Standard - X

BIOLOGY

ആമുഖം

കൊല്ലം ജില്ലാ പഞ്ചായത്തും പൊതുവിദ്യാഭ്യാസ വകുപ്പും കൊല്ലം ഡയറ്റിന്റെ അക്കാദമിക പിന്തുണയോടെ പത്താം ക്ലാസ്സിലെ വിദ്യാർത്ഥികൾക്ക് വേണ്ടി തയ്യാറാക്കിയിട്ടുള്ള പഠനസാമഗ്രിയാണ് **'ഉജ്ജ്വലം'**. എസ്.എസ്.എൽ.സി. പരീക്ഷ എഴുതുന്ന കൊല്ലം ജില്ലയിലെ മുഴുവൻ വിദ്യാർത്ഥികൾക്കും പഠനനേട്ടങ്ങൾ ഉറപ്പാക്കി പരീക്ഷാഫലം മെച്ചപ്പെടുത്തുക എന്നതാണ് പദ്ധതിയുടെ ലക്ഷ്യം. കോവിഡ് കാലഘട്ടത്തിൽ സ്വാഭാവിക ക്ലാസ്സന്തരീക്ഷം സാധ്യമല്ലാതിരുന്ന സാഹചര്യത്തിലുണ്ടായ പഠനവിടവ് പരിഹരിക്കുന്നതിനും വിദ്യാഭ്യാസ പ്രവർത്തനങ്ങൾക്ക് ശക്തിപകരുന്നതിനും വേണ്ടി നൂതന സാങ്കേതികവിദ്യയുടെ കൂടി സഹായത്തോടെ തയ്യാറാക്കിയ പഠനസാമഗ്രിയാണിത്. കഴിഞ്ഞ വിദ്യാലയ വർഷം എസ്.എസ്.എൽ.സി പരീക്ഷയിൽ 'A+' കളുടെ എണ്ണം വർദ്ധിപ്പിക്കുന്നതിന് ഉജ്ജ്വലത്തിലൂടെ സാധിച്ചിട്ടുണ്ട്. ഈ പഠനസഹായി ഉപയോഗിച്ചുകൊണ്ട് 60% പരീക്ഷാചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ കുട്ടികൾക്ക് കഴിഞ്ഞു. എസ്.എസ്.എൽ.സി. പരീക്ഷയെ സ്വാഭാവിക സന്ദർഭത്തിൽ ആത്മവിശ്വാസത്തോടെ ഏറ്റെടുക്കുന്നതിന് വിദ്യാർത്ഥികളെ സഹായിക്കുന്ന വിധത്തിലാണ് ഇതിലെ ഓരോ യൂണിറ്റും ക്രമീകരിച്ചിരിക്കുന്നത്. ഒപ്പം മാതൃകാചോദ്യങ്ങളും ഉൾപ്പെടുത്തിയിട്ടുണ്ട്. കുട്ടികൾക്ക് സ്വന്തമായും അദ്ധ്യാപകരുടെ ഇടപെടലോടെയും പഠനം ഉറപ്പാക്കുന്ന രീതിയിലാണ് ഇത് രൂപകല്പന ചെയ്തിരിക്കുന്നത്. ക്ലാസ്റൂം പഠന പ്രവർത്തനങ്ങളോടൊപ്പം സ്വാഭാവിക സന്ദർഭം കൂടി ഒരുക്കി കുട്ടികളെ ആത്മവിശ്വാസത്തോടെ പരീക്ഷ എഴുതാൻ പ്രാപ്തരാക്കുന്നതിന് അദ്ധ്യാപകർ ശ്രദ്ധിക്കേണ്ടതാണ്. **'ഉജ്ജ്വലം'** പഠനസാമഗ്രി പരമാവധി പ്രയോജനപ്പെടുത്തി പ്രതിജ്ഞാബദ്ധതയോടുകൂടി അക്കാദമിക പ്രവർത്തനങ്ങളിലേർപ്പെട്ട് ജില്ലയിലെ എസ്.എസ്.എൽ.സി വിജയം 100% ഉറപ്പാക്കുന്നതിന് എല്ലാവിധ ആശംസകളും നേർന്നുകൊള്ളുന്നു.

വിജയാശംസകളോടെ...

സാം കെ. ഡാനിയേൽ
പ്രസിഡന്റ്, കൊല്ലം ജില്ലാ പഞ്ചായത്ത്

ഡോ. പി.കെ. ഗോപൻ
ചെയർപേഴ്സൺ, ആരോഗ്യ വിദ്യാഭ്യാസ സ്റ്റാന്റിംഗ് കമ്മിറ്റി,
ജില്ലാ പഞ്ചായത്ത്, കൊല്ലം.

ലാൽ കെ.ഐ
വിദ്യാഭ്യാസ ഉപഡയറക്ടർ, കൊല്ലം.

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പ്രിൻസിപ്പാൾ - ഇൻ - ചാർജ്, ഡയറ്റ്, കൊല്ലം.

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Chapter - 1

Sensation and Responses

Concept Areas

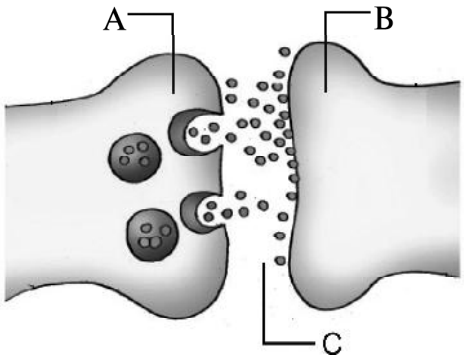
- Stimuli - Internal Stimuli, External Stimuli
- Receptors
- Neuron - Structure, Function
- Myelin Sheath - Schwann cells, Oliogodendrocytes, Function of myelin sheath
- White matter, Greymatter
- Formation and transmission of impulses
- Synapses and neurotransmitters
- Different types of nerves
- Brain - Structure and function
- Reflex acitons
- Autonomous nervous system - sympathetic, Parasympathetic
- Diseases of nervous system

1. Find out the odd one and write the common feature of others.
   a) Touch, Sound, Thirst, Smell.
   b) Ventral root, Dorsal root, Synaptic knob, Central canal.
   c) Dendron, axonite, Dendrite, Synaptic cleft.

2. Rewrite the sentences if there is mistake in the underlined portion.
   a) When any object move towards our eye we blink our eyes, this is an example of spinal reflex.
   b) Like the brain, the spinal cord is also covered by meninges.
   c) The repeated movements during walking, running etc, is coordinated by spinal cord.
   d) In the spinal cord, grey matter is seen outside and white matter is seen inside.

3. Identify the word pair and fill in the blanks.
   a) Evokes sensations: Cerebrum
      Relay station of impulses:.....
   b) Loss of memory: Alzheimer's
      Loss of body balance:.....
   c) Myelin sheath in the nerves:Schwann cells
      Myelin sheath in the brain:.....
   d) Cranial nerves: 12 Pairs
      Spinal nerves :.....

4. Redraw the diagram and answer the following questions

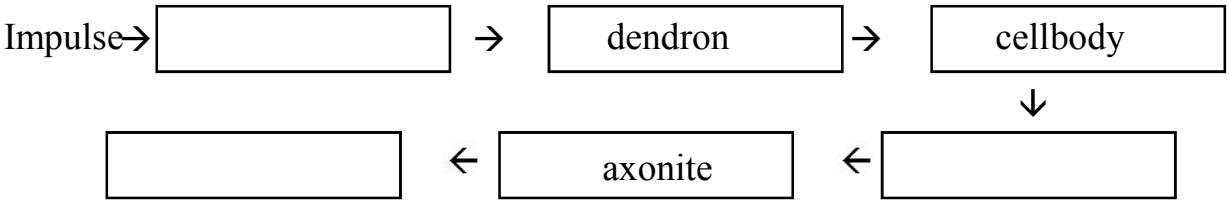


a) Identify and name the parts indicated as A, B, and C

b) What does the figure indicate to its function.

c) What is the term used to mention the chemical substances secreted to C. Write two examples for this.

5. Complete the flow chart indicating the path of impulses through a neuron.

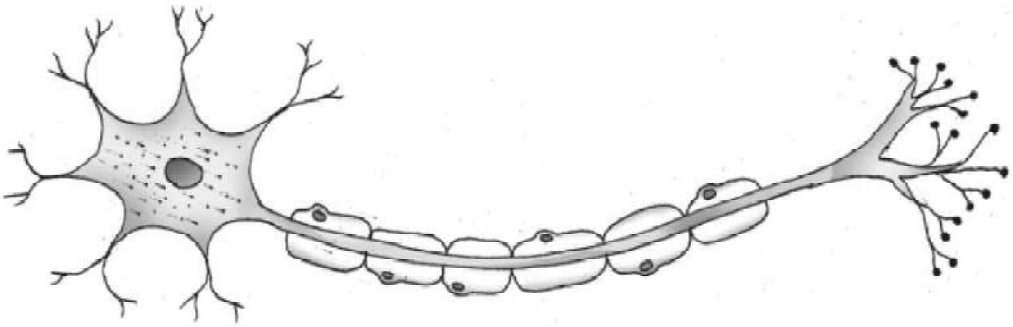


6. Analyse the statement given below, tablulate them under suitable heading

- Regulate the speed of impulses
- Covers spinal cord
- Seen as three layered membrane.
- Provides nourishment to brain
- Act as electric insulator
- Protects axon from pressure,external shocks etc

.....	.....
•	•
•	•
•	•

7. Redraw the diagram. Identify and label the parts whose functions are given below.



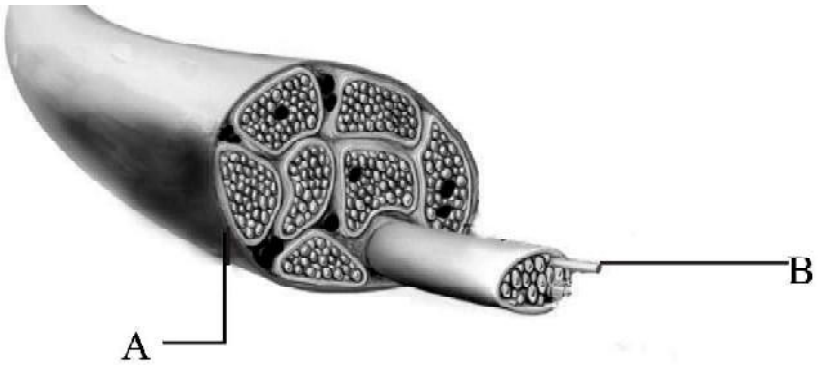
a) Part which secretes neurotransmittors

b) Part which receives impulses.

c) Part which carry impulses to the cell body.

d) Part which carry impulses away from the cell body.

8. Observe the diagram and answer the questions



a) Identify the parts labelled as A and B in the diagram.

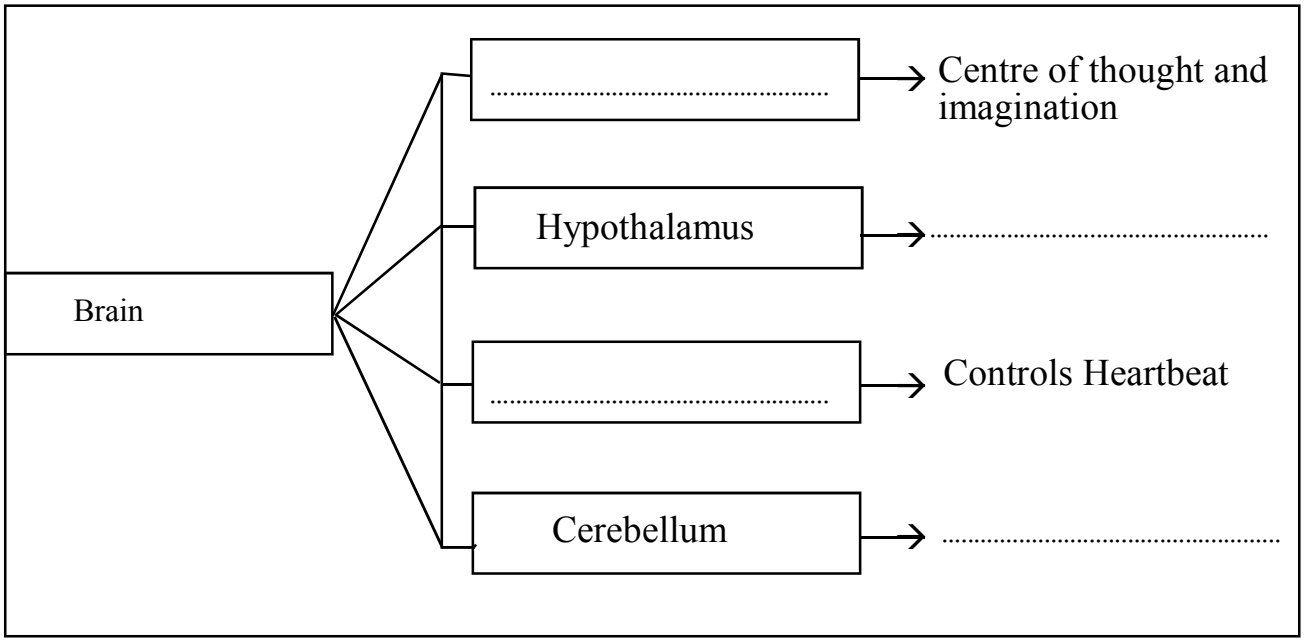
b) Write the functions of B.

