in the colour difference of skin in people living in various parts of the world ? 2

CHAPTER – 7
GENETICS OF THE FUTURE
NON – FOCUS AREA

-

1 .The technology that helps to identify the location of a gene in the DNA responsible for a particular trait is called---------- 1

(DNA profiiling , Gene mapping , DNA testing , DNA fingerprinting)

2 . Observe the figure and answer the following questions . 3

a) what does this logo indicates?
b) What is the relevance of starting such a project ?
c) write the significance of this project .

3 .Choose the suitable words related with the following statements from those given in the box . 2

a) The complete genetic material present in an organism .
b)The non functional genes present in DNA .
c)The number of genes in human genome identical to those in bacteria .
d) Number of functional genes in human genome .

About 24000 , junk genes , 200, genome

4 .”There are certain limitations in producing insulin”. Analyse this statement and answer the following questions . **2**

a) What are the limitations in producing insulin ?

b)How can we overcome this by researches in this field?

5 .Make suitable pairs from the box . **3**

Viral diseases , Interferons, Insulin , Growth disorders , Endorphin , Somatotropin , Diabetes , Pain

Hints : Insulin – Diabetes

CHAPTER – 8
THE PATH TRAVERSED BY LIFE
NON FOCUS AREA

1.Identify the odd one from those given below, and write the feature common to others: 1

(a)monkey, gibbon, orangutan, gorilla.

2.Analyse the word pair relationship and fill in the blanks: 1

(a) Monkey: Cercopithecoidea

Chimpanzee : .....

3. Match the following : 1 1/2

(a)Lamarck	**(i) Natural selection**
(b)Darwin	**(ii) Mutation theory**
(c)Hugo devries	**(iii) Acquired characters**

4. The table related to the geological time scale is given below. Complete it. 4

3800 million years of ago	**(a)**
(b)	**Origin of prokaryotes**
1500 million years of ago	**(c)**
(d)	**Origin of multicellular organisms**

5.An explanation related to the history of evolution is given below. Observe this and answer the questions. 2

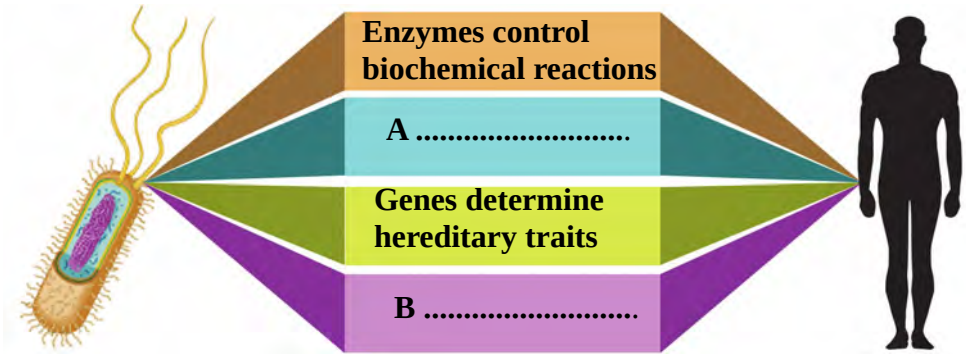
(a) Which concept is explained through this ?

(b) This argument is not accepted by the scientific world. Why?

6.The forelimbs of the organisms shown in the picture below, do not show any similarity. Hence they do not have any evolutionary relationship. 2

How will you respond to this statement? Substantiate.

7.Complete the illustration given below, related to the evidences of Biochemistry and physiology that support the evolution of new species. 2



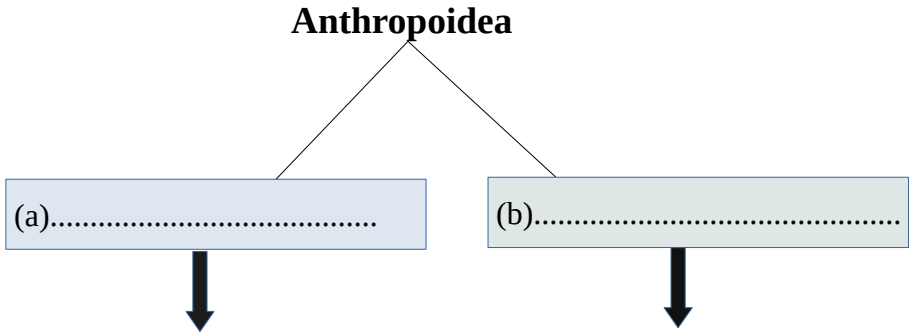
8.The table given below shows the difference in amino acids obtained from a comparative study of the chain of haemoglobin of different organisms. Analyse the table and answer the questions 2

Animal	Difference from the amino acids in the chain of haemoglobin in man.
Chimpanzee	0
Gorilla	1
Rat	31

(a) Which organism is more closely related to man on the basis of evolution?

(b) What is the reason for this ?

9.Complete the illustration related to the evolution of human beings appropriately **11/2**



(c).....
Eg: Monkey

Developed brain ,Freely movable hands
Eg: Chimpanzee

10. Rearrange the following animals according to the order of evolutionary series. **1**

Gibbon, Man, Gorilla, Chimpanzee, Monkey, Orangutan

11. Do you agree with the statement that man is evolved from monkeys ? What is your opinion ? **1**

12.Arrange the links in human evolution appropriately: **3**

Indicator
• Homo erectus • Homo sapiens • Ardipithecus ramidus • Australopithecus afarensis • Homo habilis • Homo neanderthalensis

Modern man	→	F.....
Thick chin and large teeth	→	E.....
Most primitive member of the human race	→	D.....
Contemporary to modern man	→	C.....
Slender body	→	B.....
Made weapons from bones	→	A .....

13.A few concepts of scientists like Darwin and Malthus are given below. Classify them in the table given below. **2**

a. Selection by nature leads to the diversity of species.

b. Rate of food production does not increase proportionately to the increase in population.

c. Those organisms that overcome the unfavourable situations will survive.
d. Scarcity of food and starvation leads to struggle for existence.

Concepts of Darwin	Concepts of Malthus

14.An excerpt from the science article 'Man and Evolution' is given below. Analyse the excerpt and answer the questions. 2

Certain evolutionary features make man different from other animals included in evolutionary history . This helped him in his dominance over nature and other organisms. His interferences had created a negative impact on the existence of other organisms.

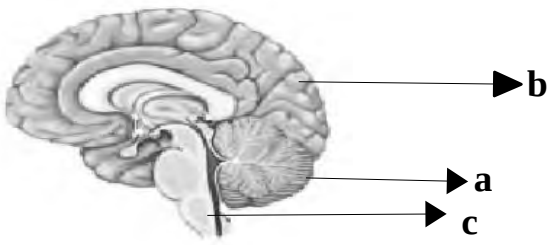
(a) What are the features that make man different from other animals?
(b) Has man's interference led to Biodiversity deterioration as mentioned in the excerpt? Evaluate.

CHAPTER 1

SENSATIONS AND RESPONSES

FOCUS AREA ANSWERS

1	**Dendrite:- Receives impulses from adjacent neuron** **Synaptic knob:- Secretes neurotransmitter** **Axon:- Carries impulses from the cell body to outside.**	1 1 1
2	**Drawing** **A- Nucleus – control and co-ordination of the cell.** **B- Axon – carries impulses outside.** **C- Synaptic knob – secretes neurotransmitters.**	1 1 1 1
3	**A. Synaptic knob** **B. neurotransmitters eg: dopamine / acetylcholine**	1 1/2+1/2
4	**A. Neuron – Neuron** **B. Neuron – Muscle cell** **C. Neuron – Glandular cell**	1 1 1
5	**i. (b) Motor neurons** **ii. (d) Carries impulses to and from brain and spinal chord**	1 1
6	**B. Motor nerve -Carries impulses from brain and spinal cord to various parts of the body.** **C. Sensory nerve -Carries impulses from various parts of the body to brain and spinal cord.**	1 1
7	**Acetylcholine, Dopamine**	1/2+1/2
8	**(a) The function of <u>synapse</u> is to regulate the speed and direction of impulses.** **(b) The nerve is a group of <u>axons.</u>**	1 1
9	**d. Nerve cell- Schwann cell, others are different types of synapses**	1/2+1/2
10	**(c) Axon, others are parts of the brain**	1/2+1/2
11	**Maintains equilibrium of the body** – **Cerebellum** **Controls breathing** – **Medulla oblongata** **Maintains homeostasis** – **Hypothalamus**	1 1 1
12	**(i) b- Controls involuntary actions like heart beat, breathing etc.** **(ii) d- Thalamus**	1 1
13	**Cerebrum - Evokes sensations** **Cerebellum - Maintains equilibrium of the body**	1 1

	Medulla oblongata - control involuntary actions	1
14	 **(a) Cerebellum (b) Cerebrum (c) Medulla oblongata**	1 1 1 1
15	**(a) Reflex action** **(b) Stimulus--> Receptor-->Sensory neuron-->Interneuron--> Motor neuron --> Related muscle** **(c) Reflex arc**	1 3 1
16	**This statement is not correct. All reflexes are not under the control of the spinal cord. Some reflexes are controlled by cerebrum.** **For example:- we blink our eyes when light suddenly falls on eyes.**	1/2 1 1/2
17	**A. Parkinsons disease.** / **B. Alzheimer's disease.** / **C. Epilepsy.** **Loss of body balance** / **Loss of memory** / **Continuous and irregular flow of electric charges in the brain.** **Destruction of ganglions** / **Accumulation of an insoluble proteinin the neural tissues** / **Epilepsy due to continuous muscular contraction.**	3*1=3 1 1
18	**(a) Sensory nerve** **(b) All spinal nerves are mixed nerve. It is formed of sensory nerve fibres and motor nerve fibers.**	1 1
19	**Receptor -->Sensory neuron--> Interneuron-->Motor neuron-->Muscle**	1
20	**(i) Statement A and B are true and statement B is the cause of statement A**	2

<table>
<tr><th>Sl No</th><th>FOCUS AREA ANSWER KEY
CHAPTER - 2</th><th>MARK</th></tr>
<tr><td>1</td><td>a.cornea
b.yellowspot
c.oval window
d.cerebellum
e.vestibular nerves
f.body balancing
g.cerebellum</td><td>1
1
1
1
1
1
1</td></tr>
<tr><td>2</td><td><table>
<tr><td>Conjuctiva</td><td>The layer which protects the front part of the sclera except the cornea.</td></tr>
<tr><td>Ciliary muscles</td><td>Circular muscles seen around the lens.</td></tr>
<tr><td>Cornea</td><td>Slightly projected anterior part of the sclera.</td></tr>
<tr><td>Pupil</td><td>The aperture seen at the centre of the iris.</td></tr>
</table></td><td>1/2 x4=2</td></tr>
<tr><td>3</td><td><table>
<tr><td></td><td>A</td><td>B</td></tr>
<tr><td>figure</td><td>Rod cells</td><td>Cone cells</td></tr>
<tr><td>pigment</td><td>rhodopsin</td><td>photopsin.</td></tr>
<tr><td>shape</td><td>Rod shaped</td><td>Cone shaped</td></tr>
<tr><td>function</td><td>Provides vision in dim light.</td><td>provide colour vision and vision in bright light</td></tr>
</table></td><td>1/2+1/2
1/2+1/2
1/2+1/2

