



**DISTRICT PANCHAYATH KASARAGOD**

# EQUIP 2024

(Educational Quality Improvement Programme for class ten)

**Student Support Material for Class X**



**BIOLOGY**  
English Medium



**DIET KASARAGOD**

## **EQUIP 2024**

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## ആശംസ

വികേന്ദ്രീകൃത ആസൂത്രണത്തിലൂടെയും നിർവ്വഹണത്തിലൂടെയും കേരളത്തിലെ ആരോഗ്യ വിദ്യാഭ്യാസ മേഖലകളെ ദേശീയ തലത്തിൽ ഒന്നാമതെത്തിക്കാൻ നമുക്ക് കഴിഞ്ഞിട്ടുണ്ട്. ഈ നേട്ടങ്ങൾ കൈവരിക്കാൻ പ്രാദേശിക ഭരണകൂടങ്ങൾ സ്തുത്യർഹമായ പങ്കുവഹിച്ചു. ദേശീയ സംസ്ഥാനതല പഠനങ്ങൾ നമ്മുടെ കുട്ടികളുടെ പഠനനിലവാരം ഇനിയും ഉയരേണ്ടതുണ്ട് എന്ന സൂചനയാണ് നൽകുന്നത്.



പഠനവിടവുകൾ പരിഹരിക്കുന്നതിനുവേണ്ടി കാസർകോട് ജില്ലാ പഞ്ചായത്തിന്റെ നേതൃത്വത്തിൽ പൊതുവിദ്യാഭ്യാസ വകുപ്പും കാസർകോട് ഡയറ്റും ഒത്തുചേർന്ന് നടപ്പാക്കുന്ന 'എക്വിപ്പ്' (EQUIP) പഠനപരിപോഷണ പരിപാടിക്ക് എല്ലാ പിന്തുണയും ഉറപ്പുതരുന്നു. പന്ത്രണ്ടാം ക്ലാസിലെ കുട്ടികൾക്കുവേണ്ടി ആദ്യമായാണ് ഇത്തരത്തിലൊരുദ്യമം. പൊതുപരീക്ഷകളെ അഭിമുഖീകരിക്കുന്ന പത്തും പന്ത്രണ്ടും ക്ലാസിലെ കുട്ടികളുടെ പഠനപ്രവർത്തനങ്ങളുടെ മികവിന്റെ അടയാളമായി മാറുകയാണ് വാർഷിക പരീക്ഷകൾ. അറിവിന്റെ തെളിമയോടെ ഓരോ വിദ്യാർത്ഥിക്കും പരീക്ഷ എഴുതാൻ കഴിയണം. വിദ്യാർത്ഥികളുടെ ജീവിതത്തിലെ ഏറ്റവും പ്രധാനപ്പെട്ട പരീക്ഷകൾക്ക് വേണ്ടി തയ്യാറാക്കിയ പഠനപിന്തുണാസാമഗ്രിക്ക് എല്ലാവിധ ആശംസകളും നേരുന്നു. നന്നായി പഠിക്കുക. പരീക്ഷയെ സധൈര്യം നേരിടുക. തളരാതെ മുന്നോട്ട്. വിജയം നിങ്ങളോടൊപ്പമുണ്ട്. ആശംസകൾ.

**ശ്രീമതി ബേബി ബാലകൃഷ്ണൻ**  
ജില്ലാ പഞ്ചായത്ത് പ്രസിഡന്റ്  
കാസർകോട്



## ആശംസ

കാസർകോട് ജില്ലാ പഞ്ചായത്തിന്റെ നേതൃത്വത്തിൽ ജില്ലയിലെ പൊതുവിദ്യാഭ്യാസ മേഖലയെ ശക്തിപ്പെടുത്തുന്നതിന് നിരവധി പ്രവർത്തനങ്ങളാണ് നടന്നുവരുന്നത്. പൊതു വിദ്യാഭ്യാസ മേഖലയെ പൂർവ്വാധികം കരുത്തോടെ നാം മുന്നോട്ട് നയിക്കുകയാണ്. ഈ ഘട്ടത്തിലാണ് കാസർകോട് ജില്ലാ പഞ്ചായത്തും, പൊതുവിദ്യാഭ്യാസ വകുപ്പും, വിദ്യാഭ്യാസ പരിശീലന കേന്ദ്രവും (DIET) പത്താം ക്ലാസ്, പ്ലസ് ടു വിദ്യാർത്ഥികളുടെ പഠനവിടവുകൾ പരിഹരിക്കുന്നതിനും ആത്മവിശ്വാസത്തോടെ പൊതുപരീക്ഷയെ നേരിടാൻ അവരെ പ്രാപ്തരാക്കുന്നതിനും വേണ്ടി പഠനപരിപോഷണ സാമഗ്രി തയ്യാറാക്കുന്നത്. നിരന്തരമായ ഇടപെടലിന്റെ തുടർച്ചയായി ഈ വർഷം ആദ്യമായിട്ടാണ് പ്ലസ് ടു വിദ്യാർത്ഥികൾക്കുവേണ്ടി ജില്ലാ പഞ്ചായത്ത് പിന്തുണാസാമഗ്രി തയ്യാറാക്കുന്നത്. പ്രധാനപ്പെട്ട ആറ് വിഷയങ്ങളിലാണ് ഈ വർഷം തയ്യാറാക്കുന്നതെങ്കിലും അടുത്തവർഷം മറ്റു വിഷയങ്ങളിലും കുട്ടികൾക്ക് പിന്തുണ നൽകാൻ കഴിയുമെന്ന് പ്രതീക്ഷിക്കുന്നു. കുട്ടികളുടെ അക്കാദമിക് മികവ് ഉറപ്പുവരുത്തിക്കൊണ്ട് മികച്ച ഗ്രേഡുകൾ നേടാൻ അവരെ സജ്ജമാക്കാൻ 'എക്സിസ് 2024' എന്ന പേരിൽ തയ്യാറാക്കിയ ഈ പദ്ധതിക്ക് കഴിയട്ടെയെന്ന് ആശംസിക്കുന്നു.