9. Complete the table choosing suitable information from the box.

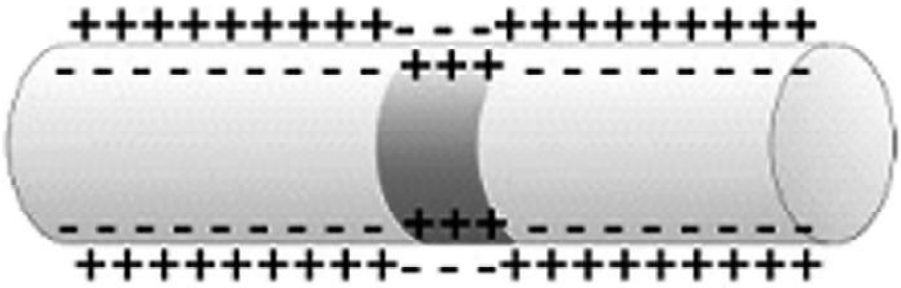
- Trachea contracts.
- Heart beat increases.
- Production of saliva increases
- The pupil in the eye dilates
- Urinary bladder regains normal state
- Production of hormone increases.

A	B
Sympathetic System	Parasympathetic system

10. Complete the illustration



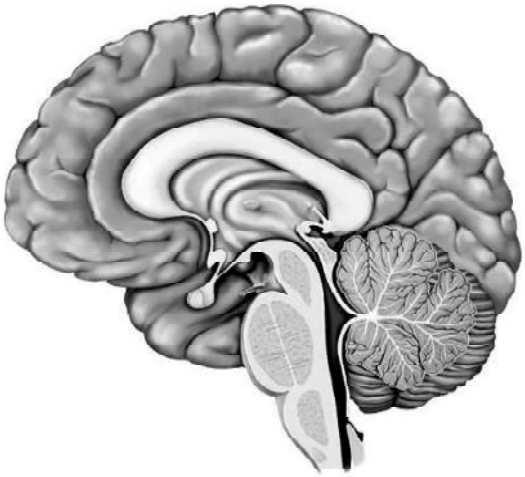
11. Observe the illustration and answer the questions



a) What caused the change in the distribution of charges in the above illustration.

b) How does the changes in charges help in the transmission of impulses?

12. Redraw the diagram, Identify and label the parts indicated below.



a) Controls voluntary actions

b) Part which controls breathing

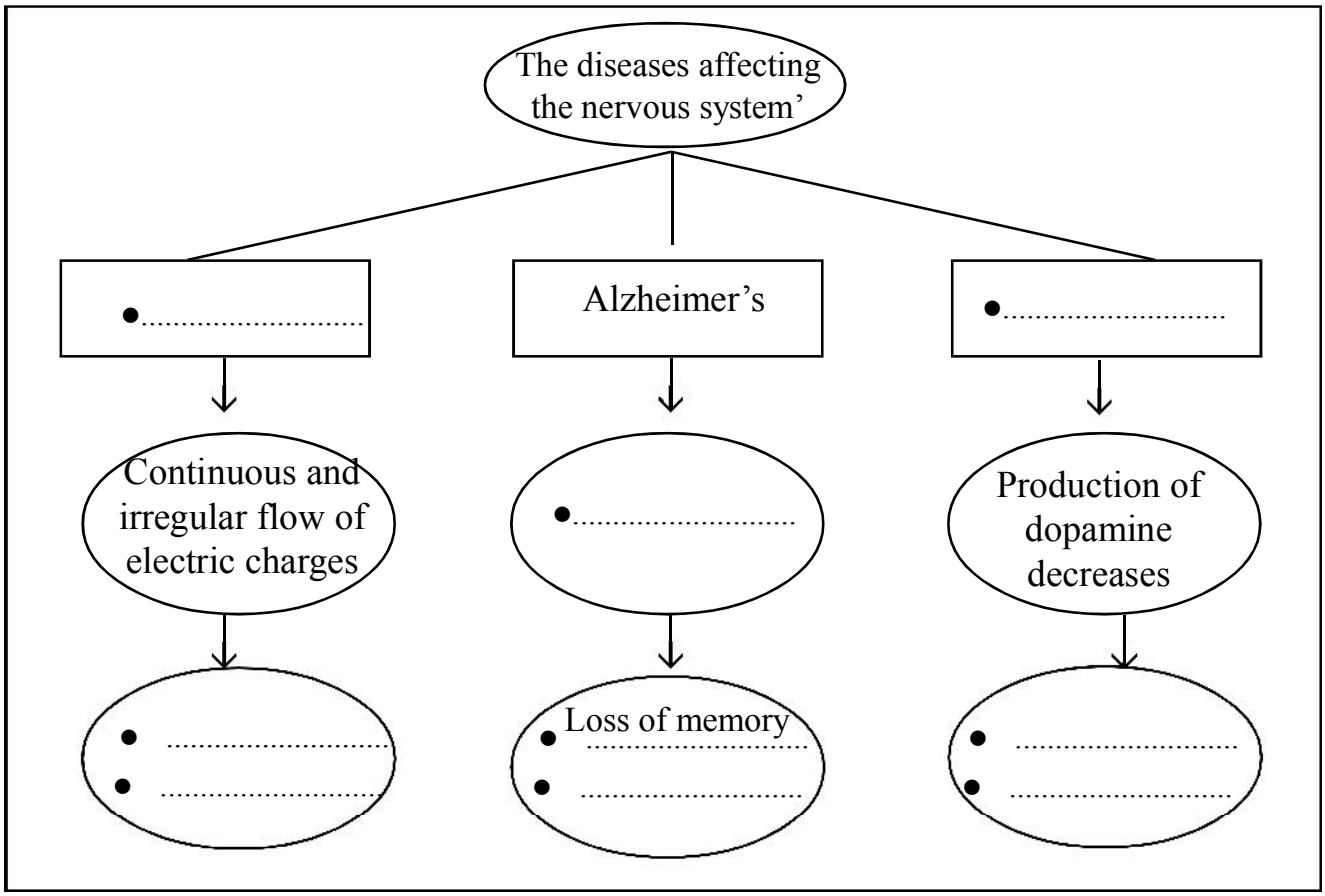
d) Relay station of impulses.

d) Part which maintenance of homeostasis.

13. Choose the correct pair related to reflex action from the following, using that construct a flow chart indicating the path of impulses in reflex action.

a)	Motor neuron	-	Carries the information from spinal cord to related muscles.
b)	Interneuron	-	impulses are formed
c)	Sensory neuron	-	Carries impulses to the spinal cord.
d)	Interneuron	-	connects the sensory neuron and the motor neuron.
e)	Receptor	-	Generates impulses.
f)	Sensory neuron	-	Carries the information from spinal cord to related muscles.

14. Complete the illustration



Answer key

1 a) Thirst, others are external stimuli

b) Synaptic knob, others are part of spinal cord.

c) Synaptic cleft, others are part of neuron

2 a) Cerebral reflex

d) Brain

3 a) Thalamus

b) Parkinsons

c) Oligodendrocyte

d) 31 pairs

4. Parts of synapse, neuro transmitters

5. Path of impulses through neuron

6. Peculiarities of axon and meninges

7. Different parts of neuron.

8. Structure of Nerve, and functions of Axon

9. Functions of sympathetic and parasympathetic system.

10. Different parts of brain and their functions

11. Formation of electric impulses in axon.

12. Parts of brain and functions

13. Different parts take part in reflex action.

14. Different diseases which affect nervous system, causes and symptoms.

CHAPTER - 2

WINDOWS OF KNOWLEDGE

CONCEPT AREAS

Eye - Protection measures.

Structure.

Parts and functions.

Regulation of Light in the Eye.

Power of accommodation of the eye.

The Chemistry of Vision.

Binocular vision.

Eye diseases, defects, remedies.

Health of the eye and its protection.

Ear – Protective measures.

Structure.

Parts and functions.

Body balancing , hearing.

Experience of taste.

Experience of smell.

Receptors in skin.

Receptors in different organisms.

1. Sense organs and receptors

Complete the table suitably

Sense Organs	Receptors	Stimulus
Eye	Photoreceptors	A
Ears	B	Sound
Tongue	C	Sweet, Salt
Skin	Touch receptors Pressure receptors,	D
Nose	E	F

2. Identify the word relation pair and fill in the blanks

a) Gastric juice : .....
Saliva : Lysozyme

b) Cone cells : .....
Rod cells : Rhodopsin

c) Retina : Photoreceptors
Basilar membrane : .....

d) Focal length is adjusted to form the image on the retina : Power of accommodation
Three dimensional image is formed : .....

e) Part of the retina where photo receptors are more : Yellow spot
Part of the retina where photoreceptors are absent : .....

3. Find out the odd one and write the common feature of others.

   Eyespot, Iris, Lateral line, Ommatidia

4. Name the property of eye related to vision on the basis of the give statement

   Images formed in both the eyes are combined due to the activity of the brain and a three dimensional image is formed.

5. Re-write the underlined part of the sentence.

   a) Plenty of photoreceptors are present in the blind spot of retina

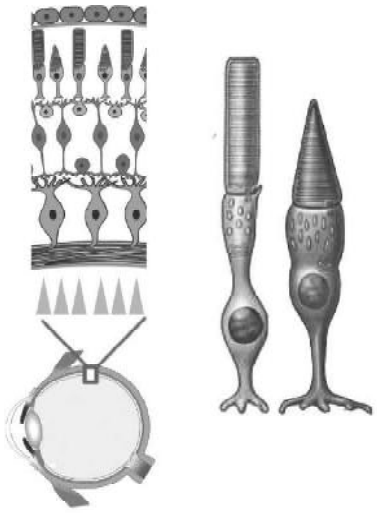
   b) Pharynx connects middle ear with Synapse

6. Give reason for the following

   a) Size of the pupil decrease during bright light

   b) Deficiency of vitamin A affects vision.

7. Image of receptors are given below. Observe them and answer the questions.



   a) Identify A and B. Where are they found?

   b) How does A and B differ in their function?

8. A process takes place in the eyes related to vision is given below

   Rhodopsin $\rightleftharpoons$ retinal + opsin

   a) In which layer of the eye this process takes place?

9. Complete the table showing the position and functions in the fluids of eye

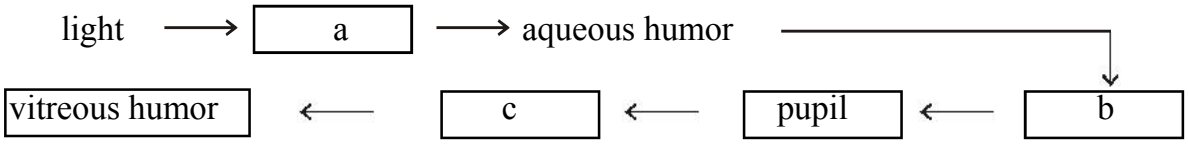
Fluids in the eye	Position	Function
Aqueous humor	A	B
Vitreous humor	C	D

10 Identify the word relation and answer the questions

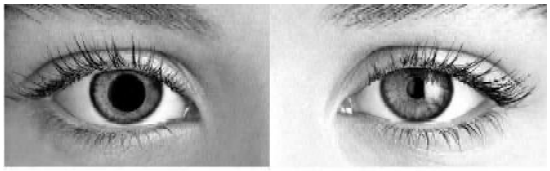
   a) Chamber between the lens and cornea : aqueous chamber
   Chamber behind the lens: _____

   b) Area of retina having photo receptors : yellow spot
   Area of retina having no photoreceptors : _____

11. Complete the flow chart related to the sense of vision



12. Observe the illustration related to the regulation of light in the eye



A B

   a) Name the muscles which help to regulate the size of the pupil.

   b) Identify the figure which shows the condition of pupil in dim light.

   c) Complete the table related to this process.

Intensity of light	Muscle Action	Change occurs to pupil
Dim light	.....	.....
Bright light	.....	.....

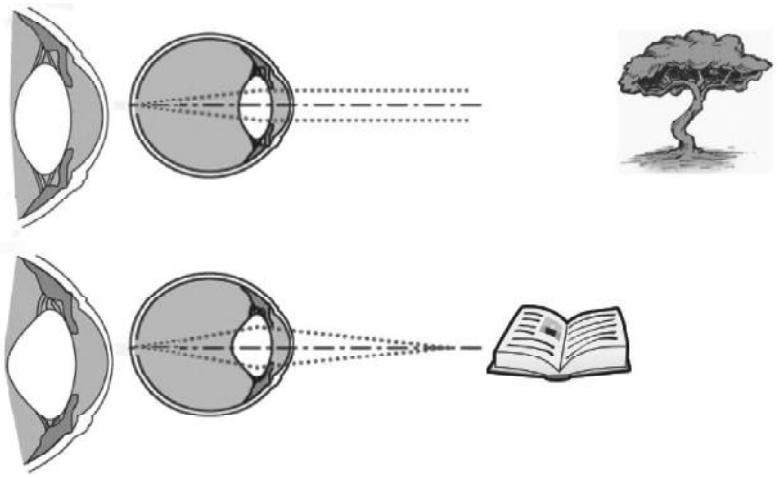
13. Redraw the diagram, identify and label the given parts and write the functions of each.

a)Transparent anterior part of the sclera.

b) Part of the retina where photoreceptors are more

c) Aperture seen at the centre of the iris,

14. Observe the illustration and complete the table below



While observing nearby objects	While observing distanct objects
Ciliary muscles contract	Ciliary muscles a .....
Ligaments b	Ligaments stretch .....
Curvature of lens c	Curvature of lens d .....
Focal length e	Focal length f .....

15. What are the peculiarities of the image formed by the lens of the eye?

16. In the medical certificate presented by Visakh for driving licence it is mentioned that he cannot detect red and green colours .

    a) Will Visakh get permission for driving test ?

    b) Defect of Visakh is known by which name ? Write the reason for this ?

17. Complete the missing part.

There are three types of cone cells in our eyes to detect red,green and blue colours. The difference in ————————of the opsin molecule is responsible for this diversity.