1+1</td></tr>
<tr><td>4</td><td>a.In the presence of light, the pigments present in photoreceptors, dissociate. This chemical change leads to the formation of impulses. These impulses are transmitted to the cerebrum through optic nerves and this enables vision.
b. retinal, a part of the visual pigment, is derived from Vitamin A. The deficiency of Vitamin A results in the low production of retinal. This in turn prevents the re synthesis of rhodopsin. In this condition, objects cannot be seen clearly in dim light and this disease is called night blindness.</td><td>2

2</td></tr>
<tr><td>5</td><td>A.cornea , B. aqueous humor, C.pupil D.lens, E.retina</td><td>1/4X8=2</td></tr>
</table>

<table>
<tr><td></td><td>F.photoreceptors, G. Optic nerve, H.cerebrum</td><td></td></tr>
<tr><td>6</td><td><table>
<tr><th>EYE DEFECT</th><th>REASON</th><th>SYMPTOMS</th></tr>
<tr><td>Night blindness</td><td>The deficiency of Vitamin A</td><td>cannot see in dim light</td></tr>
<tr><td>Colour Blindness</td><td>defective cone cells</td><td>cannot distinguish colours</td></tr>
</table></td><td>1/2X6=3</td></tr>
<tr><td>7</td><td>a. Xerophthalmia
prolonged deficiency of Vitamin A, makes conjunctiva and cornea become dry and opaque leading to blindness.
b.Colour Blindness
persons cannot distinguish green and red colours due to the defect of cone cells. This condition is called colour blindness</td><td>1/2

1
1/2

1</td></tr>
<tr><td>8</td><td>a)1. low production of retinal
2.prevents the re synthesis of rhodopsin

3.objects cannot be seen clearly in dim light

4.Night Blindness
b)x. prolonged deficiency of retinal
y.conjuctiva and cornea become dry and opaque
z. Xerophthalmia</td><td>1/2X7=31/2</td></tr>
<tr><td>9</td><td>No vision as photoreceptors are absent.</td><td>1</td></tr>
<tr><td>10</td><td>A. Pinna B.Auditory canal, C. Tympanum</td><td>1/2+1/2+1/2</td></tr>
<tr><td>11</td><td>A.Cochlea,B.Eustachian tube,C.Pinna ,D.Tympanum</td><td>1X4=4</td></tr>
<tr><td>12</td><td><table>
<tr><th>EXTERNAL EAR</th><th>MIDDLE EAR</th><th>INTERNAL EAR</th></tr>
<tr><td>Auditory canal,</td><td>Ear ossicles</td><td>Semicircular canals</td></tr>
<tr><td>Pinna</td><td>Eustachian tube</td><td>Vestibule</td></tr>
<tr><td>Tympanum</td><td></td><td>Cochlea</td></tr>
</table></td><td>1/2X8=4</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

<table>
<tr><td>13</td><td><table>
<tr><td>A</td><td>B</td></tr>
<tr><td>Pinna</td><td>Carries sound waves to the auditory canal</td></tr>
<tr><td>Auditory canal</td><td>Carries sound waves to the tympanum</td></tr>
<tr><td>Tympanum</td><td>A thin circular membrane. It vibrates in resonance with sound waves.</td></tr>
<tr><td>Ear ossicles</td><td>Amplify and transmit the vibrations of the tympanum to the internal ear</td></tr>
<tr><td>Eustachian tube</td><td>Protects the tympanum by balancing the pressure on either side of the tympanum</td></tr>
<tr><td>Oval window</td><td>Spreads the vibrations of the ear ossicles to the inner ear</td></tr>
<tr><td>Round window</td><td>Helps in the movements of fluid inside the cochlea</td></tr>
</table></td><td>1/2x7=31/2</td></tr>
<tr><td>14</td><td>A.Auditory canal. B Tympanum,C Ear ossicles,
D. Cochlea,E .Auditory nerve F.Cerebrum</td><td>1/2X6=3</td></tr>
<tr><td>15</td><td>e) Substances responsible for taste dissolves in saliva..
b) The taste detecting chemoreceptors are stimulated.
a) Impulses are formed.
c) The impulses reach the brain through the nerves.
d) Forms the experience of the taste..</td><td>1/2X5=
2 1/2</td></tr>
<tr><td>16</td><td>b.aromatic particles dissolves in the mucus in the nose
d. Impulses are formed.
e.impulse reach the cerebrum through Olfactory nerve.</td><td>1/2x3=1 1/2</td></tr>
<tr><td>17</td><td>a.Retina
bVitreous humor
c.lens</td><td>1x3=3</td></tr>
<tr><td>18</td><td>a)
A, Vestibule, B Semicircular canals, D Auditory nerve, E. Cochlea
b)
D.Auditory nerve carries impulses to the cerebrum. .Ehelps in hearing.
c) Movements of the head bring about the movement of the endolymph in the vestibule and the semicircular canals. This causes movement of the sensory hair cells and generates impulses. These impulses are transmitted</td><td>1/4x 4=1
1/2x2=1
2</td></tr>
</table>

<table>
<tr><td></td><td>by the vestibular nerves to the cerebellum, and the equilibrium of the body is maintained.</td><td></td></tr>
<tr><td>19</td><td>a.Cochlea . Others are parts of middle ear
b.Cochlea. Others are involved in body balancing.</td><td>1
1</td></tr>
<tr><td>20</td><td>A.Taste buds B. olfactory receptors</td><td>1//2
1/2</td></tr>
<tr><td>21</td><td>a.Sclera
b.Choroid</td><td>1
1</td></tr>
<tr><td>22</td><td><table>
<tr><td>Aqueous humor</td><td>Vitreous humor</td></tr>
<tr><td>Found between the lens and the cornea</td><td>Found between the retina and the lens</td></tr>
<tr><td>water like fluid</td><td>The jelly like substance</td></tr>
<tr><td>Provides oxygen and nourishment to the tissues of the eye.</td><td>Helps in maintaining the shape of the eye.</td></tr>
</table></td><td>1/4X8=2</td></tr>
</table>

CHAPTER - 3 ANSWER KEY FOCUS AREA		
1	a) Islets of Langerhans , b) Beta cells	1+ 1
2	a) Insulin, b) Cellular uptake of glucose molecules, Converts glucose in to Glycogen in the liver and muscles.	1+ 1
3	a) A- Alpha cells , B – Beta cells b) Alpha cells – Glucagon , Beta cells – Insulin c) Converts the Glycogen stored in the Liver to Glucose , Synthesizes Glucose from aminoacids.	1+1+1
4	a) A- Decreases , B – Increases , C – Increases , D – Decreases. b) Raises the level of glucose in blood , Leads to Diabetes.	1/2 + 1/2 1/2 + 1/2 1
5	a) B , b) Increased appetite and thirst , Frequent urination .	1 + 2
6	a) 9-11 mg/100ml blood. b) A- Thyroid , B – Parathyroid. c) X- Calcitonin , Y- Parathormone. d) Prevents the process of mixing of calcium from bones to blood, Stores the excess calcium from blood to bones.	1+1+1+1
7	a) X – Gigantism, Y – Dwarfism b) X- The production of Somatotropin increases during the growth phase. Y – The production of Somatotropin decreases during the growth phase.	1+2
8	a) Acromegaly, Excessive production of Somatotropin after the growth phase, Growth of the bones on the face , jaws and fingers.	1+1+1
9	a) Bombykol	1
10	a) Pheromones b) Attracting mates , Informing availability of food , Determining the path of travel , Signalling dangers. c) Muscone in the musk deer , Civeton in the civet cat, Bombykol in female silk worm moth (any two)	1 2 1
11	a) Abscisic acid - Dropping of ripened leaves and fruits. b) Gibberellin - Breaking up of stored food in seeds. c) Auxin – Promoting the growth of terminal buds. d) Ethylene – Helps in ripening of fruits.	1+1+1 1+1
12	A- Pheromones, B – Plant hormones	2
13	B , C , D	2
14	Auxin , Others are Non gaseous hormones	1

1

CHAPTER – 4

ANSWER KEY – FOCUS AREA

<table>
<tr><th>Q.No.</th><th>Value point</th><th>Score</th></tr>
<tr><td>1</td><td>Pathogen–Mycobacterium tuberculosis,
Symptoms–Loss of body weight, fatigue, persistent cough</td><td>1/2+1/2</td></tr>
<tr><td>2</td><td>Tuberculosis</td><td>1</td></tr>
<tr><td>3</td><td>No.Kidneys, bones, joints, brain etc. are also affected by tuberculosis.</td><td>1/2+1/2</td></tr>
<tr><td>4</td><td>a) HIV
b) AIDS
c) Lymphocytes play a major role in providing immunity to the body. HIV enters the body and multiplies using the genetic mechanism of lymphocytes. Hence the number of lymphocytes decreases considerably and reduces the immunity of the body.</td><td>1+1+1</td></tr>
<tr><td>5</td><td>–Malaria is a disease caused by the pathogen Plasmodium.
–It is spread by female anopheles mosquito .
–High fever with shivering and profuse sweating are the major symptoms of malaria.
–Other symptoms include headache, vomitting, diarrhoea, anaemia, etc.</td><td>3</td></tr>
<tr><td>6</td><td><table><tr><th>Situations where HIV spreads</th><th>Situations where HIV does not spread</th></tr><tr><td>Through body fluids.</td><td>Through mosquitoes and house flies</td></tr><tr><td>Through sexual contact with HIV infected person</td><td>By touch, shaking hands, coughing etc</td></tr><tr><td>From HIV infected mother to foetus.</td><td>When you sit near HIV infected friend in the school</td></tr></table></td><td>1/2+1/2+
1/2+1/2+
1/2+1/2</td></tr>
<tr><td>7</td><td>– Helps to reduce the number of vectors like mosquitoes, houseflies etc that leads to the spread of communicable diseases much beyond control.</td><td>1</td></tr>
<tr><td>8</td><td>a) Sickle cell anaemia
b) The deformity in the sequencing of amino acids of haemoglobin due to the defect of genes.</td><td>1+1+1</td></tr>
</table>

<table>
<tr><td></td><td>c) -The oxygen carrying capacity of red blood cells decreases.
-The sickle shaped RBCs get collected in the blood vessels and block the flow of blood in them.</td><td></td></tr>
<tr><td>9</td><td>1) Uncontrolled division of cells leads to cancer.
2) Reasons for cancer -environmental factors, smoking, radiations, virus and hereditary factors.
3) Surgery, chemotherapy and radiation therapy.</td><td>1+1+1</td></tr>
<tr><td>10</td><td>-cancer cells spread to other parts of the body through blood and lymph
-recovery is difficult /leads to death in severe case.</td><td>1</td></tr>
<tr><td>11</td><td>Virus
Protozoa /Plasmodium</td><td>1/2+1/2</td></tr>
<tr><td>12</td><td><table><tr><td>Pathogen</td><td>Disease</td></tr><tr><td>Bacteria</td><td>Wilt disease in brinjal</td></tr><tr><td>Fungus</td><td>Bud rot of coconut</td></tr><tr><td>Virus</td><td>Bunchy top of banana</td></tr></table></td><td>1+1+1</td></tr>
<tr><td>13</td><td>a)Quick wilt in pepper is the odd one. Others are bacterial diseases.
b) Filariasis. Others are life style diseases.</td><td>1+1</td></tr>
<tr><td>14</td><td>a) Paddy
b) Quick wilt
c) Mosaic disease and Bunchy top</td><td>1+1+1</td></tr>
<tr><td>15</td><td>a) Bacteria.
b) Diphtheria, Tuberculosis.(Any other bacterial disease),
Bacterial diseases are mainly transmitted through air, water, food and contact.</td><td>1+
1/2+ 1/2+
1</td></tr>
<tr><td>16</td><td>a) Disagree with this report.
Because AIDS does not spread through /AIDS does spread through (write any two points from these)</td><td>1+1</td></tr>
<tr><td>17</td><td>Hypertension : decrease in the diameter of arteries due to deposition of fat
Stroke : rupture of blood vessels in the brain, block of blood flow</td><td>1+1+1</td></tr>
</table>