സ്നേഹപൂർവ്വം

**അഡ്വ. സരിത എസ്.എൻ.**  
ആരോഗ്യ-വിദ്യാഭ്യാസ സ്ഥിരം സമിതി  
അധ്യക്ഷ, ജില്ലാ പഞ്ചായത്ത്,  
കാസർകോട്



## ആശംസ

ജില്ലയിലെ അക്കാദമിക പ്രവർത്തനങ്ങളെ ഏകോപിപ്പിച്ച് മുന്നോട്ട് നയിക്കുന്ന ഉത്തരവാദിത്തമാണല്ലോ ജില്ലാ വിദ്യാഭ്യാസ പരിശീലന കേന്ദ്രങ്ങൾ (DIET) കാലങ്ങളായി ചെയ്തുവരുന്നത്. മനുഷ്യവിഭവശേഷിയിൽ പരിമിതികൾ ഉള്ളപ്പോൾ തന്നെ പ്രീ-പ്രൈമറി തലം മുതൽ ഹയർ സെക്കൻഡറി തലം വരെയുള്ള മേഖലകളിൽ വിവിധങ്ങളായ പദ്ധതികൾ ആസൂത്രണം ചെയ്യാനും നിർവഹിക്കാനും ഡയറ്റുകൾക്ക് ഇതുവരെ കഴിഞ്ഞിട്ടുണ്ട്. ഡയറ്റ് കാസർകോടിന്റെ നേതൃത്വത്തിൽ പത്താം തരത്തിലെ കുട്ടികളുടെ പഠനപ്രശ്നങ്ങൾ മറികടക്കാൻ കഴിഞ്ഞ കുറച്ച് വർഷങ്ങളായി വിദ്യാഭ്യാസ വകുപ്പ് നടപ്പിലാക്കുന്ന പദ്ധതിയാണ് **EQUIP (Educational Quality Improvement Programme)**. അതതു വർഷത്തെ കുട്ടികളുടെ പഠനപ്രശ്നങ്ങൾ പരിഗണിച്ചുകൊണ്ടാണ് പ്രവർത്തനങ്ങൾ ചിട്ടപ്പെടുത്തുന്നത്. ഈ പദ്ധതിയുടെ ഭാഗമായി പത്താംതരത്തിലെയും പ്ലസ് ടുവിലെയും പരീക്ഷയെ അഭിമുഖീകരിക്കാൻ കുട്ടികളെ സഹായിക്കുന്ന വിവിധ വിഷയബന്ധിതമായ ചോദ്യമാതൃകകൾ യൂണിറ്റടിസ്ഥാനത്തിൽ പരിചയപ്പെടുത്താനാണ് ഉദ്ദേശിക്കുന്നത്. ജില്ലാ പഞ്ചായത്തിന്റെ സഹായത്തോടെ മലയാളത്തിലും ഇംഗ്ലീഷിലും കന്നഡയിലും പത്താംതരത്തിൽ ഐ.ടി. ഒഴിച്ചുള്ള എല്ലാ വിഷയങ്ങളിലും പ്ലസ് ടുവിൽ പ്രയാസകരമായ ആറ് വിഷയങ്ങളിലും പുസ്തകങ്ങൾ തയ്യാറാക്കി നൽകാനാണ് ഉദ്ദേശിക്കുന്നത്. ഈ അധ്യയന വർഷം പത്താംതരം/പ്ലസ് ടു പരീക്ഷ എഴുതുന്ന മുഴുവൻ കുട്ടികൾക്കും ഈ പദ്ധതിയുടെ പ്രയോജനം ലഭിക്കുമെന്ന് പ്രതീക്ഷിക്കുന്നു. വ്യത്യസ്ത പഠനവേഗതയും പഠനമികവുമുള്ള എല്ലാ വിഭാഗം കുട്ടികൾക്കും ഈ സാമഗ്രി പ്രയോജനപ്പെടുടെ എന്ന് ആശംസിക്കുന്നു. അധ്യാപകരുടെ ആത്മാർത്ഥമായ പിന്തുണയും പ്രോത്സാഹനവും അനിവാര്യമായ ഈ ഉദ്യമത്തിൽ എല്ലാവരുടെയും സഹായ സഹകരണങ്ങൾ പ്രതീക്ഷിച്ചുകൊണ്ട് ഏവർക്കും വിജയാശംസകൾ നേരുന്നു.