18. Two peculiarities of human eye is given below. Analyse statement and answer the question

i) The images from two sides of the same object are formed in the left and right eye.

ii) Enables three dimensional vision.

a) Write the property of eye related to the statement. Explain

19. Make poster to display in a seminar conducted as part of eye donation week.

20. Arrange column B and C according to column A

A	B	C
1.Cataract	Infection	Vitamin A rich food
2.Glaucoma	Lens became opaque	Maintaining personal hygiene
3. Conjunctivitis	Cornea becomes dry and opaque	Laser treatment
4.Xerophthalmia	High pressure in the eye	Lens replacement surgery

21. Write two habits that we should practice related to the health of the eye

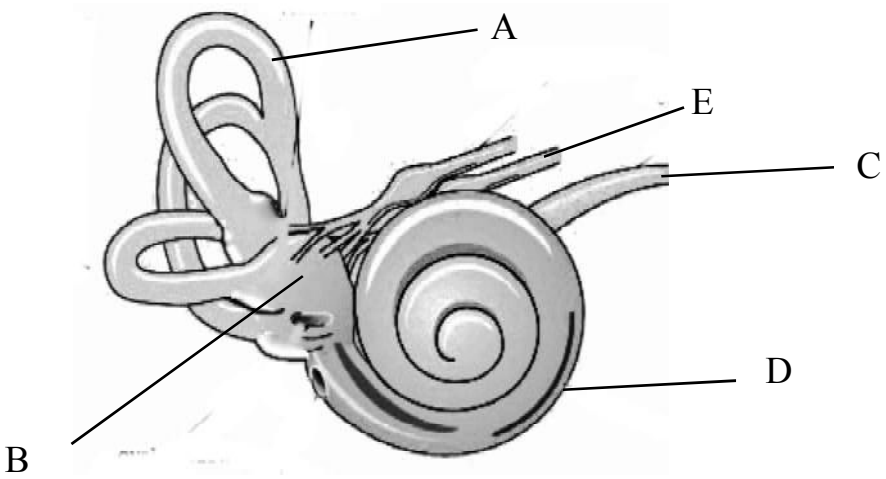
22. Analyse the statement and answer the questions

Raju has difficulty to read in dim light.

a) Identify this eye defect.

b) Can this defect be corrected using spectacles? Why?

23 . Observe the picture and answer the questions.



Name A,B,C and D.

Identify the part of brain where E is connected .

How does A and B help to maintain body balance?

24. Identify the word pair relation and answer the questions.

Hearing – auditory nerve

Body balancing – .....

25. Identify the odd one and write the common feature of others

    malleus, incus, vestibule, stapes.

26. Name the part which connects middle ear with pharynx. What is its function?

27. Identify the wrong statements and correct it.

    a) The internal ear is situated inside a bony case in the skull

    b) Auditory canal is the tube which connects internal ear with pharynx.

    c) A thin membrane that separates the middle ear from the external ear.

    d) Auditory canal carry impulses of body balancing

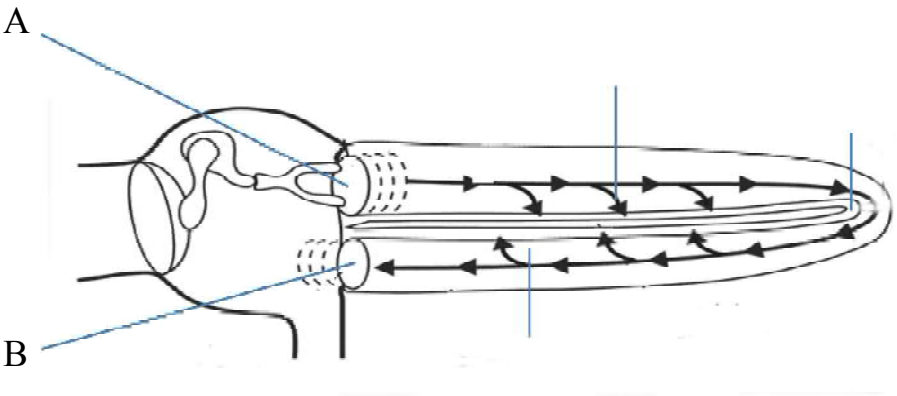
28. Write answers based on the discussion given below.

    Raju - Putting sharp objects like pencils into ear inorder to remove ear wax damages tympanum and affects hearing.

    Meera- Ear wax has no role in the ear so it should be removed.

    a) Analyse the conversation and substantiate your opinion scientifically.

29. Analyse the illustration and answer the questions.



a) Identify A and B.

b) Name the membrane associated with stapes

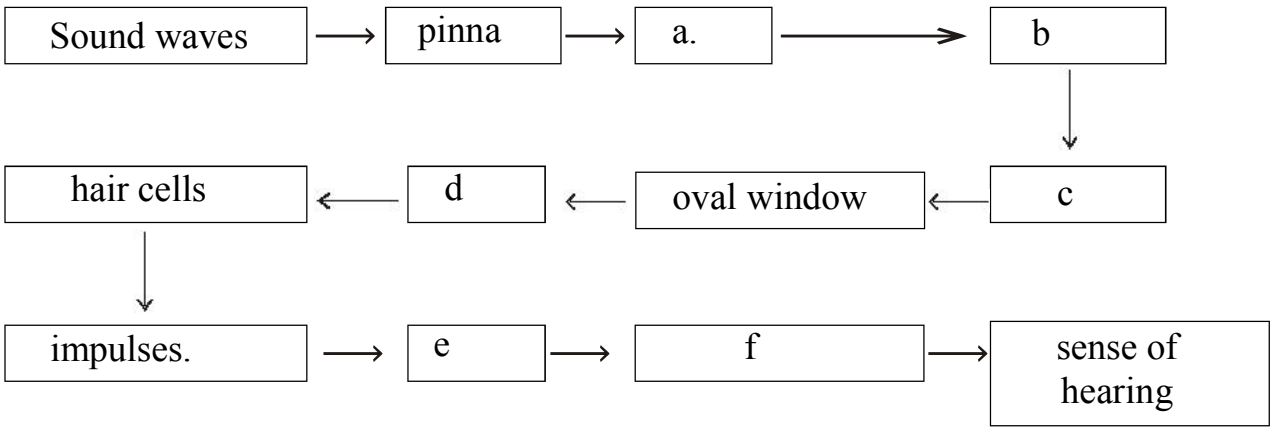
c) How are impulses formed in the cochlea?

30. Re write the statement if there is mistake in the underlined part.

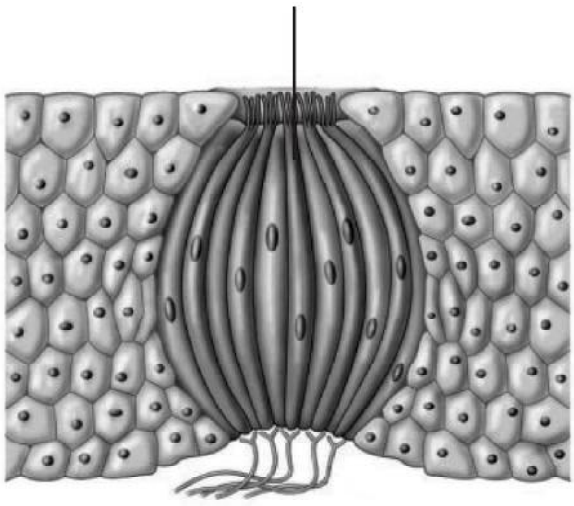
a) Basilar membrane separates middle chamber from lower chamber of the cochlea.

b) Basilar membrane and hair cells together constitute vestibule.

31. Complete the flow chart related to the sense of hearing.



32. Observe the figure and answer the questions



a) What does the figure indicate ?

b) Which is the receptor related to this figure?

c) What are the different tastes that can be detected using the taste buds in the tongue?

33. Statements related to taste are given below. Choose the wrong statement and correct it.

a) In order to detect taste presence of saliva required

b) When impulses from the chemoreceptors reach the cerebellum taste is detected.

c) Particles responsible for taste dissolve in saliva.

34. Different steps of detection of taste is given below. Arrange them in the sequential order.

a) Chemoreceptors are stimulated.

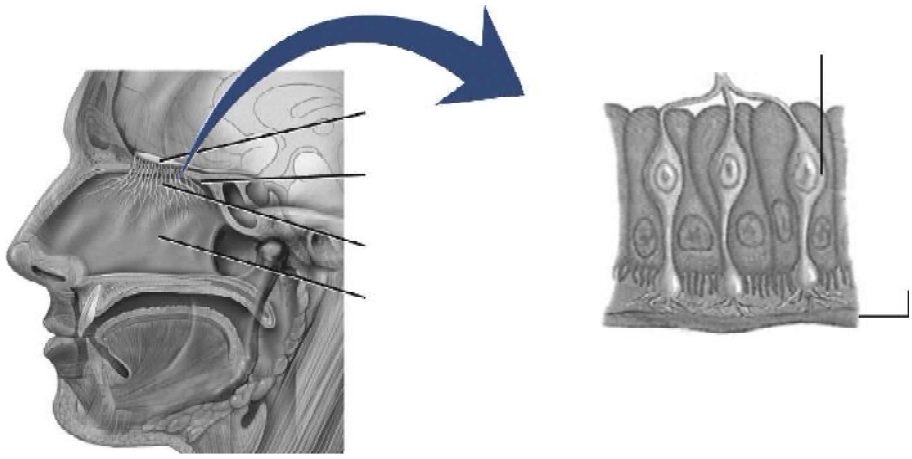
b) Impulses reach cerebrum through the nerve.

c) Particles responsible for taste dissolve in saliva.

d) Impulses are formed.

e) Sense of smell.

35. Identify the receptors given in the diagram and write its function.



36. Complete the flow chart related to the sense of smell.

Aromatic particles diffuse in the air and enter the nostrils.

↓

↓

↓

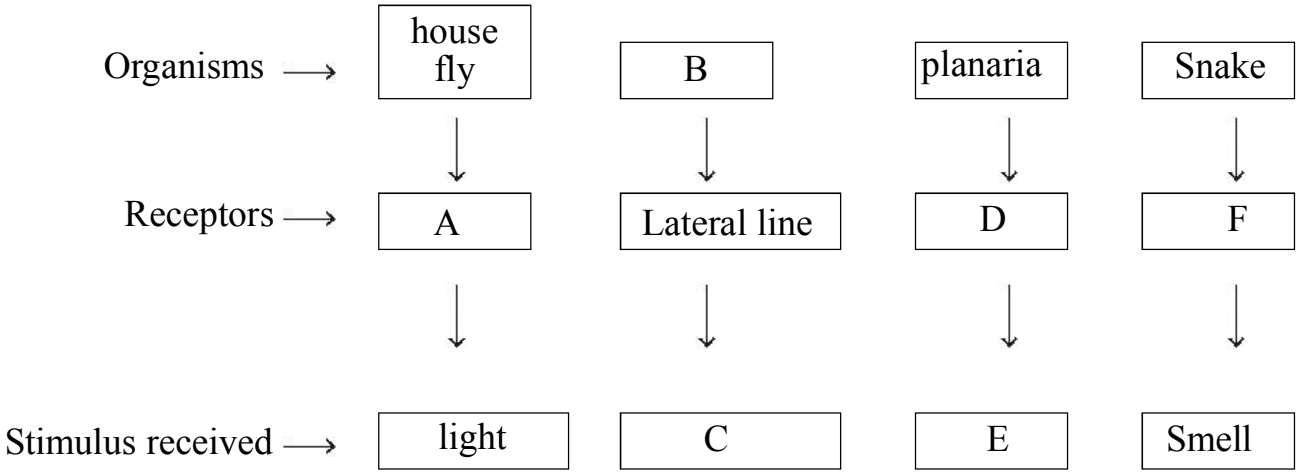
↓

↓

↓

Experience of smell

37. Identify A,B,C, D, E, F in the illustration



Answer key

1, a) light b) auditory receptors c) chemoreceptors d)taste
e) Olfactory receptors f) Smell

2. a) HCl b) Photopsin c) Auditory .....
d) binocular vission e) Blind spot

3. Iris , others include receptor cells

4 Binocular vision

5. a) Yellow spot b) Eustachian tube

6. a) Contraction and relaxation of muscles of the iris
b) Vitamin A is required for the production of rodopsin

7. a) Rod cells
b) Cone cells ,Functions of rod cells and cone cells in the retina

8. Retina

9. a) Between cornea and lens
b) Gives oxygen and nourishment to the tissues of the eye.
c) Between lens and retina.
d) Maintains shape of the eye

10. a) vitreous chamber
b) Blind spot

11. a) Cornea b) lens c) vitreous humor d) Optic nerve e) Cerebrum

12. a) Radial muscles and circular muscles

13. Structure of eye

14 a) relaxes b) relaxes c) Increases d) decreases

15. Inverted, diminished and real.

16. Ciliary muscles contract.

17. amino acids

18. Binocular vision.

19. Importance of eye donation -Poster

20. Eye diseases,defects- remedies

21. Protection of health of eyes

22. Night blindness
    No, due to the deficiency of vitamin A.
    Include vitamin A rich food in your diet.

23. Structure and function of the internel ear

24. Vestibular nerve.

25. Vestibule, parts of internal ear.

26. Eustachian tube- function
27. a) Eustachian tube
    b) Impulses of hearing

28. Function of ear wax, protection of ear.

29. Cochlea and fluid movements.

30. Organ of corti.

31. a) Auditory canal. b) Tympanum c) ear ossicles
d) Cochlea e) auditory nerve f) Cerebrum.

32. a) taste buds b) chemo receptors c) sweet, salt, sour, bitter

32., b) Cerebrum.

34. c,d,d,b,e

35. Olfactory receptors.

36. Stages of detection of smell.
Cold Receptor

37. a) Ommatidium b) shark c) body balancing d) eye spot
e) light f) Jacobsons organ.