	Fatty Liver : deposition of excess fat in the liver	
18	A.Bacteria B. Loss of body weight, fatigue, persistent cough C. Malaria D. Anopheles mosquito	1/2+1/2+ 1/2+1/2
19	a) Hypertension b) Life style diseases c) Change food habits, do physical exercises, adopt strategies to reduce mental stress, avoid bad habits like consumption of alcohol, drug abuse, smoking, etc.(Any two)	1+1+1
20	Lungs- Lung cancer, bronchitis, Emphesema(Any two) Heart-Hypertension,Loss of elasticity of arteries,Decrease in functional efficiency (Any two)	1+1

CHAPTER – 5
FOCUS AREA ANSWER KEY

1	**a) Sebum** **b) Mucus**	**1**
2	**Wax** **Lysozyme** **Mucus** **Lysozyme** **Mucus** **HCL** **Mucus** **Lysozyme**	**2**
3	**A) Ear wax** **B) Saliva** **C) Lysozyme** **D) Stomach**	2
4	**i) Phagocytosis** **ii) X) Phagocytes approach germs** **Y) Enzymes in the lysosome decompose the pathogens** **Destroying** **iii) Neutrophils, monocytes** **iv) d-b-a-c**	4
5	**i) Sebum. ... makes the skin oily and water resistant.** **ii) Keratin ... Inhibits germs.** **iii) Mucus in nose... destroys germs.** **iv) Wax in the ear ... protects germs from entering the ear.**	2
6	**a) Sweat** **b) Lysozyme** **c) Hcl**	2
7	**a) .... B ..... Lymphocyte** **b) ..... T ..... Lymphocyte** **c) Destroy the bacteria by disintegrating their cell membrane.** **d) Destroy the pathogens by stimulating other white blood cells..** **e) Stimulate other defense cells of the body.** **f) Destroy cancer cells.**	3
	a) Matures in the thymus gland	

8 9	**b) Alexander Fleming** **Vaccines are substances used for artificial immunization.** **The components of each vaccine can be either live, dead, or inactivated germs, inactivated toxins, or pathogenic cell components.**	1 2
10	**a) Tuberculosis** **b) Polio** **c) Diphtheria, tetanus, whooping cough, hepatitis B, Haemophilus influenza Type b.** **d) Measles, mumps and rubella** **e) Tetanus**	3
11	**a) Alexander Fleming** **b) Antibiotics were first discovered.**	1
12	**a, b, d**	2
13	*** Regular use develops immunity in pathogens against antibiotics.** *** Destroys beneficial bacteria in the body.** *** Decreases the levels of certain vitamins in the body.**	2
14	**Antigen A** **Rh factor**	2
15	**A and B are the antigens on the surface of red blood cells presence is the basis for making blood groups.**	1
16	C	1
17	**a) A and B are the antigens on the surface of red blood cells presence is the basis for making blood groups.** **b) Positive group with Rh factor and negative group without Rh factor** **c) Certain antibodies found in plasma has a role in the blood transfusion.** **A group blood contain Antibody ad B group blood contain antibody a**	3
18	**a) B positive. b) O negative.**	2
19	**Positive group if antigen D is present and negative group if antigen D is absent.**	2
20	*** People between the ages of 18 and 60 can donate blood.** *** Blood can be donated every three months.** *** Blood donation does not cause any health problems for the donor.**	2

	*** Pregnant and lactating mothers should not donate blood.** *** People with blood-borne diseases should not donate blood.**	
21	***Wax covering, cuticle are Prevents the entry of germs through leaves.** *** Cell wall - Well equipped resistant coat.** *** Chemical substances such as lignin, cutin, suberin, etc. Provide rigidity to the cell wall** *** The germs that have crossed the cell wall are prevented from entering through the cell membrane by callose, a polysaccharide formed in the cell wall.**	2
22	**A. Wax coating, cuticle** **B. Prevents the entry of germs through leaves.** **C. Callose** **D. The germs that have crossed the cell wall are callose, a polysaccharide formed in the cell wall.** **E. Cell wall** **F. Protects the inner cells from direct contact of pathogens.**	3

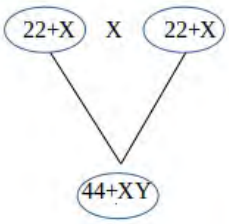
CHAPTER – 6
ANSWERS-FOCUS AREA

<table>
<tr><td>1</td><td>(a) Dominant character - Tallness
Recessive character - Dwarfness
(b) T, t
(c) Allele combination
Parent plant - TT, tt
First generation plants - Tt</td><td>1

1

2</td></tr>
<tr><td>2</td><td>(a) A character is controlled by the combination of two factors.
(c) The character that remains hidden in the first generation appear in the second generation.</td><td>1

1</td></tr>
<tr><td>3</td><td>a)Recessive
b)Features seen in offspring that are different from their parents</td><td>1</td></tr>
<tr><td>4</td><td><table><tr><th>DNA</th><th>RNA</th></tr><tr><td>Double helical model</td><td>Single strand</td></tr><tr><td>Thymine</td><td>Uracil</td></tr><tr><td>Deoxyribose sugar</td><td>Ribose sugar</td></tr></table></td><td>3</td></tr>
<tr><td>5</td><td>I)T
II)t</td><td>1/2
1/2</td></tr>
<tr><td>6</td><td>A)DNA
B)Deoxyribose sugar
C)Thymine
D)One
E)Ribose
F)uracil</td><td>3</td></tr>
<tr><td>7</td><td>c) mRNA is formed from DNA.
b) mRNA come out from the nucleus.
e) mRNA reaches the ribosomes.
a) tRNA carries different types of amino acids to the ribosome.
d) Amino acids are joined together based on the message in mRNA.
f) protein is synthesized</td><td>3</td></tr>
<tr><td>8</td><td>a) Protein synthesis</td><td>1</td></tr>
</table>

	1)mRNA is formed from DNA. **2)mRNA come out from the nucleus.** **3)mRNA reaches the ribosomes.** **4)tRNA carries different types of amino acids to the ribosome** **5)Based on the informationin mRNA, protein is synthesized by adding amino acids in mRNA.**	**2**
9	**a)Amino acid** **b)rRNA** **c)mRNA**	**1** **1** **1**
10		**1**
11	**mRNA is formed from DNA. -----> mRNA reaches out side the nucleus. -----> mRNA reaches ribosome. -----> Different types of amino acids reach the ribosome. -----> Amino acids are added according to messages in the mRNA. -----> Protein is synthesised.**	**3**
12	**a) 46** **b) 44 somatic chromosomes and 2 sex chromosomes.** **c) The genetic make up of female is 44 + XX and that of male is 44 + XY. There are two X chromosomes in women, one X chromosome and one Y chromosome in male.**	**1** **1**
13	**Yes,** **The genetic constitution of mother is 44+XX and that of father is 44+XY. In the determination of the sex of the child the sperms from the father have great significance. The XY chromosomes of father determine whether the child is male or female. Mother have only one type of ovum, ie with X chromosome.**	**1/2** **1 1/2**
14	**C :44+XY:44+XX**	**1**
15	**A) Sex chromosomes**	**1/2**

<table>
<tr><td></td><td>B) 44 (22 pairs)</td><td>1/2</td></tr>
<tr><td>16</td><td>44 + XY</td><td>1</td></tr>
<tr><td>17</td><td>A) 44+XY B) 22+X C) 22+Y D) 44+XY E) 44+XX</td><td>3</td></tr>
<tr><td>18</td><td>A)Autosome,
B) 2
C) XY</td><td>1
1
1</td></tr>
<tr><td>19</td><td>A) Somatic chromosome : B) Sex chromosome.

b)46</td><td>1
1</td></tr>
<tr><td>20</td><td><table><tr><th>A</th><th>B</th></tr><tr><td>Sex chromosome</td><td>X, Y</td></tr><tr><td>Somatic chromosome</td><td>22 PAIRS</td></tr><tr><td>The chromosome in sperm</td><td>22+X:22+Y</td></tr><tr><td>The chromosome in ovum</td><td>22+X</td></tr></table></td><td>4</td></tr>
<tr><td>21</td><td>a)i)44+XX: ii)44+XY
b)The genetic constitution of mother is 44+XX and that of father is 44+XY. In the determination of the sex of the child the sperms from the father have great significance. The XY chromosomes of father determine whether the child is male or female.
c)Somatic chromosome</td><td>1
2

1</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

CHAPTER – 7

FOCUS AREA ANSWER KEY

Qn No.	Sub Qns.	Answer Key	Score	Total
1.		a. Cutting of insulin gene from Human DNA. b. Isolating bacterial DNA(plasmid). c. Joining insulin gene with bacterial DNA (plasmid) and inserting it into the bacterial cell. d. Bacteria produce inactive form of insulin . e. Producing active insulin from this .	1/2x4	2
2.	a) b)	genetic engineering yes.we made genetic modification in this bacteria .	1 1	2
3.		Ligase	1	1
4.	a) b)	Vectors are used to transfer a gene from one cell to another cell. plasmid	1 1	2
5		Yes. Gene therapy is a method of treatment in which the genes the genes that are responsible for diseases are removed and normal functional genes are inserted in their place. This has triggered great hope in the control of genetic diseases.	1+1	2
6.		Vector	1	1
7	a) b) c) d)	Difference in the arrangement of nucleotides in DNA. Alec Jeffreys The arrangement of nucleotides among close relatives has many similarities. DNA of the skin ,hair,nail,blood and other body fluids obtained from the place of murderer,robbery etc is compared with the DNA of suspected persons.	1 1 1 1	4

8		**To find out hereditary characteristics/ to identify real parents in parental disputes./ to identify missing persons found after long period./ to identify the real culprits in criminal cases .(Any two relevant points.)**	1 1	2