CHAPTER - 3

CHEMICAL MESSAGES FOR HOMEOSTASIS

Main concepts

- Endocrine system and hormones
- Hormones and target cells
- The gland pancreas and metabolism of glucose
- The disease diabetes and its control
- Functions of thyroid gland and hormone deffects
- Regulation of calcium in blood
- Thymus gland and Thymosine
- Functions of the hormones of adrenal gland
- Biological clock
- Relation between hypothalamus and pituitary gland and their hormones
- Defects of growth
- Tropic hormones
- Vasopressin and maintenance of the level of water in blood
- Sex hormones
- Importance of pheromones
- Plant hormones
- Artificial plant hormones

1. Which hormone given below is been entered into cells for the production of energy?

   a) Glucagon b) Throxine c) Tropic Hormone d) Insulin

2. Choose the Statement not related to parathormone.

   a) Produced by the gland situated behind the thyroid gland.

   b) Acts antagonistic to calcitonin.

   c) Stores calcium in bones

   d) Increases the level of calcium in blood

3 Which of the statements given below is related to thyroid gland.

   a) The main endocrine gland that controls the metabolic activities.

   b) The gland which increases the level of calcium in blood

   c) Maintain salt water level

   d) Control other endocrine gland

4. Analyse the pairs given below and choose the correct pairs

   a) Thymus - melatonin

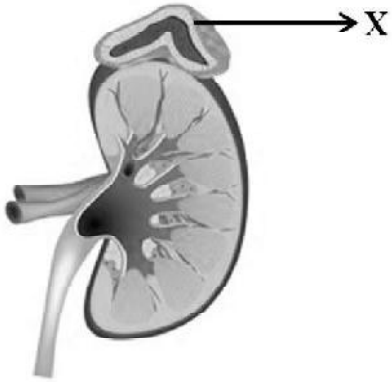
   b) Pituitary gland - growth hormones

   c) Adrenal gland - Inhibitory hormones

   d) Adrenal gland - cortisol

   f) Hypothalamus - releasing hormones

5. Identify the gland given below. Which part is labelled as X



6. Rewrite the sentence if there is mistake in the underlined part.

   a) The hormone melatonin helps to maintain the rhythm of our daily activities.

   b) Excessive production of somatotropin after the growth phase results in the condition called Acromegaly.

   c) Prolactin is the tropic hormone which influence the production of breast milk.

   d) Norepinephrin is the hormone produced by the neuro secretory cells of the hypothalamus.

7. Answer the following questions based on the indicator given below.

   "***The action of the hormones of adrenal gland prolongs body activities for a longer time, when the sympathetic system gets stimulated."***

   a) Which are the hormones mentioned here ?

   b) Which part of the gland produces these hormones ?

8. Analyse the information given in the box and answer the questions

A	Hormones reach the posterior lobe of pituitary gland through neuro secretorycells
B	Anterior lobe of pituitary gland produce tropic hormones

a) Which are the hormones mentioned in A

b) Explain the importance of hormones mentioned in B with reference to the function of thyroid gland.

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

a) Cretinism, Myxoedema, Acromegaly, Goitre

b) Hypothalamus, pituitary, pineal, thymus

c) GTH, ADH, ACTH, TSH

d) Cortisol, Somatotropin, Epinephrin, Aldosterone

10. The formation of hormone receptor complex causes changes in the cells. Mention the changes.

11. Complete the table suitably.

Hormones	**Glands**	**Functions**
Oxytocin	Testes	Prepares body during emergency situations
Testosterone	Pancreas	Synthesis glucose in liver
Glucogon	Hypothalamus	Facilitates lactation.
	Thyroid	Production of sperm.

12. "Generally glucose is not present in urine "

    Is there any chance for the presence of glucose in urine ? Give reason.

13. Urine samples in test tube A and B is heated by adding Benedict solution and the observation is given below.

    - Sample A- No change in colour.
    - Sample B- Red colour

    What conclusion can be drawn from this observation?

14. Complete the table analysing the indicators given below.

    - Regulates growth in children.
    - Accelerates the growth and development of the brain in the foetal stage and infancy.

Gland	Hormones
•	•

15. During some instances calcium is re-absorbed into blood from the kidneys
    a) Which instance is mentioned in the statement?
    b) Which hormone acts during this instance?
    c) What is the function of hormone other than that is mentioned in the statement?

16. Identify the hormone mentioned in the following statements.

    - This gland and the hormone help in the maturation of a type of white blood cell formed in the bone marrow
    - Slows down the action of defense cells

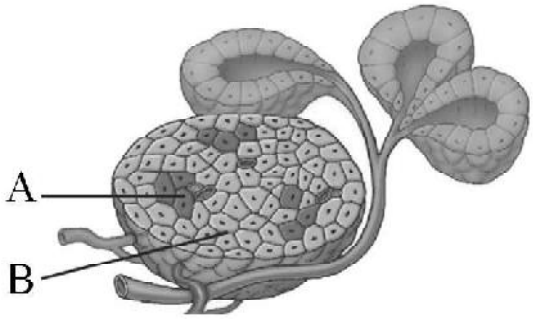
17. Identify which is indicated as a, b, c and d in the table

Component of blood active when the level decreases	The gland becomes becomes active when the level decreases	The hormone
Calcium	.....(a).....	.....(b).....
water	.....(c).....	.....(d).....

18. Give reasons for the following statements.
    a) Ants move in a line along a particular trail.
    b) Gibberlin is required for the germination of seeds.
    c) Pheromones have importance in agricultural sector
19. Write two relevant arguments that each of the two teams might make in a class debate on synthetic plant hormones.

20. Hypothalamus is the gland known as the major controller of endocrine system.
    Write two evidences which substantiate the above statement.

21. Observe the illustration and answer the questions.



    a) Which cells are indicated as A and B?
    b) Which are the hormones produced by each of these hormones?
    c) Which hormone starts its function when the level of glucose in blood decreases? Write its function.

22. Identify the relation between the words and fill up.

a) Cortisol : Controls inflammation and allergy.
..... : Regulates blood pressure.

b) Present in the neck region : Thyroid gland.
Present behind the sternum : .....

c) Level of calcium in blood : 9-11mg/100 ml
Level of glucose in blood : .....

d) GTH : Accelarates the function of testis and ovary
ACTH : .....

23. Complete the table including the information given in the box giving suitable heading.

Hint: Defects of growth hormone

Excessive growth of the body during growth phase, Production of hormone increases during growth phase, Retardation of growth during growth phase, Hormone production decreases during growth phase, Production of hormone decreases after growth phase

A)	B)
•	•
•	•

24. Analyse the information given below and identify the artificial plant hormone mentioned in each.

- It is used for harvesting fruits at the same time.
- Gets transformed into ethylene, when used in rubber trees.
- Prevents ripening of fruits for marketing conveinence.
- Prevents premature falling of fruits.

25. A chemical substance help termites, ants and honey bees to live in colonies.
    a) Which is this chemical substance ?
    b) What are the different purposes for which animals use these chemicals?
    c) Give two examples for this chemical substance.

26. Testosterone and estrogen are sex hormones, but another sex hormone in females is also important.
    Which is this hormone? Write its importance.

27. ***Decreased production of a particular hormone which acts on kidneys decreases the quantity of urine.***
    a) Do you agree with this statement. Why?
    b) What is the relation between action of hormone in the kidneys and the disease diabetes insipidus ?

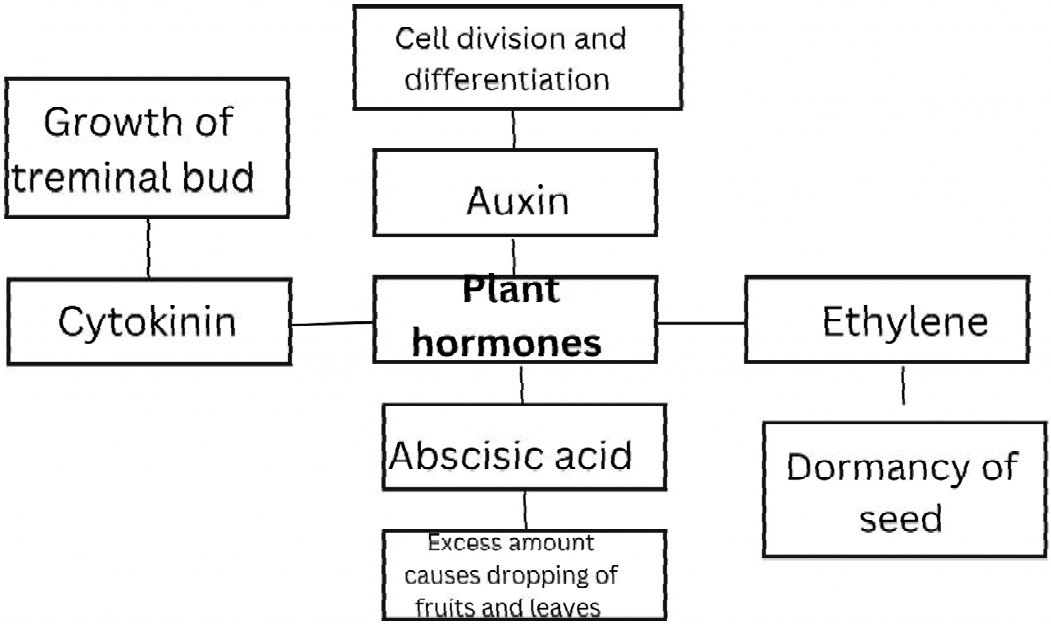
28. Which hormone function influence sleeping and waking up? Name the gland which produces this hormone ?

29. Continuous excessive production of thyroxine influence metabolic activities.
    What is this condition called? Give three examples for how this influence metabolic activities.

30. Make suitable pairs using the information given in the boxes.

Box A	Box B
• Oxytocin • Insulin • Glucagon • Inhibitory hormone	• Inhibits the production of tropic hormones • Facilitates child birth. • Maintains the rhythm of our daily activities • Converts glycogen in the liver to glucose.

31. Correct mistakes if any in the illustration given below.



Answer key

1. Function of insulin
2. Deposits calcium in bones (Function of calcitonin)
3. Function of thyroxine(Gland which controls metabolic activities)
4. Pituitary gland- growth hormone. Adrenal gland-cortisol,hypothalamus-releasing hormones.
5. Adrenal gland and cortex.
6. Hormones of hypothalamus-releasing, inhibitory,vasopressin, oxytocin.
7. Functions of the hormones epinephrine and nor epinephrine secreted by the adrenal medulla.
8. A-vasopressin, B-How thyroid gland is influenced by thyroid stimulating hormone.
9. Identify the odd one and mention the common feature of others
10. Enzymes are activated within the cell and certain changes occur in cellular activities.
11. Function of oxytosin, testosterone and glucagon
12. Diabetes is the condition in which there is presence of glucose in urine.(Symptoms od diabetes and causes)
13. No change in colour so glucose absent.

    Glucose is high in the sample where red colour is observed.
14. Functions of thyroxine.
15. Action of parathormone when the level of calcium in the blood decreases
16. Functions of thymosine and cortisol.
17. Hormone action related to the maintenance of level of calcium and water in the blood. (calcitonin and vasopressin)

18. Functions of pheromones and plant hormones,

19. Uses of artificial plant hormones (uses and examples) and their ill effects(destruction of environment, effect on health)

20. Functions of releasing-inhibitory hormone, production of tropic hormones.(production or inhibition of any hormone)

21. Structure of pancreas-hormones, functions of insulin and glucagon

22. Identify the word relation and complete the missing part.

23. Causes of dwarfism and gigantism.

24. Uses of artificial plant hormones.

25. Pheromone,(attracting mates, informing the availability of food, determining the path of travel, signalling dangers etc). Bombykol, civeton

26. Functions of progestrone.

27 Do not agree with the statement. During summer season as the production of vasopressin increases and more quantity of water is reabsorbed in the kidneys so production of urine decreases. If the hormone does not function in this situation large quantity of water will be expelled through urine. Diabetes insipidus.

28. Melatonin and pineal gland.

29. Hypothyroidism, examples for accelaration of activities.(high metabolic activities, high body temperature, excessive sweating.)

30. Functions of hormones.

31. Functions of plant hormones.

CHAPTER - 4

KEEPING DISEASES AWAY

CONCEPT AREA

- **Micro organisms and diseases**
  - Bacterial diseases : Rat fever, Diphtheria, Tuberculosis
  - Viral diseases : Nipah, AIDS, Hepatitis
  - Fungal diseases : Ringworm, Athletes foot
  - Protozoan diseases : Malaria
- **Genetic diseases**
  - Haemophilia, sickle cell anaemia
- **Cancer**
- **Life style diseases**
  - Diabetes, Fatty liver, Stroke, Hypertension, Heart attack
- **Diseases due to smoking**
- **Animal diseases**
  - Bacterial diseases : Anthrax, Inflammation of udder.
  - Viral diseases : Foot and mouth disease
- **Plant diseases**
  - Bacterial diseases : Blight disease, wilt disease
  - Viral diseases : Mosaic disease, Bunchy top of banana
  - Fungal diseases : Quick wilt, Bud rot

1) Identify the word pair relation and fill in the blanks.

a. Diphtheria : bacteria

Malaria : .....

b. ..... : Haemophilia

Lifestyle disease : Fatty liver

2) Description of certain diseases are given below. Tabulate them according to the hint given.

- Ash coloured thick coating formed in the throat.
- Disease is caused by protozoa.
- Athletes foot.
- Multiply using the genetic mechanism of host.
- Disease is caused by bacteria.
- Disease is caused by virus.
- Diphtheria
- Obstruct the flow of lymph cause swelling in lymph ducts.
- AIDS
- Filariasis
- Appear reddish scaly rashes.
- Disease is caused by fungus

Hint :

Diphtheria	Disease is caused by bacteria.	Ash coloured thick coating formed in the throat.