CHAPTER 8
FOCUS AREA ANSWER KEY

<table>
<tr><td>1</td><td>A) Presence of H2,N2,CO2
B) RNA , DNA
C) Monosaccharides, Amino acids
D)Polysaccharides and Peptides</td><td>1/2
1/2
1/2
1/2</td></tr>
<tr><td>2</td><td>Oxygen</td><td>1</td></tr>
<tr><td>3</td><td>b) Life originated as a result of the changes that occurred in the chemical substances in water, under specific conditions of primitive earth.
d) A l oparin and J B S Haldane are the proponents of the theory</td><td>1
1</td></tr>
<tr><td>4</td><td>A l Oparin and J B S Haldane
Chemical evolution theory</td><td>1
1</td></tr>
<tr><td>5</td><td>a) Chemical evolution theory
b) Stanely miller and Harold Urey
c) The organic compounds such as amino acids were synthesised through this experiment. These organic molecules were considered as the basics of primitive cell.</td><td>1
1
1</td></tr>
<tr><td>6</td><td><table><tr><td>Atmosphere of premitive earth</td><td>Simple biomolecules</td><td>Complex biomolecules</td></tr><tr><td>Hygrogen Sulphide, Methane</td><td>Amino Acids, Monosaccharides</td><td>Fat, Peptides</td></tr></table></td><td>1
1
1</td></tr>
<tr><td>7</td><td>1. b) Chemical evolution theory: A I oparin and J B S Haldane
2. b) Amino acids: Protein</td><td>1
1</td></tr>
<tr><td>8</td><td>b)Origin of species</td><td>1</td></tr>
<tr><td>9</td><td>a) The differences in the beaks of finches.
b) The beaks of finches adapted to their feeding habbits. When scarcity of food occured in each island</td><td>1
1</td></tr>
</table>

	only beaks with favourable variations (adaptations) to that nature might have survived there.	
10	<table><tr><td>Concepts of Darwin a c</td><td>Concepts of Malthus b d</td></tr></table>	1 1
11	a) A. Struggle for existance B. Get distroyed C. Organisms with favourable variations. D. Survive E.Favourable variations are transfered to the next generations. F. Origin of new species. b) Theory of Natural Selection c) Charles Darwin, eg: The differences in the beaks of finches. The beaks of finches adapted to their feeding habbits. When scarcity of food occured in each island only beaks with favourable variations (adaptations) to that nature might have survived there.	1/2 1/2 1/2 1/2 1 1
12	Darwinism was revised in the light of new information from the fields of genetics,cytology,geology and paleontology.This modified version of darwinism is known as Neodarwinism.	2
13	B. Comparative morphology D. Modern molecular biology.	1 1
14	a. Fossils are the evidences of evolution. b. Premitive fossils have simple structure.Recently formed fossils have complex structure (The study of fossils from different layers of rock idicate that complex structured organisms are evolved from premitive simple orgaisms.).Certain linking fossils reveal the evolution of one form of organism from another form.	1 2
15	a)Fossils are remnants of premitive orgaisms preserved	1

	in earth crust b)The fossils from different layers of rocks indicate evolution of eukaryotes from prokaryotes. **Prokaryotes have simple structure. Premitive fossils also have simple structure.Recently formed fossils have complex structure** **c)Palaeontology**	**1** **1**
16	**a)Oxygen – Others are gases present in the atmosphere of primitive earth** **b)Acquired characters – Others are related to Darwins Theory of Natural Selection**	**1** **1**

CHAPTER - 1

NON FOCUS AREA ANSWER KEYS

1	**Production of saliva, Intestinal peristalsis, Gastric activities**	2
2	**Heart beat, Gastric activities, Intestinal peristalsis**	2
3	**B. Sympathetic system stimulates some physiological activities and slows down some others. It slows down some activities like production of saliva, intestinal peristalsis, gastric activities etc.**	1 1
4	**a) Sympathetic system.** **b) Heart beat increases, turns glycogen into glucose, decreases the production of saliva.**	1 2
5	**a) Stimulus** **b) In figure A, the inner side of the stimulated part became positively charged and the outer side became negatively charged. In figure B, the momentary charge difference stimulate the adjacent part and similar changes occur there too. As this process proceeds, messages are transmitted through axon.**	1 2
6	**a) The inner side of the stimulated part became positively charged and the outer side became negatively charged. The difference in charge on either side of the plasma membrane is due to stimulus.** **b)The stimulus changes the equilibrium of ions on either sides of the plasma membrane. So the outer side of the membrane gets negative charge and inner side gets positive charge. This momentary charge difference stimulates the adjacent parts and similar changes occur there too. As this process proceeds further, messages are transmitted through the axon.**	1 1/2 1 1/2
7	**a) A-Axon, B – Myelin sheath, C -Oligodendrocyte.** **b) Brain, spinal cord.**	1/2*3 1/2
8	**a). A-Grey matter, C-Dorsal root, E-White matter** **b). Cerebro-spinal fluid**	3*1=3

<table>
<tr><td></td><td colspan="2">c). It carry motor impulses from spinal cord to organs</td><td>1
1</td></tr>
<tr><td>9</td><td colspan="2">a) A- Axon

b) Myelin sheath is formed by the repeated encircling of myline, a membrane containing lipid.

c) i) to provide nutrients and oxygen to axon,
ii) accelerates impulses,
iii) acts as an electric insulator,
iv) protects the axon from external shocks (any two)</td><td>1

1

2</td></tr>
<tr><td>10</td><td>Sympathetic system</td><td>Parasympathetic system</td><td>1</td></tr>
<tr><td></td><td>• Pupil in the eye dilates</td><td>• Pupil in the eye contracts.</td><td>1</td></tr>
<tr><td></td><td>• Heart beat increases.</td><td>• Heart beat becomes normal.</td><td>1</td></tr>
<tr><td></td><td>• Peristalsis in the intestine slows down.</td><td>• Peristalsis in the intestine becomes normal.</td><td>1</td></tr>
</table>

****

CHAPTER – 2
NON – FOCUS AREA ANSWER KEY

<table>
<tr><th>Sl No</th><th>ANSWER KEY</th><th>MARK</th></tr>
<tr><td>23</td><td>a.
A,change in structure of pupil in dim light due to the contraction of radial muscles.
B.change in structure of pupil in bright light due to the contraction of circular muscles

b.The entry of a large amount of light is harmful to the tissues of the eye. Iris and pupil regulate the amount of light falling on the eyes. When the radial muscles contract in dim light, the size of the pupil increases. When the circular muscles contract in bright light, the size of the pupil decreases.</td><td>1/2

1/2

2</td></tr>
<tr><td>24</td><td>a.real, inverted, and small
b.Our eye has the abiliy to adjust the focal length of the lens by changing its curvature in accordance to the distance of the object from the eye and form the image on the retina.It is called the power of accommodation of the eye..</td><td>1

2</td></tr>
<tr><td>25</td><td>a.Binocular Vision
b.The images from two sides of the same object are formed in the left and right eye. The brain combine these two images ,as a result of this a three dimensional image of the object is formed. This is called binocular vision..</td><td>1

2</td></tr>
<tr><td>26</td><td><table><tr><th>While viewing nearby objects</th><th>While viewing distant objects</th></tr><tr><td>Ciliary muscles contract</td><td>Ciliary muscles relax</td></tr><tr><td>Ligaments relax</td><td>Ligaments stretch</td></tr><tr><td>Curvature of lens increases</td><td>Curvature of lens decreases</td></tr><tr><td>Focal length decreases</td><td>Focal length increases</td></tr></table></td><td>3</td></tr>
<tr><td>27</td><td>When we have common cold our mucus membrane secretes more mucus so that aromatic particles will dissolve in the mucus and will get out of the nose and fails to stimulate olfactory receptors. So that we don't get the smell of food thereby don't feel taste of food.</td><td>2</td></tr>
<tr><td>28</td><td>a) A. pain receptor D.pressure receptor
b)B helps to detect the cold C. helps to detect touch</td><td>1/2 +1/2</td></tr>
</table>

	c)When we touch hot objects temperature receptors are stimulated and impulses get generated. When the related nerve carries impulses we feel hot.	**1/2 + 1/2** **2**
29	**Planaria – Eye spot** **Housefly-- Ommatidia** **Snake-- Jacobson's organ** **Shark--- Lateral line**	**1/2x4=2**
30	**P. reabsorption of aqueous humor is hindered** **Q.laser treatment** **R.cataract** **S. blindness** **T.conjunctivitis** **U.infection by microrganism.**	**1/2 x6=3**

CHAPTER – 3
NON- FOCUS AREA ANSWER KEY

1	**a)Adrenal gland** **b) Thymosine**	**1+1**
2	**ADH , Others are Tropic hormones.**	**1**
3	**Vassopressin.**	**1**
4	**Epinephrin/Adrinaline . This hormone acts along with the sympathetic nervous system during emergency.** **Heart beat increases. Increases blood flow to the arms,legs and the muscles.**	**1+2**
5	**a) Oxytocin** **b) Facilitates lactation**	**1+1**
6	**a) Thymus gland** **b) Thymosin** **c) Controls the activities and maturation of Lymphocytes which help to impart immunity.**	**1+1+1**
7	**a) Diabetes insipidus** **b) ADH synthesised by hypothalamus. ADH increases the reabsorption of water in to the kidney. Synthesis of ADH decreases, reabsorption of water disrupts.**	**1+2**
8	**C,D**	**2**
9	**a) A – Medulla , B – Cortex** **b) Epinephrine, Nor Epinephrine** **c) Epinephrin – Helps to overcome emergency situations.** **Nor Epinephrin – Acts along with Epinephrine.**	**1+3**
10	**a) A - Abscisic acid** **B – Ethylene** **b) Uncontrolled use causes environmental issues and health issues.**	**2+1**

CHAPTER – 4

ANSWER KEY –NON FOCUS AREA

<table>
<tr><th>Q. No.</th><th>Value points</th><th>Score</th></tr>
<tr><td>1</td><td>a) Diseases spread by mosquitoes/communicable diseases.
b) Keep the surroundings clean, observe dry day, prevent stagnation of water, use mosquito net, etc.</td><td>1+1</td></tr>
<tr><td>2</td><td>Diphtheria</td><td>1</td></tr>
<tr><td>3</td><td>
<table>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Leptospira</td><td>Rat fever</td><td>Internal bleeding</td></tr>
<tr><td>Filarial worm</td><td>Filariasis</td><td>Culex mosquito</td></tr>
<tr><td>Corynebacterium</td><td>Diphtheria</td><td>Cough and sneeze</td></tr>
<tr><td>Fungus</td><td>Athletes' foot</td><td>Contact with contaminated water and soil</td></tr>
</table>
</td><td>1/2+1/2+ 1/2+1/2</td></tr>
<tr><td>4</td><td>a) Ring worm. Fungus
b) Through contact.</td><td>1+1</td></tr>
<tr><td>5</td><td>a) Diphtheria, Corynebacterium diphtheriae
b) Cells in the mucus membrane which are destroyed by the toxins produce an ash coloured thick coating in the throat .
c) Antitoxins which act against the toxins are used to protect the uninfected cells. But, if the disease becomes severe the patient cannot be recovered through medication. So vaccination is the best preventive method.</td><td>1+1+1</td></tr>
<tr><td>6</td><td>a) Haemophilia
b) Temporary relief is brought in by identifying and injecting the deficient protein.</td><td>1+1</td></tr>
<tr><td>7</td><td>a) Nipah virus
b) Fruit eating bats
c) Saliva and urine of bats, remains of fruits eaten by bats, pigs.</td><td>1+1+1</td></tr>
<tr><td>8</td><td>A) Hepatitis
B) Appearance of reddish scaly rashes that cause itching
C) Filarial worm
D) Swelling in the lymph ducts</td><td>1/2+1/2+ 1/2+1/2</td></tr>
</table>

9	a) Simple structure with a DNA or RNA molecule within a protein coat d) multiplies by taking control over the genetic mechanism of the host cells e) no cell organelles as seen in normal cells g) Dengue fever is a viral disease.	1/2+ 1/2+ 1/2+ 1/2
10.	a) A-Ring worm, B-Filariasis b) Ring worm-Fungus, Filariasis-Filarial worm	1+1

CHAPTER – 5
NON- FOCUS AREA ANSWER KEY

1	Lymphocytes. Others are engaged in general defense mechanism.	1
2	a) Inflammatory Response b) Yes * Secondary response * Destroys germs that have entered the body.	2
3	* Prevents the entry of disease through wounds. * Prevents blood loss through wounds.	1
4	b-e-a-d-f-c	3
5	* The connective tissue heals the wound * in cases when new similar tissues cannot be formed, the connective tissue heals the wound. In such situations, the wound scar remains.	2
6	a) ECG b) Sphygmomanometer	1
7	A. Neutrophils B. Stimulates leukocytes. C. Engulf and destroys germs. D. Eosinophil	2
8	Sammuel Haniman	1
9	iii - i - iv - ii – v	2
10	Fever is a condition when the body temperature rises above the normal level. The rise in body temperature reduces the rate of multiplication of pathogens. Increases the effect of phagocytosis.	2
11	A. Thromboplastin B. Vitamin K C. fibrinogen D. fibrin fibers	2

CHAPTER – 6
NON FOCUS AREA ANSWER KEY

Q.No	Value Points	Marks
1	(a) Gregor Mendel (b) Pisum sativum (c) Allele (d) James Watson and Francis Crick (e) Melanin (f) Genes in DNA	1 1 1 1 1 1
2.	(a) Tall with wrinkled seed and dwarf with round seed (b) Mendel explained that the appearance of variations in offsprings is due to the independent assortment of each character	1 1
3	Somatic chromosome pair contains two identical chromosomes .Sex chromosomes are of two types X and Y	1
4	Crossing over, combination of allele during fertilization and mutation occur in chromosomes.	2
5	(a) Crossing over in chromosomes (b) During the initial phase of meiosis (c)As a result of crossing over of chromosomes part of a DNA crosses over to become the part of another DNA. This causes a difference in the distribution of genes. When these chromosomes are transferred to the next generation ,it causes the expression of new characters in offsprings.	1 1 2
6	(i) TTAa – Tall with axial flowers (ii) TtAA – Tall with axial flowers (iii) TTAa – Tall with axial flowers (iv) Ttaa - Tall with terminal flowers (v) TtAa – Tall with axial flowers (vi) ttAa - Dwarf with axial flowers (vii) TtAa – Tall with axial flowers (viii)ttAa – Dwarf with axial flowers	1/2 x 8= 4

7	**When gametes undergo fusion (fertilization), the combination of allele changes. This causes the expression of characteristics in offsprings that are different from parents.**	**2**
8	**(a) Mutation is a sudden heritable change in the genetic constitution of an organism.** **(b) The defects in the duplication of DNA, certain chemicals, radiations etc.** **(c) Mutations bring about changes in genes which can be transmitted over generations and thus leading to variations in characters**	**1** **1** **1**
9	**Melanin, a pigment protein, imparts colour to the skin .The rise or fall in the production of melanin is due to difference in the function of alleles of genes responsible for skin colour. The differences in skin colour is mere an adaptation to live under sun**	**2**

CHAPTER – 7

NON FOCUS AREA ANSWER KEY

Qn No	Sub Qns	Answer key	Score	Total
1		Gene mapping	1	1
2	a	Human genome project	1	3
			1	
	b	Even though science has progressed a lot we couldn't control genetic diseases .we couldn't identify the exact gene responsible for a specific trait and its location before that project .	1	
	c	The secret of human genome were revealed .The technology known as gene mapping helped to identify the location of a gene in the DNA responsible for a particular trait.		
3	a	genome	1/2x4	2
	b	junk genes		
	c	200		
	d	240000		
4	a	There are certain limitations in producing insulin using bacteria .The most important hurdle in this field is the culturing of the bacteria .	1	2
	b	Researches in this field shows that instead of this ,medicines can be extracted from the blood or milk of genetically modified animals.	1	
5		Interferons – Viral diseases	1	3
		Endorphin – Pain	1	
		Somatotropin – Growth disorders	1	

CHAPTER – 8
NON FOCUS AREA ANSWER KEY

1	**Monkeys.others are Hominoidea**	**1**
2	**Hominoidea**	**1**
3	**A iii** **B i** **C ii**	**1/2** **1/2** **1/2**
4	**a.Orgin of life** **b,3500 million years of ago** **c,Orgin of Eukaryotes** **d,1000 million years of ago**	**1** **1** **1** **1**
5	**a.The characters accumulate through generations and lead to the formation of new species** **b,These acquired characters are not inheritable**	**1** **1**
6	**This statement is wrong because they have evolutionary relationship. *Homologous organs are externally different for adaptations to live their own habitats but Anatomical resemblances show that all organisms evolved from a common ancestor.**	**1** **1**
7	**a,Energy is stored in ATP molecules.** **b,Carbohydrates, proteins and fats are the basic substances**	**1** **1**
8	**a.Chimpanzee** **b.Man and Chimpanzee has no difference from the aminoacids in the beta chain of haemoglobin**	**1** **1**
9	**a, Cercopithecoidea b, Hominoidea ,c,small brain**	**1/2,1/2,1/2**
10	**Gibbon, Orangutan,Gorilla Chimpanzee,Man**	**1**
11	**No, this statement is wrong. Man come under the group of Hominoidea while monkeys are included in cercopithecoidea. It is believed that both the ancestors of man and monkeys are evolved from a common ancestor.**	**1**
12	**A Homo habilis** **B Australopithecus afarensis** **C Homo neanderthalensis** D Ardipithecus ramidus **E Homo erectus** **F Homo sapiens**	**1/2*6**

<table>
<tr><td>13</td><td><table><tr><th>Concepts of Darwin</th><th>Concepts of Malthus</th></tr><tr><td>a, c</td><td>b, d</td></tr></table></td><td>1
1</td></tr>
<tr><td>14</td><td>a)
*Highly developed brain
*Use of language
*Cultural evolution
*Use of technology
* Cultivation
*Bipedal locomotion
b)
*Yes. Biodiversity is on a dangerous decline due to the interference of human beings in nature and natural resources.
*By human interventions,deforestation,destroy natural landscapes, exploitation of ecosystem, climatic changes brought in as well as the extinction of many organisms.(there occurred five mass extinctions in the world history till now)
Human life is possible on earth only with the preservation of other diverse ecosystems.</td><td>1

1</td></tr>
</table>

SSLC QUESTION PAPER-SET –1

Time: 1 $^{1}/_{2}$ Hours **Score: 40**

Supporting Study Material

BIOLOGY

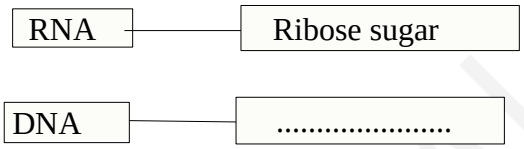
Instructions

- The first **15** minutes is the Cool off time.
- Use cool off time to read and understand the questions and plan your answers
- Attempt the questions according to the instruction.
- Keep in mind , the score and time while answering the questions

---

A: Answer any 4 questions from Q.No.1 to 6 Each Carries 1 score (1x 4 = 4)

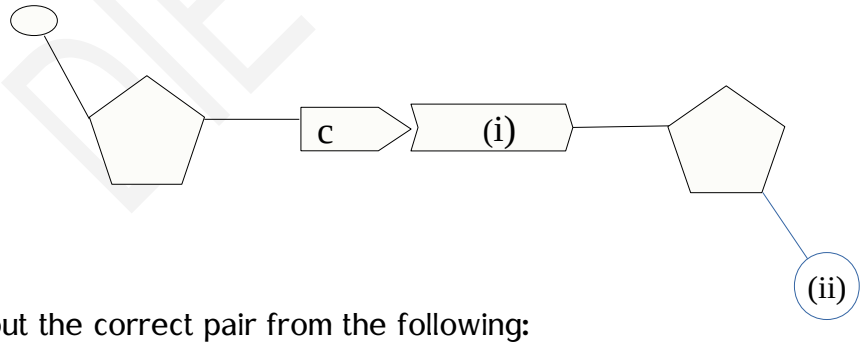
1. Complete the illustration according to the Model .



2. The blood group without antibody is :

(a) A (b) B (c) AB (d) O

3. What are indicated by (i) and (ii) in the illustration of DNA molecules given below



4. Find out the correct pair from the following:

a) Thalamus -maintenance of homeostasis

b) Medulla oblongata-Centre of thought, intelligence

c) Cerebellum-Coordinates muscular activities

d) Cerebrum-Relay station of impulses

5. Which one of the following gases was not present in the atmosphere of primitive earth?

a) Methane

b) Ammonia

c) Oxygen

d) Nitrogen

6.

Woman	Man
44+XX	44+XY

a) What does the '44' indicates in this illustration?

B: Answer all questions from 7 to 9. Each carries 1 Score (1x3=3)

7.Identify the word pair relation and fill the blanks.

a) Arrangements of nucleotides: DNA profiling.

b) Identifying the location of a gene in DNA:----------

8. Based on the given model make a suitable pair from the following box.

Model : Charles Darwin-Theory of Natural Selection

Hugo de Vries, Lamarck Chemical Evolution Theory, Panspermia , Mutation Theory Robert Malthus

9. 'The basis of genetic engineering is the discovery of the fact that genes can be cut and joined with the help of enzymes'

a) Name the enzyme used for cutting genes.

b) Name the enzyme used for joining the genes.

Part II

A: Answer the following question carries 2 Marks(2x1=2)

10.Complete the table suitably.

½x4=2

A. Plant Hormones	B. Functions
i).....	a)Sprouting of leaves
ii)Ethylene	b).....
iii)Auxin	c).....
iv).....	d) Dormancy of embryo

B: Answer any one question from 11 to 12. Each carries 2 scores(2x1=2)

11. Analyse the statements given below and write the reason

a)Oxytocin is injected in pregnant women. 1

b)Feel sleepy during night, wakes up when day breaks. 1

12 Appu was taken by fear, on seeing a snake on his way to school and ran back.

1. Which part of the autonomous nervous system control the body activities of Appu in the above situation?

2. What are the changes that take place in the Intestine and eye during the above situation. 1

Part III

A: Answer any 3 questions from Q.No.13 to 16 .Each carries 3 Scores(3x4=12)

13 i)Arrange the following stages of process in right order.

a) The enzyme in the lysosome destroys the pathogen.

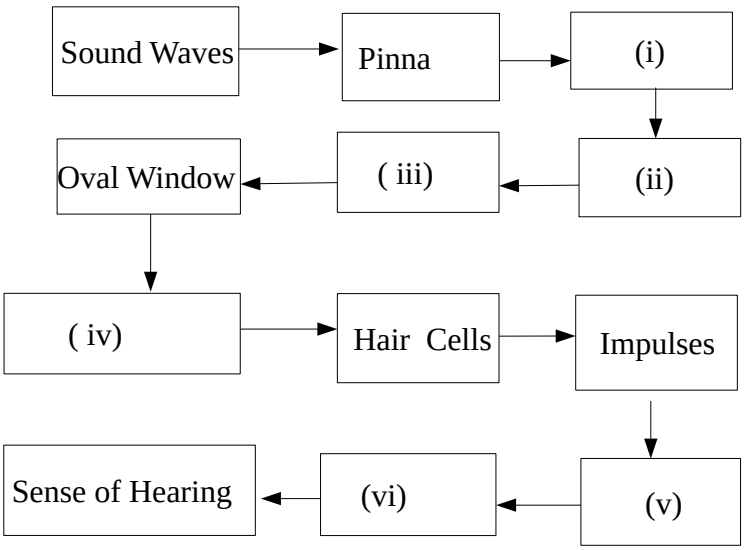
b) Engulfs the pathogen in the membrane sac.

c) Expels the remnants

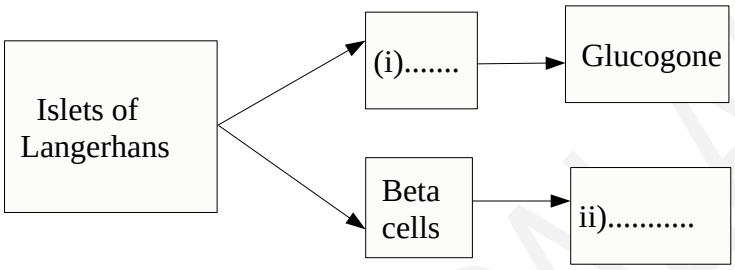
d) Membrane sac combines with lysosome

ii)Identify the process.