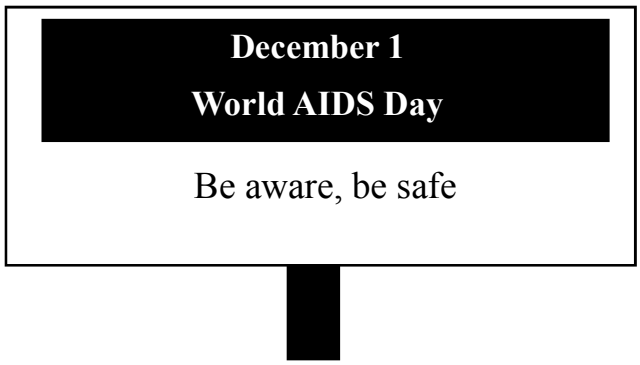
a.		
b.		
c.		

3) Health problems associated with smoking is given below. Arrange them in the box properly.

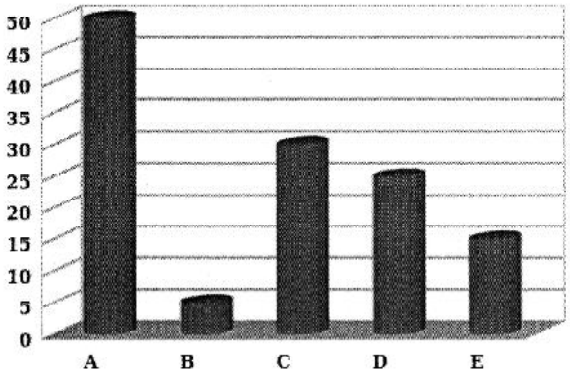
Hypertension, Addiction to nicotine, Loss of elasticity of arteries, Emphysema, Lungs

Brain	B	Heart
stroke	cancer	C
A	bronchitis	D
	E	Decrease in functional efficiency

4) Write down the precautions to be taken to avoid the spread of AIDS on the basis of the poster given below.



5. Write the answer of the following questions on the basis of graph and the hints given below



Hints

A . Deficiency of insulin or its malfunctioning.

B. Red blood cells of patients become sickle shape.

C. BCG is used as preventive vaccine.

D. Disease is caused by plasmodium.

E. Pigs and bats are the vectors.

1. Which category of disease was affected the largest number of indvidual ?
2. Which category of disease has affected the least number of individual ?
3. Write the name of the pathogen causing disease C .
4. Which one of the above is a genetic disease ?
5 Which one of the above is a lifestyle disease ?
6. Write the symptoms of the disease D ?

6. Identify the word pair relation and fill up.

Corynebacterium diphtheriae	:	Diphtheria
.....	:	Rat fever

7. Write the **right statements** from the following related to AIDS.

1. Transmit through sexual contact with HIV infected person.

2. Transmit through the reception of blood and organs contaminated with HIV .

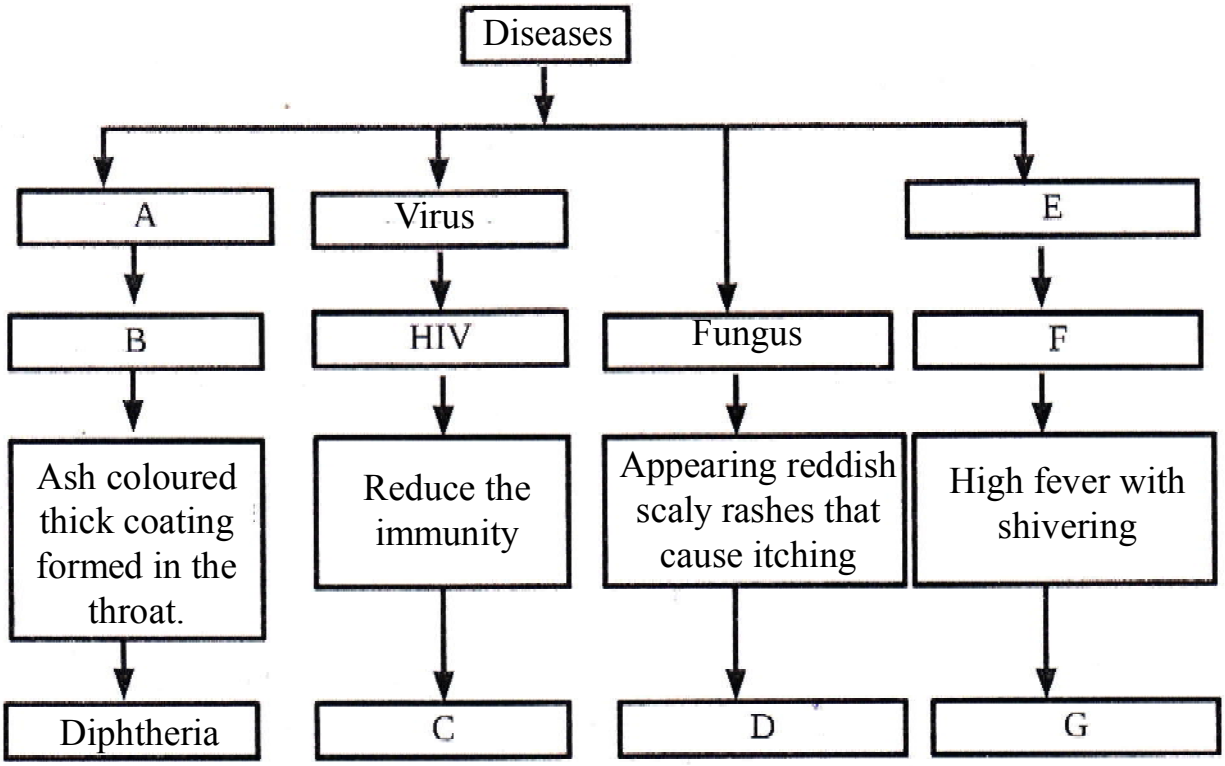
3. Transmit by shaking hands of HIV infected person.

4. Transmit from HIV infected mother to the foetus.

5. Transmit by using the same toilet.

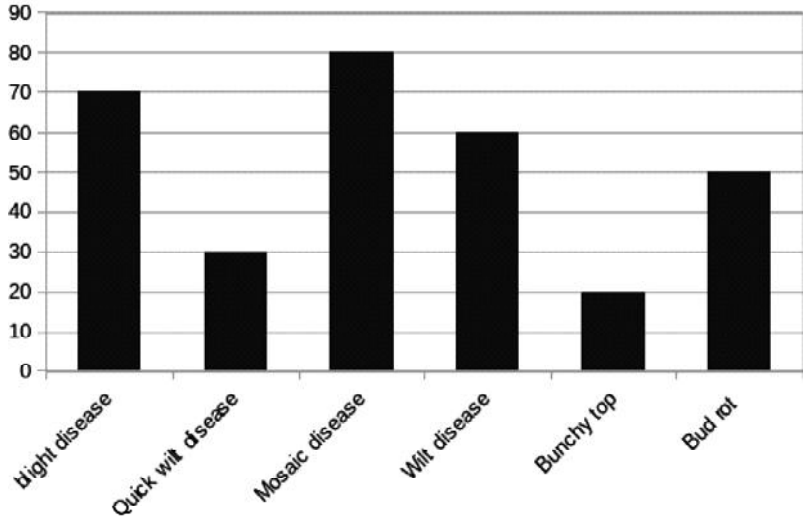
6. Transmit by sharing needle and syringe contaminated with HIV components.

8. Complete the following work sheet.



9. " Viruses affect only the human beings " Analyse the statement and write your comments.

10. The amount received by various farmers under crop insurance and the name of diseases are given in the Graph. Write the answer to the following questions on the basis of the graph.



1. Write the name of the crop cultivated by farmers who is eligible to get maximum insurance amount.
2. Write the name of the crop cultivated by farmers who is eligible to get least insurance amount.
3. Write the name of the microbes that cause maximum crop loss.
4. Which are the diseases caused by bacteria ?

11. Find out the odd one and write the common features of others.
Anthrax, Foot and mouth disease, Blight disease, Inflammation of udder.

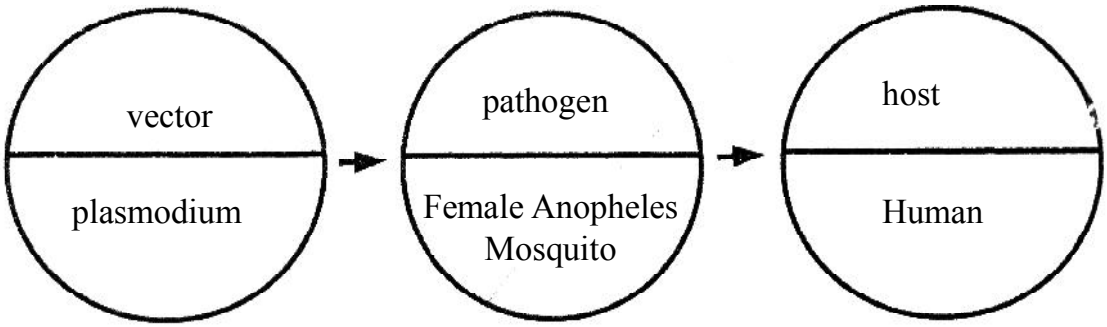
12. A Statement related to AIDS is given below. Analyse the statement and write the reason for entering various pathogens.
"Various pathogens which enter the body make the condition of AIDS more fatal "

13. Write the answer of the following questions on the basis of press release.

Incase of epidemics, the health department has advised to observe dryday by avoiding water in and around the House

1. Write the name of two diseases whose spread can be controlled by observing Dry Day
2. Explain the significance of observing Dry Day.

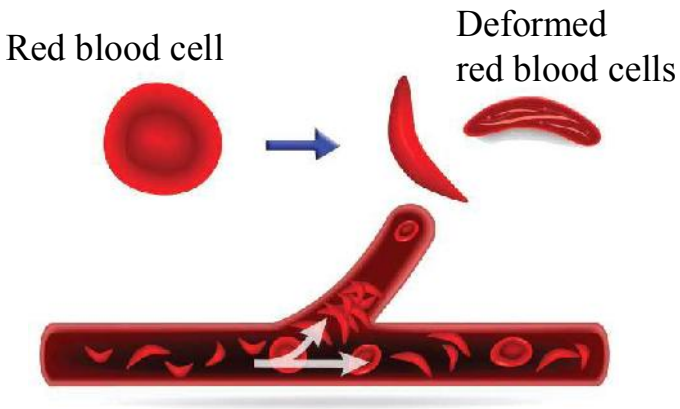
14. Illustration related to Malaria is given below. Prepare illustrations related to Nipah and Filariasis.



15. Correct the underlined part, if any mistake, in the following statements.

1. High fever with shivering and profuse sweating are the symptoms of <u>hepatitis</u>.
2. <u>Sickle cell anaemia</u> is the condition in which excess blood is lost even from minor wounds.
3. <u>Cancer</u> is the uncontrolled division of cells and their spread to other tissues
4. <u>Nipah</u> is spread by mosquitoes.

16. An illustration related to a genetic diseases is given below.



1. Which disease is indicated in the illustration?
2. Write the reason for the deformity of red blood cells.
3. How does the deformity of red blood cells affect the patient ?

17. Description of a microbe is given below.

> A simple structure consisting of a DNA or RNA molecule inside a protein coat. Multiply using the genetic mechanism of the host

1. Write the name of the microbe .
2. Write the name of two diseases caused by this microbe in human beings

18. Analyse the statement and answer the following questions.

" BCG is the vaccine against a bacterial disease "

1. Which disease is mentioned here ?
2. How does this disease get transmitted from one person to another ?
3. Name the bacterium which causes the disease.
4. Name two organs affected by this disease.

19. The following health practices can prevent certain diseases. Pair them suitably with the diseases given in box.

- Avoid contact with stagnant water.
- Take BCG vaccine.
- Avoid smoking.
- Avoid sexual contact of unsafe.
- Avoid the situation to multiply mosquitoes.