14 Complete the flow chart related to hearing by adding missing terms.(½x6=3)



15 Observe the illustration and answer the questions.



a) Identify (i) and (ii)

b) Write two functions of (ii)

16 Complete the following appropriately on the basis of disease caused by nervous system.

½x6=3

Disease	Causes	Symptoms
Alzheimer's	i).....	Loss of memory, ii).....
iii).....	Destruction of specialised ganglions in the brain	iv).....
Epilepsy	v).....	vi).....

B: Answer the following question , carries 3 scores(3x1=3)

17. Certain hormones released from the anterior lobe of pituitary gland are given.

- Thyroid stimulating Hormone(TSH)
- Adreno Cortico Tropic Hormone(ACTH)
- Gonado Tropic Hormone (GTH)

a) Write the common feature of these hormones ?

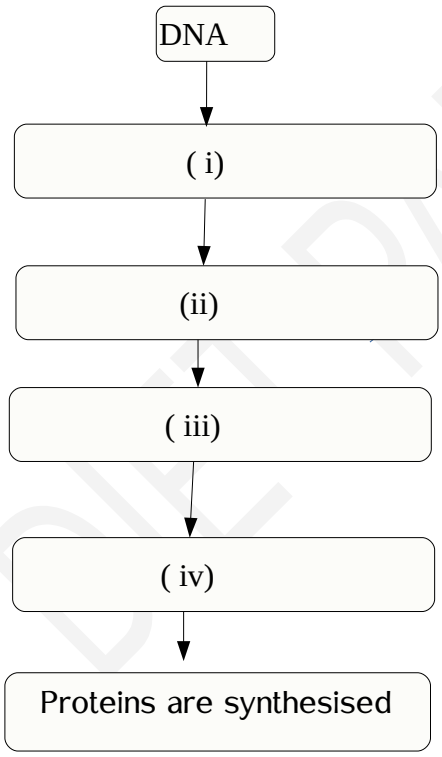
b) Write one function of ACTH and TSH

c) Name any two hormones secreted by the action of GTH

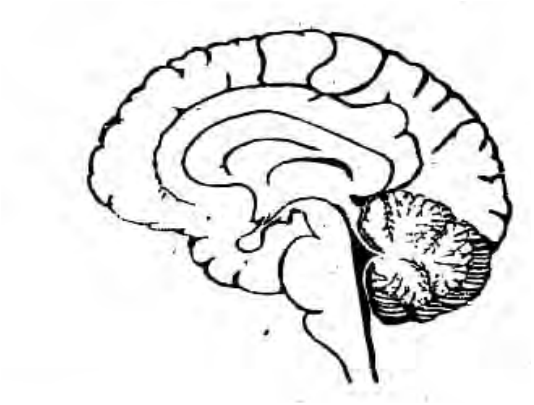
Part IV

A: Answer any two questions from 18 to 20. Each carries4 score(4x2=8)

18. DNA does not participate directly in protein synthesis. Illustrate the process of protein synthesis with the help of flow chart given below.



19. Redraw the diagram. Identify, name and label the following parts.



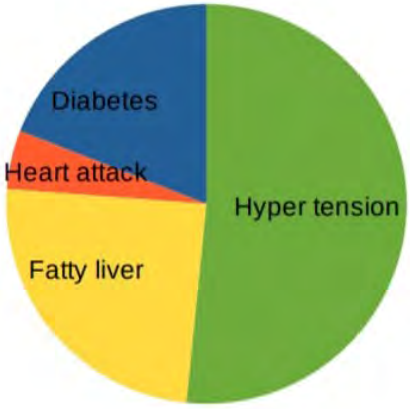
(a) The part which controls voluntary movements.

(b) The part which act as relay station of impulses to and from the cerebrum.

(c) The parts which Coordinates muscular activities.

20.The Pie diagram given below shows the report of health survey in a city.

Analyse the diagram and answer the questions given below.



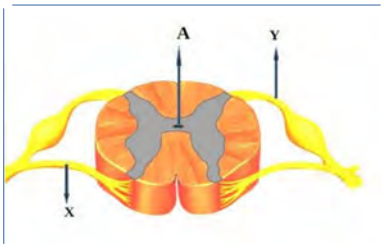
a) Identify the disease that affected most of the people.

b) The diseases mentioned in the diagram falls under which category?

c) Write any two health habits that should be followed to fight against this kind of disease.

B: From 21 to 22 Answer any one.(4x1=4)

21. Identify the figure and answer the following questions.



a) Identify the part labelled as A and the fluid present in it.

b) Identify X and Y.

c) What is the difference in the function between X and Y?

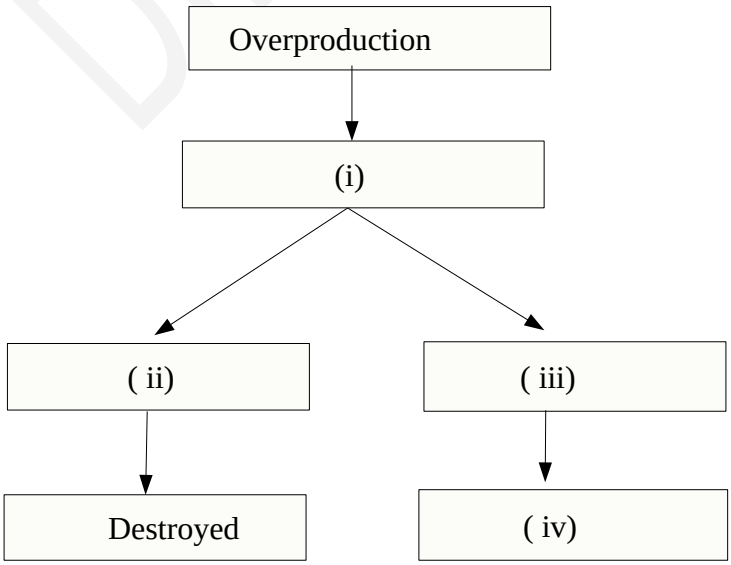
22. Make suitable word pair.

Eye spot,Lateral line,Planaria, Housefly, Jacobson's organ, Ommatidia,Snake,Shark

Part –V

A : Answer any one question from 23 to 24.Each carries 5 scores.(5x1=5)

23 .Analyse the illustration and answer the questions.



a) Fill up (i) (ii), (iii) and (iv).

b)How Natural Selection leads into the origin of new species?

24. 'BCG is the vaccine used against this disease'

a) Which disease is mentioned here?
b) Write any two ways by which this disease transmit from one person to another?
c) Name the bacteria causing this disease
d) Write any two organs affected by this disease .

SSLC QUESTION PAPER SET - 2

Support~~ing Study~~ Material

BIOLOGY

Time : 1 ½Hours **Total Score : 40**

Instructions :

- **15** minutes is given as cool off time.
- Use cool off time to read the questions and plan your answers.
- Attempt the questions according to the instructions
- Keep in mind, the score and time while answering the questions.

PART - 1

A. Answer any 4 questions from 1 to 6 each carries 1 score. **Score**

1. Identify the word pair relationship and fill up the blanks.

(a) Thalamus : Relay station of impulses

Hypothalamus : _____ **1/2**

(b) complete the illustration according to the model.

Adenine : Thymine : DNA

Adenine : _____ : RNA **1/2**

2. Pick the odd one and give common features of the others.

Cytokinin , Insulin , Auxin , Gibberlin **1**

3. Identify the blood groups from the following :

(a) Without antigen

(b) Without antibody

A , B , AB , O **1**

4. Analyse the symptoms given below and answer the following.

- High fever with shivering
- Profuse sweating
- Headache, vomiting, diarrhoea

(a) Name the disease. **1/2**

(b) Name the vector which spreads the disease. **1/2**

5. Choose the correct pairs from the following related to eye defects. **1**

(a) Glaucoma : Rectified by replacing the lens.

(b) Night blindness : Unable to see in dim light.

(c) Colour blindness : Infection of conjunctiva.

(d) Cataract : Reabsorption of aqueous humor not occur

(e) Colour blindness : Inability to distinguish colour.

6. Answer the following.

(a) Name the organic molecule synthesised through Urey-Miller experiment. **(½)**

(b) Name the gas which was not present in the primitive earth's atmosphere. **(½)**

B. Answer all questions from 7 to 9 each carries 1 score.

7. Identify the word pair relationship and fill up the blanks. **1**

(a) Endorphins : pain killer :: Interferons : _____

(b) Planaria : Eye spot :: Snake : _____

8. Correct the underlined words if found any mistakes. **1**

(a) Rh factor is **absent** in A^+ group.

(b) To locate a specific gene in DNA is called **gene mapping**.

(c) Hunger is an **external stimulus.**

(d) Testing the arrangement of nucleotide is known as **DNA profiling**.

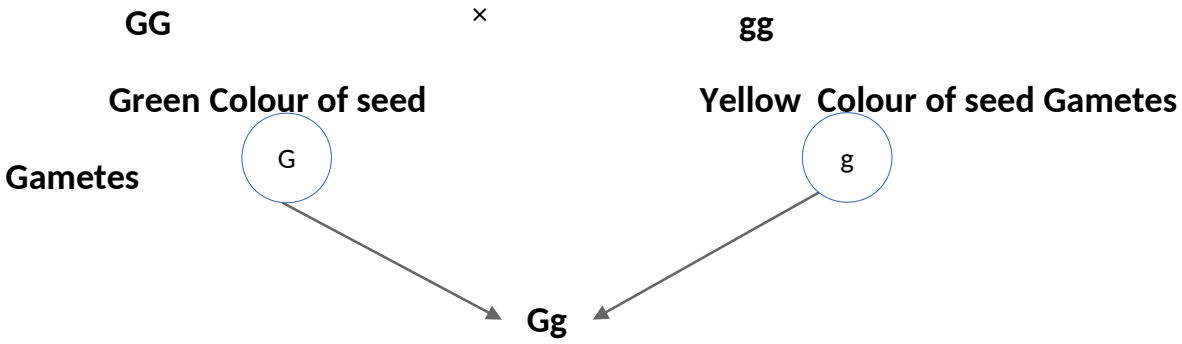
9. Pick the odd one and write the common features of others. **1**

Pinna , Tympanum , Vitreous chamber, ear ossicles

PART - 2

A. Answer the following question carries 2 Score.

10. Observe the illustration and answer the questions. **2**



(a) How does the parental plant with green coloured seed and the plant in the first generation differ in their alleles.

(b) Define alleles.

B. Answer any one question from 11 to 12 each question carries 2score.

11. Case sheets of two patients are given below. Analyse them and answer the questions. **2**

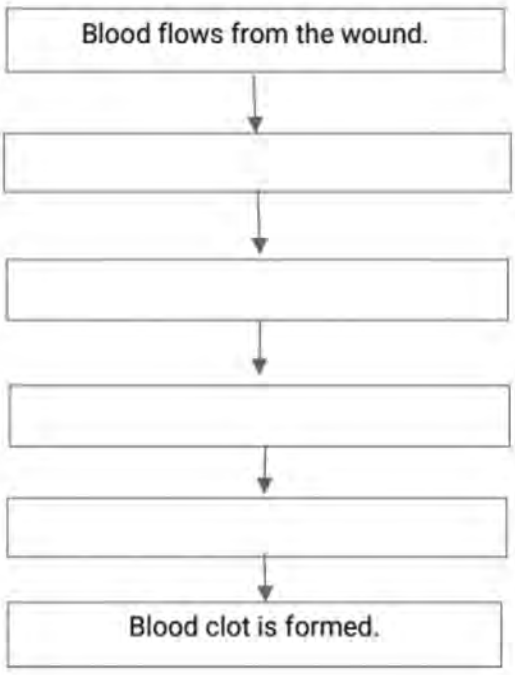
Case - 1
• Age - 4 years • Mental retardation • Stunted growth

Case - 2
• Age - 42 years • High metabolic rate • Increased heart beat

a)which are the above mentioned diseases.

(b) write the reason for the above diseases

12. Prepare a flowchart of blood clotting using the following statements : 2



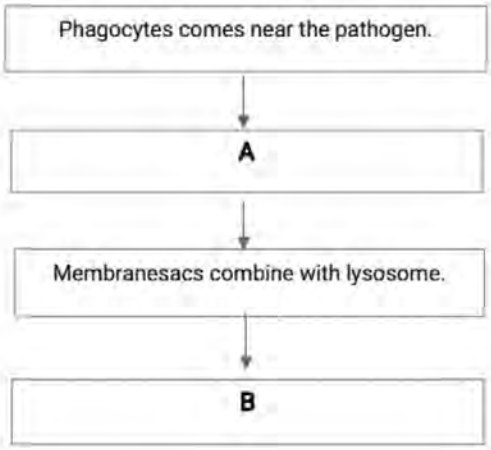
- Thrombin converts fibrinogen to fibrin.
- Thromboplastin converts prothrombin to thrombin.
- Tissues degenerate to form the enzyme called thromboplastin.
- The red blood cells and platelets entangle in the fibrin network.

PART - 3

A. Answer any 3 of the questions from 13 to 16 each carries 3 score.

13. The flow chart given below indicate a type of defense mechanism.

Answer the following.



(a) Complete the flow chart. **1**

(b) Name the process mentioned here. **1**

(c) Name the blood cells involved in this mechanism. **1**

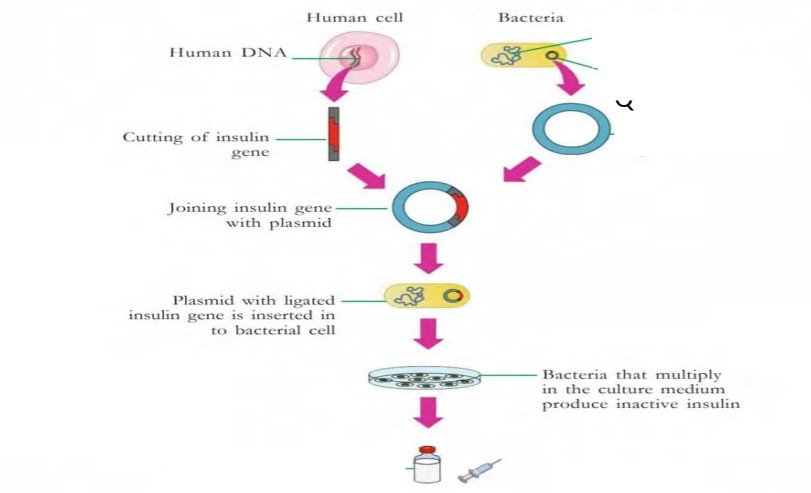
14. Observe the picture and answer the questions.

(a) Identify the picture. **1**

(b) Identify **x , y**. **1**

(c) Compare the function of **x , y**. **1**

15. Observe the illustration given below and answer the following.

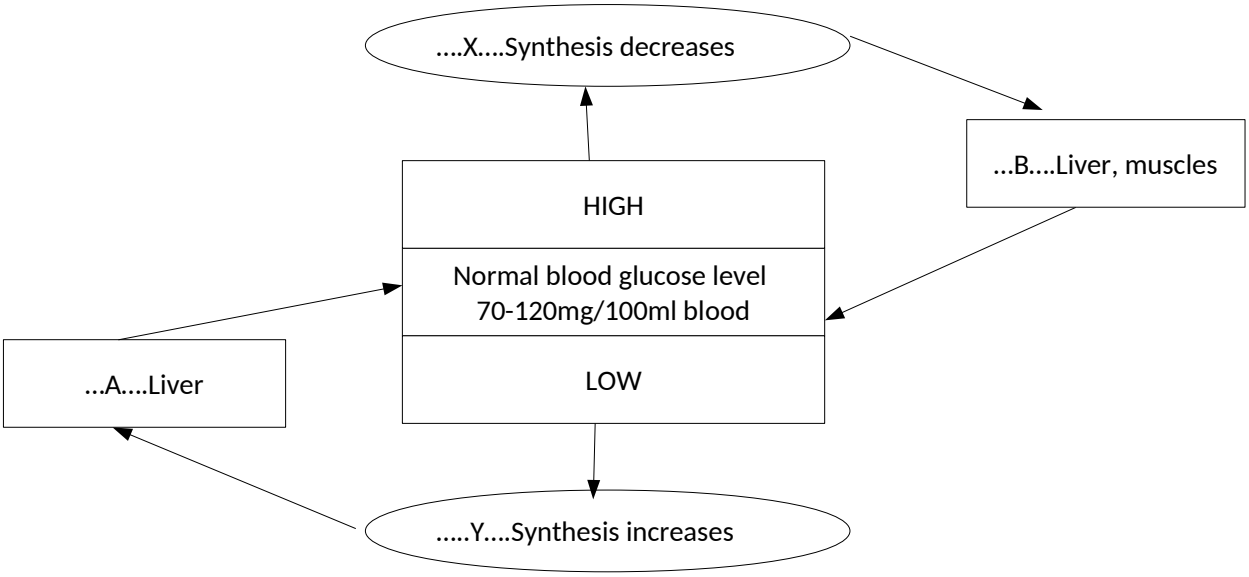


(a) Name the vector used here**.** **1**

(b) Write the name of genetic scissors given. **1**

(c) Will the future generation of the bacteria have the ability to produce insulin. Why ? **1**

16. Observe the illustration given below and answer the questions. **3**

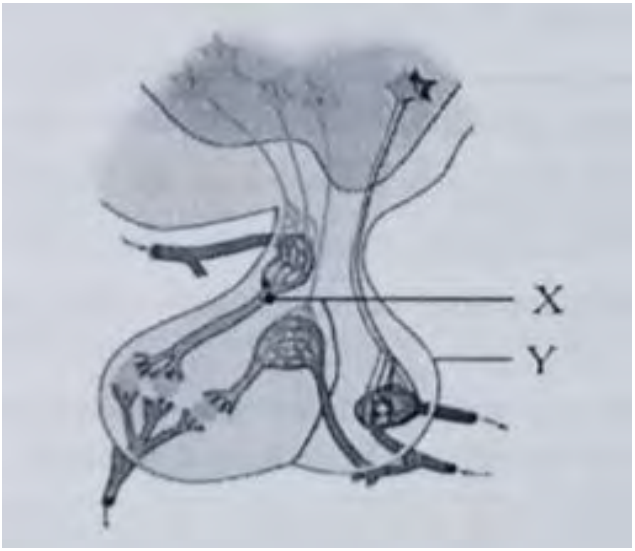


(a) Write the name of the hormones **X** and **Y.**

(b) Mention two actions that take place in **A** and **B.**

B. Answer the following question carries 3 score.

17. Observe the diagram and answer the following. **3**



(a) Identify **X , Y.** **1**

(b) Write the functions of **Y ?** **2**

PART - 4

A. Answer any 2 questions from 18 to 20 each carries 4 score.

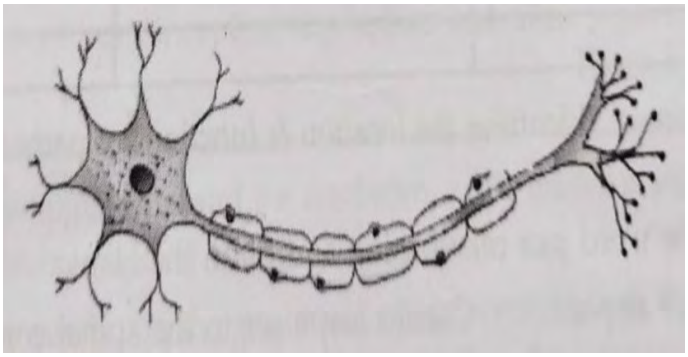
18. You are invited to prepare a presentation slide for the cancer awareness class, conducted by the health club.What explanation will you give to the ideas given below.**4**

(a) The disease cancer

(b) Reason for cancer

(c) Treatment for cancer

19. Observe the diagram and write the parts according to their functions. **4**



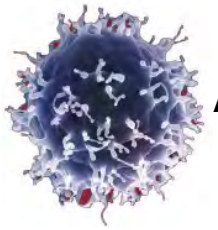
(a) The part that receives messages from adjacent neuron.

(b) The part that secretes acetylcholine.

(c) The part that carries messages to outside

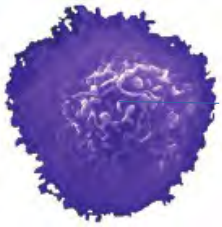
(d) The cells which encircles neurons to form myelin sheath.

20. Given below is the picture of white blood cells which are parts of specific defense.



A

B



(a) Identify **A** and **B.**

(b) What is the role of **A** in specific defense.

(c) Give any difference between **A** and **B**.

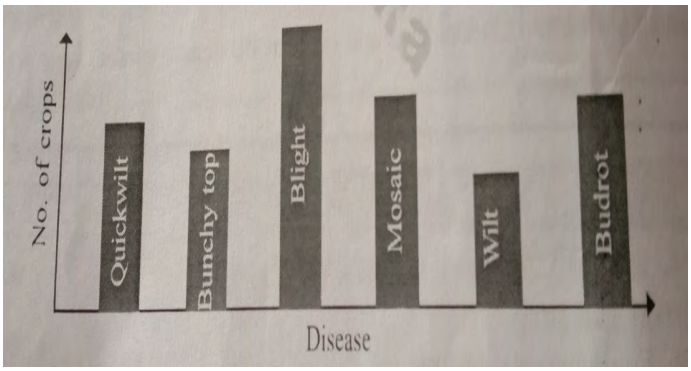
B. Answer any one question from 21 to 22 each carries 4 score.

21. Complete the illustration of the second generation obtained from the hybridization in which two traits of a plant are considered. **4**

Indicators	
Dominant character -	Tallness, red colour of flower.
Recessive character -	Dwarfness, white colour of flower.

	TR	Tr	tR	tr
TR	TTRR	..... A	TtRR	..... B
Tr	 C	TTrr	..... D	Ttrr
tR	TtRR	..... E	..... F	..... G
tr	..... H	Ttrr	ttRr	ttrr

22. A study of the Agriculture Department on plant diseases in a panchayath is given below as a graph. Analyse this and answer questions. **4**



(a) Which is the mostly affected crop ?