- Cancer
- Malaria
- Rat fever
- tuberculosis
- AIDS
- Diphtheria

20. Arrange column B according to column A

A	**B**
Diseases	**Reason**
1. Heart attack	• Deficiency of insulin or its malfunctioning
2. Diabetes	• Smoking.
3. Bronchitis	• Rupture of blood vessels in the brain
4. Stroke	• Deposition of fat in coronary artery

21. Arrange column B and C according to column A.

A	B	C
Diseases	Pathogen	Symptoms
1. Tuberculosis	a. Filarial worms	i. Yellow colour in the white portion of eyes and nails
2. Hepatitis	b. plasmodium	ii. Inflammation in lymph ducts
3. Malaria	c. Mycobacterium tuberculosis	iii. High fever with shivering
4. Filariasis	d. virus	iv. Loss of body weight fatigue

Answer key

1. a. Plasmodium
   b. Genetic disease
2. Diseases due to pathogens – symptoms, Name of disease, Pathogen
3. Health issues due to smoking.
4. Points to remember to avoid the spread of AIDS.
5. Diseases, preventive measures, pathogens.
6. Leptospira
7. AIDS – How it spread, how does not spread
8. Diseases due to pathogens – symptoms, Name of disease, Pathogen
9. Viral diseases – In animal and in plants
10. Plant diseases, pathogens
11. Plant, animal diseases.
12. AIDS – multiplication of pathogen.
13. Diseases spread through stagnant water.
14. Nipah, Filariasis- pathogen, vector, host.
15. 1. Malaria
    2. Haemophilia
    4. Dengue fever/Chikungunya/malaria/Filariasis.
16. Genetic disease – Sickle cell anaemia, reason, harmful effects.
17. Virus
18. Tuberculosis – Pathogen, symptoms, Preventive measures.
19. Different diseases and its descriptions.
20. Life style diseases – symptoms.
21. Different diseases, pathogens, symptoms

CHAPTER - 5

Soldiers of defense

Concept Areas

- Skin- the protective shield of the body.
- Body coverings and secretions.
- White blood cells and defense.
- Inflammatory response
- Phagocytosis
- Blood clotting
- Fever, a Defense Mechanism
- Lymphocytes and defense actions
- Lymph and Defense
- Different treatment methods,
- Diagnostic equipments
- Laboratory Tests
- Specialisations.
- Antibiotic.
- First-Aid.
- Different types of blood groups
- Blood transfusion
- Defense mechanism in plants

1. Body secretions which help in defense and body parts which secrete them are given in the box. Choose the suitable ones and complete the table

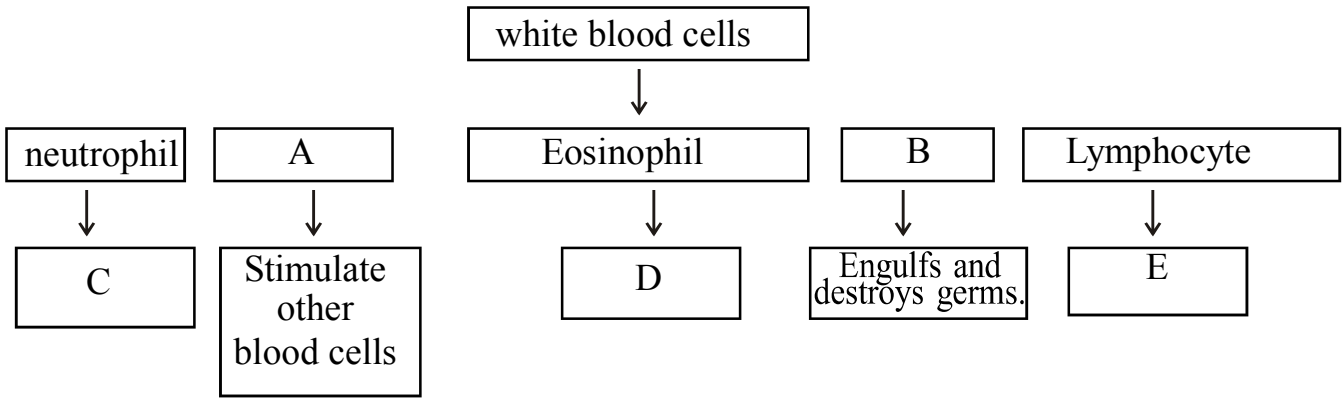
Stomach, sebum, eyes, wax, lysozyme, skin, hydrochloric acid, ear.

Part of the body	Secretion

2. ”Skin is a protective shield “ Analyse the statement considering any two peculiarities of skin.

3. Analyse the odd one and write the common feature of others.
   a. The disinfectants present in the sweat destroys the germs
   b. Ear wax destroy germs.
   c. Neutrophil engulf and destroy germs.
   d. Lysozyme in the saliva destroy germs.

4. Complete the flow chart on different white blood cells and their functions



5. Rearrange the statements related to inflammatory response in the sequential order.

a. Chemical substances are produced.

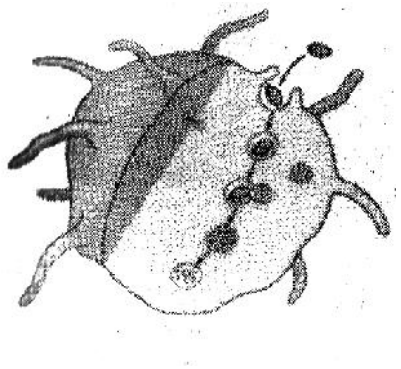
b. White blood cells reach the wound site.

c. Blood vessels dilate.

d. Neutrophil and monocyte engulf and destroy germs.

e. Pathogens enter through wound.

6. Observe the illustration and answer the questions.



1.Which process is indicated in the illustration?

2.Name the white blood cells which participate in the process.

3. Write the different steps of the process.

7. Fever is a defense mechanism. Do you agree with this statement why?

8. Complete the illustration on blood clotting.

Prothrombin in plasma $\xrightarrow{a}$ thrombin

Fibrinogen $\xrightarrow{\text{thrombin}}$ b

i. Identify a and b

ii. How is a formed?

iii. How is blood clot formed ?

9. Analyse the statements related to the healing of wound and give reason
   i) The wound scar remains after the healing of wounds.
   ii) Wound scar does not remain.

10. Analyse the table and complete a and b

(a)	Specific defense
Destroyes all pathogen without considering their characteristic features	(b)

11 Tabulate the statements given below under suitable headings.

- Degenerates the cell membrane of bacteria .
- Destroys cancer cells .
- Neutralises the toxins produced by the antigens.
- Stimulate other white blood cells,
- Destroy the cells affected by virus.
- Stimulate other defense cells of the body.

12. Some substances prepares defense cell against diseases
   i) Name the process indicated above.
   ii) What are the componets used in this substance ?

13. A suggestion aroused on a seminar conducted by the school health club is given below.
   "Excessive use of antibiotics and their use without the recommendation by a doctor should be strictly avoided'
   a. What are antibiotics ?
   b. How does the continuous use of antibiotics become harmful to human beings?

14. Information obtained from a blood group detection camp is given below. Analyse it and answer the questions

Antigen - Rh

Antibody - a, b

a. Which blood group is mentioned above?

b. What is the basis of classification of blood group as positive and negative?

c. Why is it necessary to check blood group during blood transfusion?

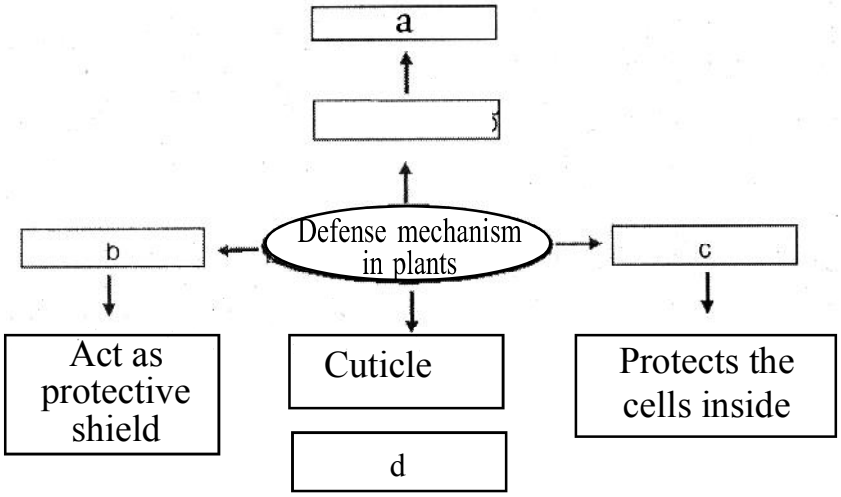
15. Complete the table including blood groups and their peculiarities suitably

Blood groups	Antigens	Anti bodies
——————-	A	——————-
B	B	——————-
——————-	A , B	——————
O		nil ——————

16. Some equipments used in modern medicine and their uses are given in the table. Make suitable pairs.

Equipments	Uses
EEG	to record electric waves in the heart muscle.
MRI	to understand the structure of internal organs using ultrasonic sound waves.
ECG	to record electric waves in the brain.
Ultra Sound Scanner	to get three-dimensional visuals of internal organs

17. Complete the illustration on different defense mechanisms in plants. Complete the illustration



18. Identify the word pair and fill in the blanks.

a. T Lymphocyte : thymus gland

b. B Lymphocyte : .....

c. Treatment of heart : Cardiology

d. Cancer treatment : .....

19. Choose the correct pair from the following

BCG - Polio
TT - Smallpox
MMR - mumps
OPV - rabies

20. Re-write the underlined portion if there is mistake.

a. Edward Jenner laid foundation to the modern medicine.

b. Antibiotics are discovered by Alexander Flemming.

c. Samuel Haniman is the father of homeopathy.

d. Hippocrates is the scientist who started immunisation.

Answer key

1. Role of body fluids in defense mechanisam
2. Skin - a protective sheild
3. Defense mechanisms in body
4. WBC and defense
5. Inflammatory response
6. Phagocytosis
7. Fever - A defense mechanism
8. Blood clotting
9. Healing of wound
10. Non-specific defense, specific defense
11. B-lymhocyte, T-lymphcyte
12. Immunisation
13. Antibiotics - Harmful effects
14. Blood group, Blood transfusion
15. Blood group - Antigen, Antibody
16. Modern equipments in treatment
17. Plants and defense mechanisam
18. b. Bonemarrow
    d. Oncology
19. MMR - Mumps
20. a. Hippocrates
    b. Edward Jenner

CHAPTER - 6
UNRAVELLING GENETIC MYSTERIES

Concept areas

- Emergence of Genetics
- Gregor Johann Mendel , his hybridisation experiments experiments and inferences
- DNA-

  Watson-Crick model

  Structure

  Different types of nucleotides
- Comparison of the structure of DNA and RNA
- Action of genes
- Chromosomes in Humans
- Genetics of Variation
- Crossing over in Chromosomes
- Combination of Allele during fertilization
- Mutation
- Sex determination
- Difference in Skin colour in human beings

1. Choose the correct statements
   a. Generally a gene has two alleles
   b. During gamete formation the alleles do not seggregate each other
   c. The trait that remain hidden in the first generation known as dominant trait

2. Choose the inferences formulated by Mendel from the following.
   a. Presented the double helical model of DNA
   b. The traits that remain hidden in the first generation appear in the second generation
   c. The ratio of the dominant and the recessive traits in the second generation is 3 : 1.

3. Evaluate the statements given below.
   a) DNA does not participate directly in protein synthesis.
   b) Fertilization causes variations in the next generation.

4. Identify the word relation and fill up

   DNA : .....

   RNA : Ribose

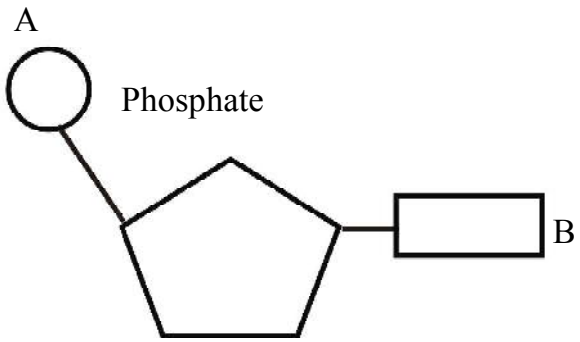
5. Adinine: Thymine

   Guanine:.....

6. The genetic makeup of female : 44 + XX

   The genetic makeup of male :.....

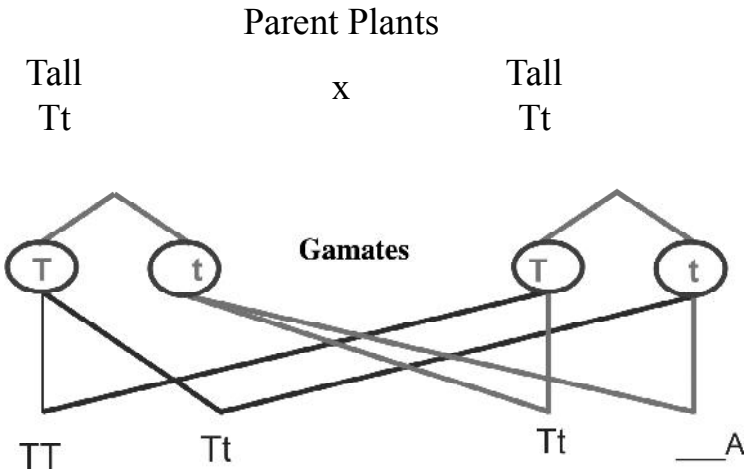
7. Analyse the illustration given below and answer the questions



a. What does the illustration indicate?

b. Identify the part indicated as B.

8. Analyse the illustration and answer the questions



1. Complete the part indicated as 'X' in the illustration.

2. What is the character of 'X' ?

3. Write any two inferences formulated by Gregor Mendel from this experiment.

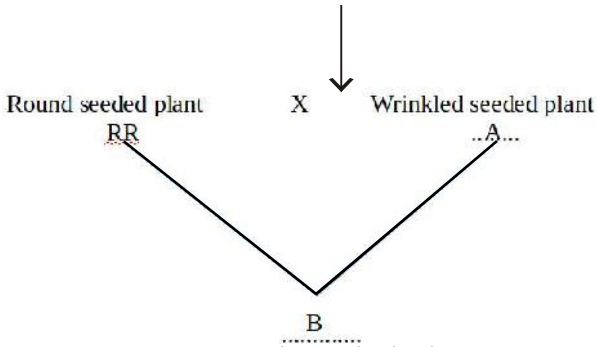
9. Choose the characteristic features of RNA from those given in the box

a. Deoxyribose sugar	b. single stranded
c. Seen as double helix	
d. Uracil is present	e. Ribose sugar

10. Mention the role of t RNA in protein synthesis

11. Rearrange the steps of protein synthesis in the sequential order
    a. tRNA brings different kinds of amino acids to ribosome
    b. mRNA reaches outside the nucleus.
    c. mRNA forms from DNA
    d. protein is synthesized
    e Based on the information in mRNA, amino acids are added
    f. mRNA reaches ribosome

12. Observe the illustration and answer the following question.

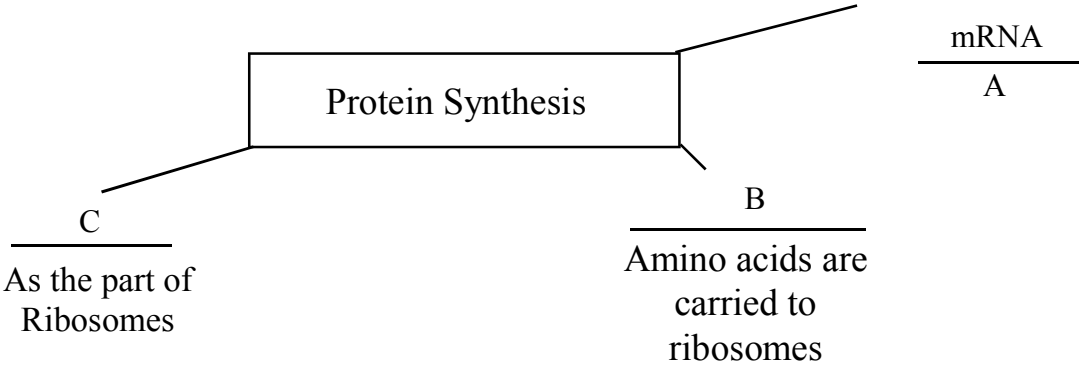


    a) Indicate A and B using symbols.