(b) Name the disease that affects pepper.

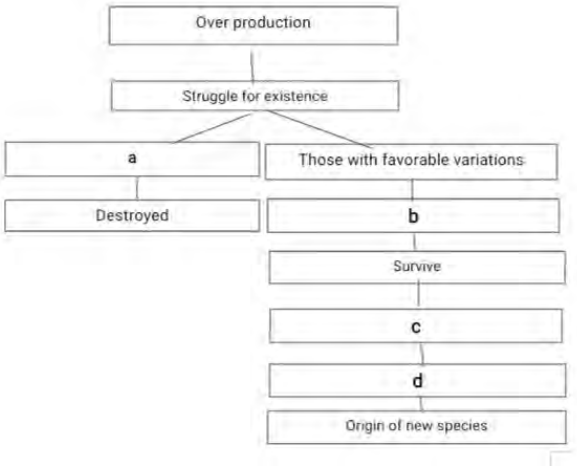
(c) What are the fungal diseases that affected the plant of that area?

(d) Name the pathogen which causes Bunchy top in banana?

PART - 5

A. Answer any one question from 23 to 24 each question carries 5 score.

23. Observe the illustration given below and answer the following. **5**

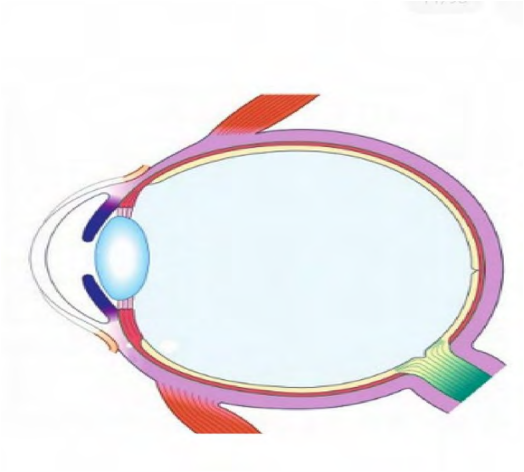


(a) Complete the illustration.

(b) Name the theory mentioned above.

(c) Who proposed the theory and write the main concepts in the theory.

24. Redraw the diagram and answer the following. **5**



(a) The chamber filled with the fluid that nourishes the tissues of the eye.

(b) Transparent anterior part of the sclera.

(c) The aperture seen at the centre of Iris.

(d) Name the layer that has photoreceptors.

SSLC QUESTION PAPER SET 3

Supporting Study Material

TIME:1.30 Hrs **BIOLOGY** **MAXIMUM MARKS :40**

The first 15 minutes is the cool off time.
Attend the questions according to the instructions

PART I

A.Answer any four questions from1-6.Each carries 1 score.

1.Which concept is put forward by the theory of Natural selection ?
(a) Origin of life
(b) Origin of Species
(c) Origin of Eukaryotes
(d) Chemical Evolution of life (1)

2.Identify the word pair relationship and fill in the blank
Genetic scissors : restriction endonuclease (1)
Genetic glue : ----------

3.Which is known as the youth hormone?
(a) Adrenaline (b) Thymosine (c)Aldosterone (d)Testosterone (1)

4. Which of the following is not a synapse.
Neuron- Neuron, Neuron-Skeltal cell, Neuron-Glandular cell, Neuron-Muscle cell (1)

5. Findout the odd one and write the common features of others.
Stapes, Malleus, Cochlea, Incus (1)

6. saliva:Lysozyme
Tears :..... (1)

B.Answer ALL QUESTIONS FROM 7-9.Each carries 1 score.

7.Identify the word pair relationship and fill in the blanks.
a) Melatonin : Pineal gland
Epinephrine : .....
b) Salt-water level : Aldosterone (1)
Youth hormone : .....

8..Which organism belongs to cercopithecoidea
(a)Gorilla (b) Gibbon (c) Monkey (d) Chimpanzee (1)

9.Identify the protozoan disease
(a) Malaria (b) AIDS (c) Rat fever (d) Nipah (1)

PART II

A.Answer the following question,carries 2 scores.

10.“There are certain limitations in producing insulin using bacteria.”Analyse this statement and answer the following question.
a.How can we overcome this by researches in this field?

B.Answer any one question from 11-12.Each question carries 2 scores.

11.Write two uses of DNA finger printing technology. (2)

12.Redraw the given diagram and label the following parts.Complete the table including the name of endocrine glands and their hormones responsible for the balance of calcium level in blood . (2)

Calcium level in blood	Hormone	Gland
(a) increases	(i)	(ii)
(b)decreases	(iii)	(iv)

PART III

A.Answer any three of the questions from 13-16.Each carries 3 scores.

13.Identify the statements that are related to chemical evolution: (3)

a) Life originated in some other planets in the universe and accidentally reached the earth.
b) Life originated as a result of the changes that occurred in the chemical substances in water, under specific conditions of primitive earth.
c) The theory is supported by the organic substances found in the meteors that fell on earth.
d) A I Oparin and J B S Haldane are the proponents of the theory

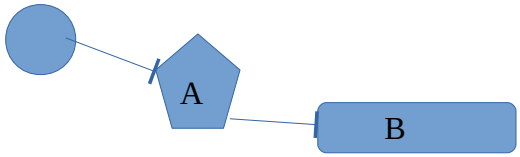
14.Analyse the given table and arrange Column B and C according to Column A (3)

A	B	C
Acromegaly	Increased production of somatotropin during growth phase	Overgrowth on the neck
Cretinism	Excessive production of somatotropin after growth phase	Excessive growth of the body
Gigantism	Decreased production of thyroxine during infancy	Overgrowth of bones on the face ,jaws and fingers
	Excessive production of thyroxine	Physical and mental growth retardation in children

15. You are invited to prepare presentation slide for the cancer awareness class, conducted by the health club. What explanation will you give to the idea given below? (3)

1. The disease cancer.
2. Reasons for cancer.
3. Treatment for cancer.

16.Observe the illustration and answer the questions.



(a)Identify the illustration . (1)
(b)What do A and B indicate? (1)
(c)Name the type of ' B' found only in DNA molecule. (1)

B.Answer the following question,carries 3 scores.

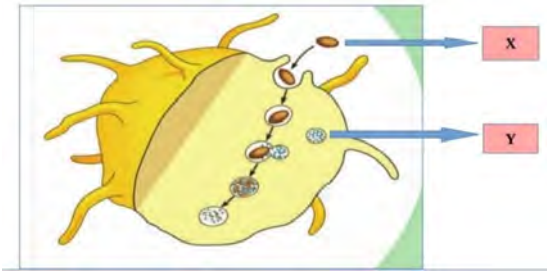
17.Select statements related to virus from the statements given below. (3)
a) Simple structure with a DNA or RNA molecule within a protein coat
b) Toxins produced by them destroy cells and cause disease
c) It is a prokaryote
d) Multiplies by taking control over the genetic mechanism of the host cells
e) No cell organelles as seen in normal cells
f) Multiply through binary fission
g) Dengue fever is a viral disease.

PART IV

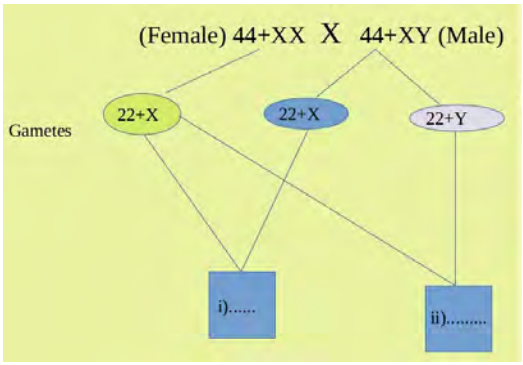
A.Answer any two question from 19-20.Each carries 4 scores.

18. Redraw the given diagram and label the following parts. (4)

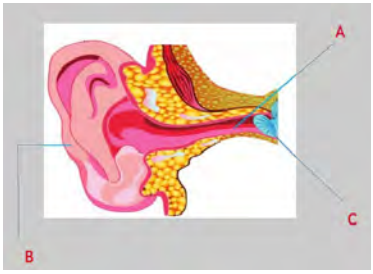
a) The part that maintains equilibrium of the body.
b) Centre of thought, intelligence and memory.
c) The part that controls involuntary actions.
19.



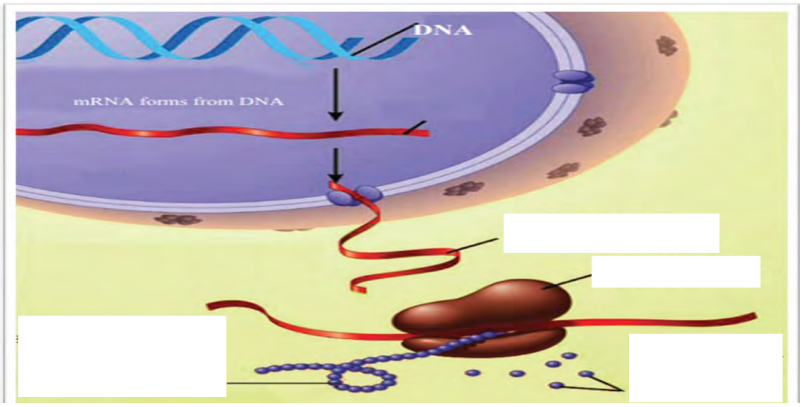
(i) Which is the process illustrated ? (1)
ii)What does X and Y indicate ? (1)
iii) Name the white blood cells involved in the process. (1)
iv) Rearrange the steps involved in this process in correct sequence (1)
and prepare it in a flow chart.
a) Lysosome combines with membrane sac.
b) They engulf pathogen in the membrane sac.
c) The pathogens are degenerated and destroyed by the enzymes
in lysosome.
d) Phagocytes reach near the pathogen.
20.Observe the illustration related to sex determination in man and answer the question



a)Fill up i &ii (2)
b)What is the genetic mechanism that determines whether a child is male or female? (1)
c)What does the number '44' indicate in this illustration? (1)
B.Answer any one question from 21-22.Each carries 4 scores.
21.Redraw the diagram given below. Identify the parts and label it. (1)



(a) The part that leads sound waves to auditory canal. (1)
b) The part that maintains the pressure on both sides of the ear drum. (1)
c) The part where sound receptors are located. (1)
22.Observe the illustration and answer the questions.



a) Name the process mentioned here. (1)
b) Write down the different steps of this process in correct order. (3)

PART V

Answer any one question from 23-24.Each questions carries 5 scores.

23.The hybridization experiment conducted by Mendel based on two characters 4 in pea plants.
a.complete the table related to allele structure of second generation
b.mention the ratio of plants obtained here.

Self pollination in first generation
Tall plant , Axial flower X Tall plant ,Axial flower
TtAa TtAa

Gamates	TA	Ta	tA	ta
TA	TTAA Tall with axial flowers	(1) ---------- --	(ii) ----------	TtAa Tall with axial flowers
Ta	(iii) ----------	TTaa Tall with terminal flowers	TtAa Tall with axial flowers	(iv)
tA	TtAA Tall with axial flowers	(v) ----------	ttAA Dwarf with axial flowers	(vi) ----------
ta	(vii) ----------	Ttaa Tall with terminal flowers	(viii) ---------- -	ttaa Dwarf with terminal flowers

(i).FILL UP (i) ,(ii),(iii). (3)
(ii)How natural selection leads into the origin of new species? (2)
24,Prepare a flow chart of evolutionary history of modern man. (5)