13. Write short note on any two processes which cause variations in organisms.

14. Name the scientists who prepared the double helical model of DNA.

15. Observe the illustration and complete it.



16. Observe the illustration and answer the questions.

Females - 44+XX

Males - 44+XY

		X	X
X		A	XX
Y		XY	B

a) Which chromosome is indicated by the number 44 ?

b) Complete A and B in the illustration.

17. Analyse the statement given below and evaluate it.

'Chromosome of father determines the sex of the child'

18. Analyse the statement and give reason on the basis of genetic studies.

"Skin colour of people living in different parts of the world are different"

Answer key

1. Generally one gene has two alleles
2. b and c
3. DNA functions with the help of RNAs

   When gametes undergo fusion the combination of allele changes.
4. Ribose sugar
5. cytosine
6. 44+XY
7. a) Nucleotide

   b) Nitrogen base
8. a) tt

   b) dwarf

   c. Explains the inference formulated by mendel
9. b and d.
10) Amino acids are carried to ribosomes
11. c, b, f, a, e, d
12. A. rr

    B. RR
13. Explain any one reason
14. James Watson, Francis Crick
15. A- Carriers of messages from DNA

    b- t RNA

    c-r RNA
16. a) Somatic chromosomes

    b) A. XX, B. XY
17. Father's chromosome X and Y
18. Variation in melanin

CHAPTER - 7

Genetics of the future

Concept areas

- Production of Insulin
- Insulin gene
- Plasmid
- Biotechnology
- Genetic engineering
- Restriction endonuclease
- Genetic scissors
- Ligase
- Vectors
- Genetic glue
- Gene therapy
- Human genome project
- Gene maping

1. Make suitable pairs

Genetic scissors	Ligase
Circular DNA	Endorphin
Pain killers	Plasmid
Genetic glue	Restriction endo nuclease

2. Identify the word relation and answer the questions
   a. Somatotropin : ————————
      Interferon : Viral diseases
   b. Helped to identify the location of a gene in the DNA : Gene mapping
      Genes that are responsible for diseases are removed:————————

3. Rewrite the sentences if there is mistake in the underlined portion
   a. The complete genetic material present in an organism is called its genome.
   b. Non functional genes are called as interferons
   c. Plasmids act as vectors in genetic engineering
   d. The technology of testing the arrangement of nucleotides is DNA profiling.

4. Write the importance of the following in the synthesis of humaninsulin from bacteria
   i Joining insulin gene with plasmid.
   ii Plasmid with ligated insulin gene is inserted in to bacterial cell.

5. Write various stages in the production of bacteria that are capable of producing insulin in the form of a flow chart.

6. "Animals like cow, pig etc,can be transformed into animals which can produce insulin and growth hormones required for humans"
   i) By what name these modified animals generally known as?
   ii) How do these type of animals are created ?

7 People killed in land slide at Rajamala are identified with the help of modern techniques in genetic engineering.

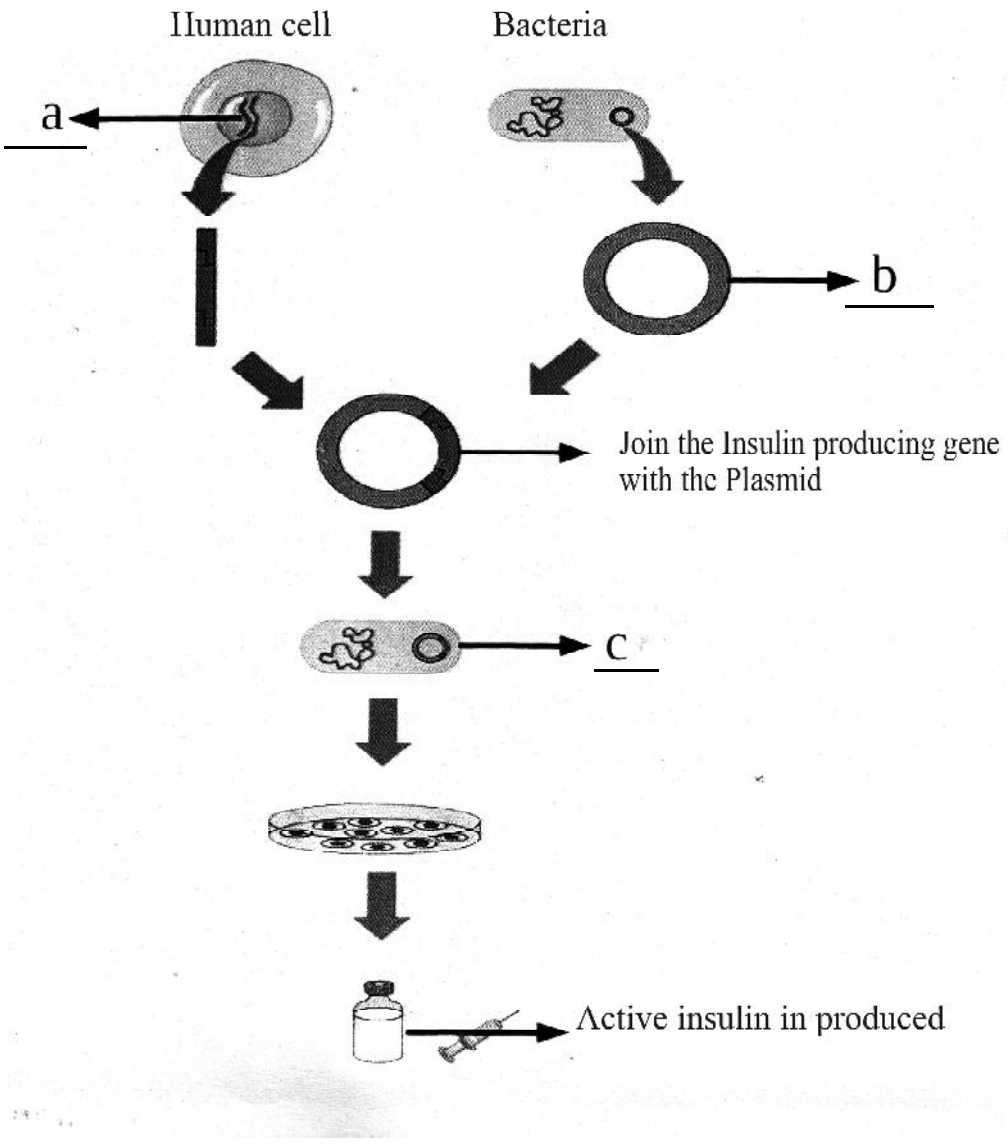
i) Which modern technique is mentioned above?

ii) Who paved the way for this technology?

Iii) What is the basis of this technology?

iv) What are the other areas where this technology is utilised?

8. Complete the illustration.



9. Genetic engineering is a boon or bane. Write two concepts which illustrate this?

10. Name the project indicated by the above given logo. Write its objectives

11. Find out the statement related with genetic engineering.
    a) Baking of bread using yeast
    b) Insulin production with the help of bacteria
    c) Formation of curd form milk
    d) Production of Pharm animal

Answer Key

1. Restriction endonuclease
   Plasmid
   Endorphin
   Ligase

2. Growth Hormone, gene therapy

3. a) Junk genes
   b) gene therapy

4. Insulin production through genetic engineering

5. Insulin production through genetic engineering

6. Pharm animal

7. DNA Finger printing

8. Insulin production through genetic engineering

9. Adverse effects of genetic engineering

10. Human genome project

11. b. Insulin production with the help of bacteria
    d. Production of pharm animal

CHAPTER - 8

THE PATH TRAVERSED BY LIFE

Concept Areas

- Panspermia theory
- Chemical evolution theory
- Urey Miller experiment
- Geological time scale
- Lamarkism
- Darwinism
- Evolution Theory
- Neo Darwinism.
- Evidences of evolution
- Human evolution
- Mass extinctions
- Modern man and universe

1. Write the main concepts of panspermia theory.

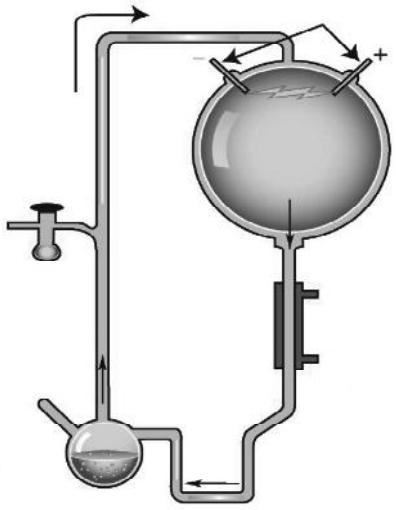
2. Analyse the statement and answer the questions

   "A.I.Oparin and J.B.S.Haldane came to some conclusions regarding the origin of primitive cell and formulated a theory based on this"

   a) Which theory of evolution is mentioned in the statement?

   b) Write the various stages of this evolution process in the form of a flow chart.

3. Analyse the illustration and answer the questions.



   a) How is this experimental set up known as?

   b) What are the main stages of this experiment?

   c) Which hypothesis is proved by this experiment?

4. Give reason for the statement given below.

   In order to put forward a theory of evolution a scientist considered the peculiarity of neck of giraffe and reached some conclusions. But this is not accepted by the scientific world. Why ?

5. Analyse the statement and answer the following questions.

   "Among the organisms studied by CharlesDarwin, finches are of great importance."

   a) What are the main characteristic features observed by Darwin in Finches?

   b) What is the main reason for the diversity in birds?

   c) What is the main problem of over production?

   d) In which all ways does the variation in organisms influence their existance?

   e) How does favourable variations help in the origin of new species?

6. Name the scientist who influenced Charles darwin while formulating the theory of natural selection

7. Arrange the information given below suitably in the table provided.

   Hugo de Vries, Lamarck, Mutation Theory, Natural Selection, Inheritance of acquired characters, Darwin, Oparin, Haldane, Chemical evolution of life

Scientist	Discovery

8. What is the role of Neo Darwinism in formulating the theory of evolution?

9. Fossils can be categorised on the basis of geological time scale and their peculiarities can be studied. How is this helpful to study the process of evolution?

   What are its drawbacks?

10. How much is the study on homologous organs helpful to reach the conclusion that different species exist today have a common ancestor?

11. Analyse the statement and answer the questions.

"How different are microbes, plants and animals in their external appearance! But there are close resemblances in their cell structure and physiology."

a) What are the similarities that can be observed in cell structure and physiology of bacteria and human beings ?

b) What proof of evolution do you get from these facts?

12. Explain with example how molecular biology becomes the main proof of the evolution of organisms? Write down with examples ?

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

Gibbon, Monkey, Orangutan, Gorilla

14. Write the peculiarities of the human ancestors Homo habilis and Homo neanderthalensis

15. Organisms in the evolutionary tree is given below

Chimpanzee, Gibbon, Monkey, Man, Gorilla, Orangutan

a) Arrange these organisms on the basis of evolution ?

b) Classify these organisms and write the criteria of classification ?

16. Extinction of organisms happened even before the evolution of human beings but nothing happened to nature. Write your response on this argument which arouse on a seminar on the topic "Development and Nature"

17. Is human beings becoming a threat to the existance of other living organisms? Substantiate your opinion based on evidences.

18. What are the features of modern man that help him in survival?

19. Human life is possible on earth only with the preservation of diverse ecosystems. Give scientific explanation to this.

Answer Key

1. Origin of Life
2. Theory of chemical evolution
3. Urey -Miller experiment
4. Lamarkism
5. Darwinism
6. Theories of Evolution
7. Scientists and the contributions
8. Neo darwinism
9. Fossils - evidences of evolution
10. Morphological Study
11. Biochemical and Physiological Study
12. Molecular biology
13. Hominoidea
14. Stages fo Human Evolution
15. Links in Human Evolution
16. Extinction of organisams
17. Interference of modern man
18. Modern man and lifestyle
19. Protection of ecosystem and its importance

Kollam District Panchayath & General Education Department

A

Terminal Evaluation Model Question Paper
BIOLOGY

STD: X

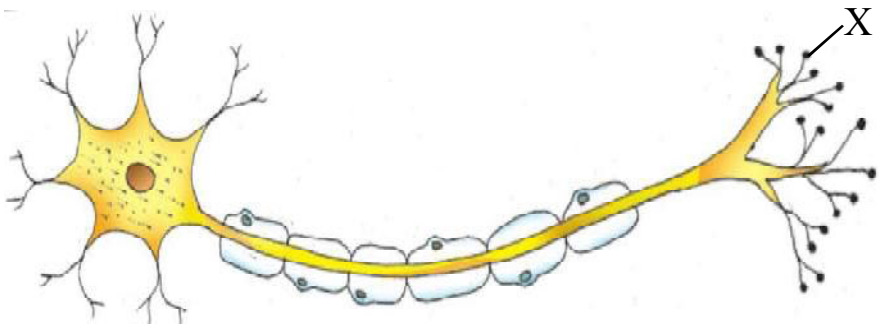
Time : $1^1/_2$ Mts.
Score : 40

Instructions:

1. First 15 minutes is cool off time. This time is to be used for reading and understanding the questions.
2. Read the instructions carefully before writing the answers.
3. While writing the answers, score and time should be considered.

Answer any 5 questions from 1 to 6. Each question carries 1 score. **(5 × 1 = 5)**

1. Which of the following indicates the part labelled 'X' in the figure.



a) Axonites - secrete neurotransmitter.

b) Schwan cells - short filament in from the cell body.

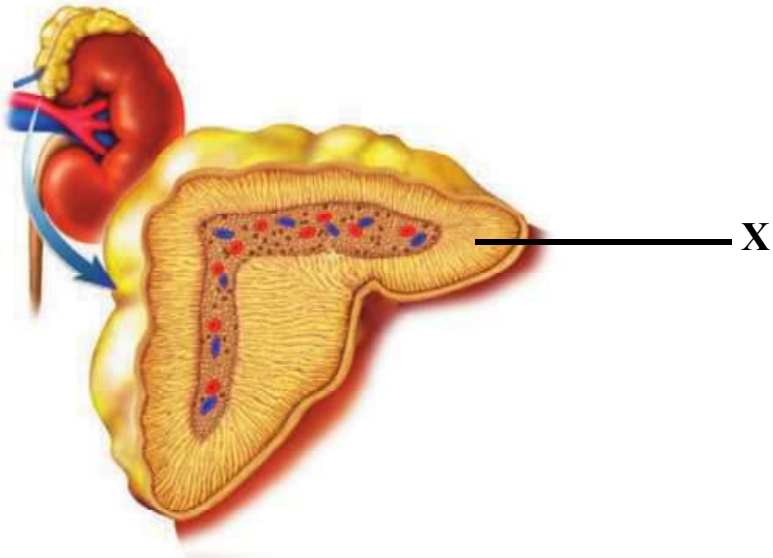
c) Dendron - branches of dendrite.

d) Axonite - longest filament from the cell body.

2. A tall stemmed round seeded plant is usually represented by the indicators:

a) TtRr b) TTRr c) Ttrr d) tTrr

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



a) Identify the gland shown.

b) Write the part mentioned as 'X'.

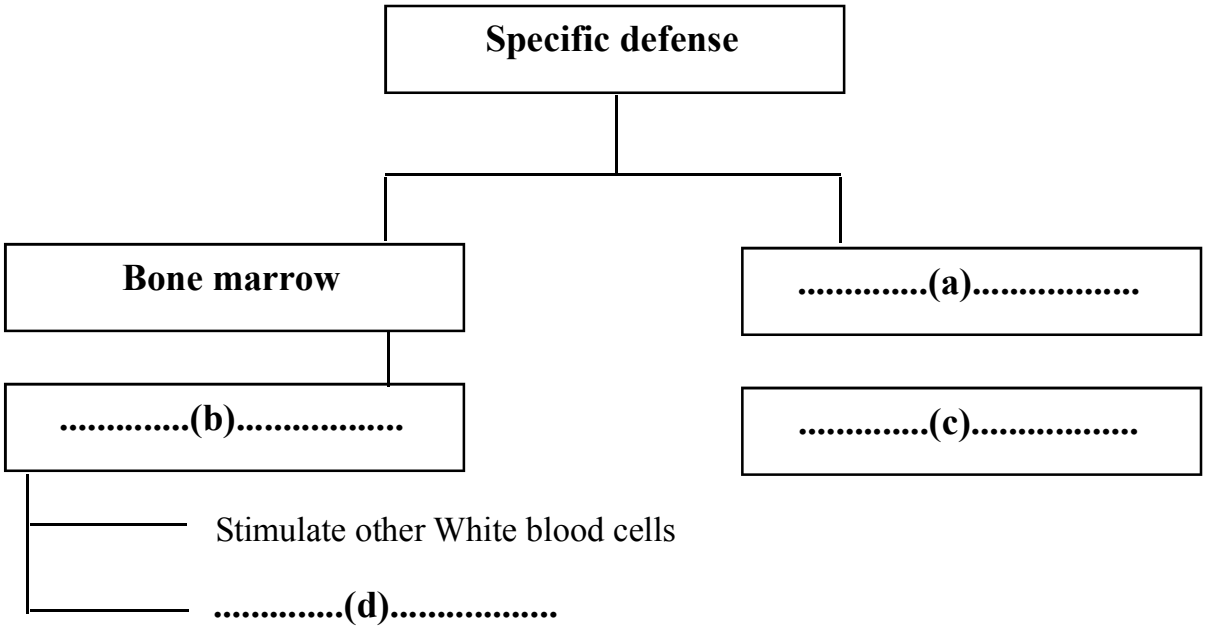
4. Analyse the statement given below and answer the following questions.

Sudden, heritable change in the genetic material leads to evolution.

a) Identify theory mentioned.

b) Who proposed this theory?

5. Complete the following illustration suitably. ***(Hint: - b is a blood cell.)***



6. Write the significance of the following chemicals produced by the process of genetic engineering.

   a) Interferon

   b) Endorphin

Answer any 6 questions from 7 to 13. Each question carries 2 score. **(6 × 2 = 12)**

7. Analyse the following statements related to reflex arc and arrange them in the correct order.

   a) A nail pierce the foot.

   b) The receptor cells create messages.

   c) Messages reach the spinal cord through the sensory neuron.

   d) Interneuron creates messages to retract the leg.

   e) The message for leg muscle contraction passes through the motor nerve.

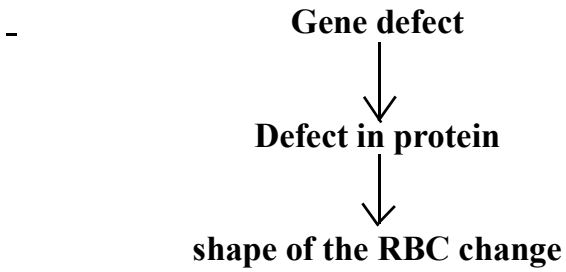
   f) The leg is retracted.

8. Analyse the given illustration and answer the following questions.

   a) What evidence will be obtained from this illustration related to evolution?

   b) Write another example from biochemistry or morphology to prove the proces of evolution?

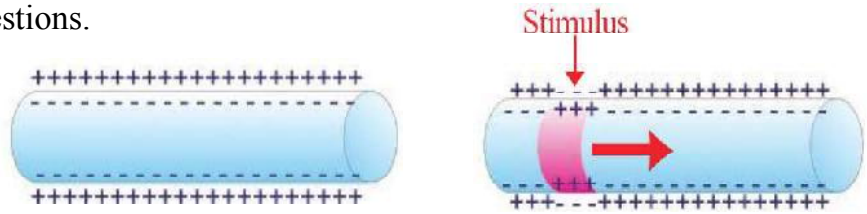
9. Observe the illustration given below and answer the following questions.



   a) Identify the protein mentioned here.

   b) What will be the effective the change in the shape of RBC what is the treatment strategy for this disease?

10. An axon showing the process of nerve impulse formation is given. Analyse it and answer the folowing questions.



a) Write an example for the stimulus mentioned?

b) What changes occur in the axon membrane after stimulation?

11. Complete the following table related to the genetic mterials suitably.

Genetic materials	Number of strands	Type of sugar
..... (a)	2	..... (b) .....
..... (c)	1	..... (d) .....

12. Prepare a flowchart by including the information given below

- Phagocytosis occurs.
- Blood vessels dialate.
- Monocytes and neutrophil reaches the wounded site.
- Chemicals are secreted by the damaged tissues.
- Wound healing begins.

13. Complete the given table related to diseases suitably.

Disease	Causing organism	Symptoms
Tuberculosis	.....(a).....	.....(b).....
.....(c).....	Virus	Ash colored coating in throat
Malaria	.....(d).....	Shivering

Answer any 5 questions from 14 to 20. Each question carries 3 score. **(5 × 3 = 15)**

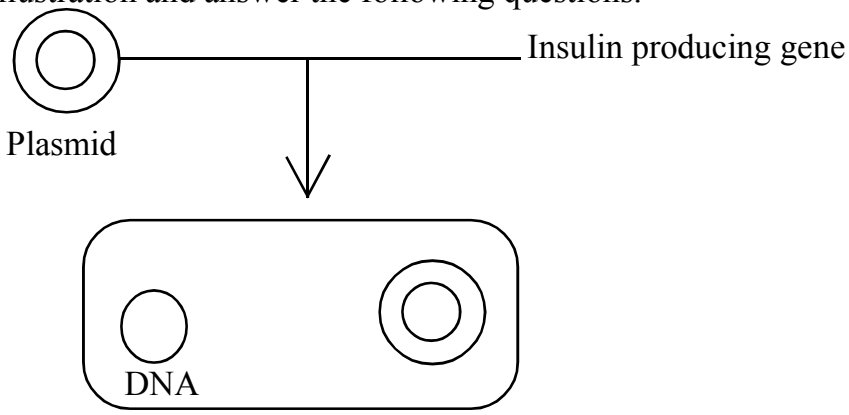
14. Write the reason for each of the following statements.

a) Endolymph is necessary for the formation of impulses in the ear.

b) Pigmets are necessary for the formation of impulses in the photoreceptors.

c) Saliva is necessary to experience taste.

15. Observe the illustration and answer the following questions.

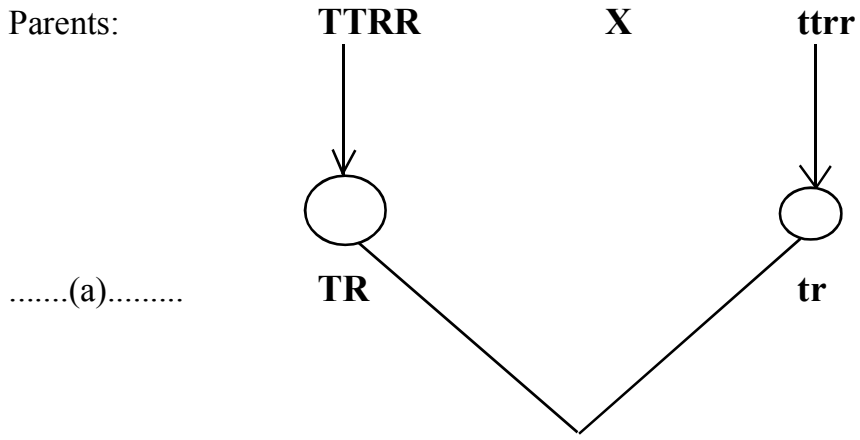


a) What is a plasmid?

b) What makes the bacteria capable of producing insulin?

c) Mention the steps that follow?

16. A cross between a tall round seeded plant with a dwarf, wrinkled seeded plant is shown below.



a) Identify a, b and c?

b) Write the gametes to be produced by the F1 plant for self pollination.

17. Write any three major concepts to be included in a cancer awareness program based on the following hints.
    - Cause of cancer.
    - Treatment of cancer.
    - Significance of early diagnosis.

18. Write the significance of each of the following statements.
    a) In emergency situations, sympathetic system begins to act.
    b) Cerebrospinal fluid is present in an out of the brain.
    c) Axon is covered by Myelin sheath.

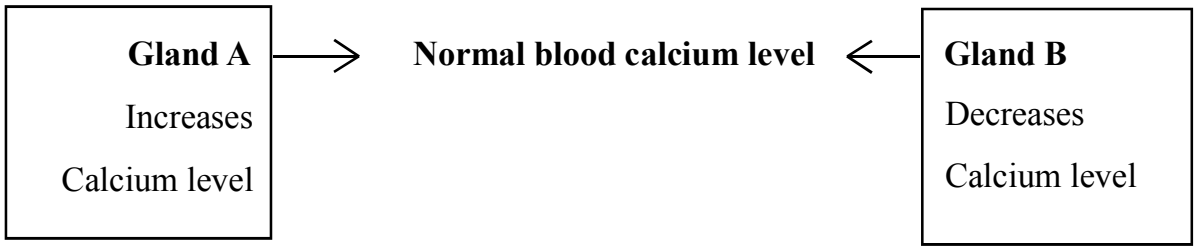
19. An experimental set up is illustrated below.

    a) Name the scientists conducted in this experiments.
    b) What materials are used in the flask?
    c) What theory is proved by this experiment? Explain?

20. Certain symptoms of a disease are given below.
    - Excess loss of water through urine.
    - Glucose level before breakfast is above 126mg/ 100 ml blood.

    a) Identify the disease.
    b) Write any two reasons for the disease?
    c) Mention the hormonal actions in a healthy man to maintain normal blood glucose level.

Answer any 2 questions from 21 to 23. Each question carries 4 score. **(2× 4 = 8)**



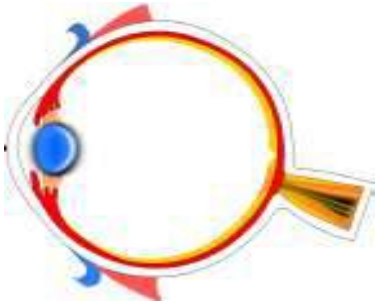
21. Certain symptoms of a disease are given below.
    a) Identify the glands A and B.
    b) Name the hormones produced by these glands?
    c) Name any two actions of the hormne secreted by the gland B?

22. Complete the following illustration suitably by identifying the functions of the chemicals in plant defense.

Cuticle	:
Cell wall	:
Callose	:
Cutin	:

23. Copy the diagram and label the parts based on the hints given below.

Copy the diagram.



a) The part that transmits light towards the lens.

b) The part that creates impulses.

c) The part that transmits messages to brain.