ആശംസകളോടെ,  
  
**ഡോ. രഘുരാമ ഭട്ട് കെ.**  
പ്രിൻസിപ്പാൾ  
ഡയറ്റ് കാസർകോട്



## ആമുഖം

കാസർകോട് ജില്ലാ പഞ്ചായത്തിന്റെ നേതൃത്വത്തിൽ ജില്ലയിലെ പൊതുവിദ്യാഭ്യാസം ശക്തിപ്പെടുത്തുന്നതിന് വ്യത്യസ്തങ്ങളായ നിരവധി പ്രവർത്തനങ്ങൾ നടന്നുവരികയാണ്. അതേസമയം ദേശീയ-സംസ്ഥാന പഠനങ്ങൾ നമ്മുടെ ജില്ലയിലെ കുട്ടികളുടെ പ്രകടനം ഇനിയും മെച്ചപ്പെടുത്തേണ്ടതുണ്ട് എന്ന സൂചനയാണ് നൽകുന്നത്. ഈ പശ്ചാത്തലത്തിലാണ് ജില്ലയിലെ പൊതുവിദ്യാലയങ്ങളിൽ



നിന്ന് 2023-24 അധ്യയനവർഷം എസ്.എസ്.എൽ.സി., പ്ലസ് ടു പരീക്ഷകൾ അഭിമുഖീകരിക്കുന്ന കുട്ടികൾക്ക് പഠനപിന്തുണ നൽകുന്നതിന് ജില്ലാ പഞ്ചായത്തിന്റെയും പൊതുവിദ്യാഭ്യാസ വകുപ്പിന്റെയും സംയുക്താഭിമുഖ്യത്തിൽ വ്യത്യസ്ത വിഷയങ്ങളിൽ പഠനസാമഗ്രികൾ തയ്യാറാക്കേണ്ടതിന്റെ ആവശ്യകത ജില്ലാതല ഉന്നതാധികാര യോഗങ്ങളിൽ ചർച്ചചെയ്യപ്പെട്ടത്. ഇതിന്റെ അടിസ്ഥാനത്തിൽ ഡയറ്റ് കാസർകോടിന്റെ അക്കാദമിക് നേതൃത്വത്തിൽ ജില്ലയിലെ മികച്ച അധ്യാപകരെ ഉൾപ്പെടുത്തിക്കൊണ്ട് പത്താംതരത്തിൽ ഐ.ടി. ഒഴിച്ചുള്ള എല്ലാ വിഷയങ്ങളിലും പ്ലസ് ടുവിൽ ഏറ്റവും പ്രയാസമേറിയ ആറ് വിഷയങ്ങളിലും (ഗണിതം, ഫിസിക്സ്, കെമിസ്ട്രി, ഇംഗ്ലീഷ്, അക്കൗണ്ടൻസി, ഇക്കണോമിക്സ്) പഠനപിന്തുണസാമഗ്രികൾ തയ്യാറാക്കിയിരിക്കുകയാണ്. സ്കൂൾ വിദ്യാഭ്യാസം പൂർത്തീകരിച്ച് ഉന്നത വിദ്യാഭ്യാസമേഖലയിലേക്ക് പ്രവേശിക്കുന്ന പ്ലസ് ടു വിദ്യാർത്ഥികൾക്ക് പഠനപിന്തുണ നൽകുന്ന സാമഗ്രി ജില്ലയിൽ ആദ്യമായാണ് തയ്യാറാക്കുന്നത്. ജില്ലയിൽ നിന്നും പൊതുപരീക്ഷയെ അഭിമുഖീകരിക്കുന്ന മുഴുവൻ എസ്.എസ്.എൽ.സി, പ്ലസ് ടു വിദ്യാർത്ഥികൾക്കും ആത്മവിശ്വാസം വളർത്തുന്നതിനും ഉന്നതവിജയം നേടുന്നതിനും ഈ ഉദ്യമം സഹായകമാകട്ടെയെന്ന് ആത്മാർത്ഥമായി ആഗ്രഹിക്കുന്നു. ഈ പദ്ധതിയെ നെഞ്ചേറ്റിയ പ്രിയപ്പെട്ട അധ്യാപക സുഹൃത്തുക്കൾക്ക് ഈ പുസ്തകത്തെ ഫലപ്രദമായി ഉപയോഗിക്കാൻ കഴിയട്ടെ. എല്ലാവർക്കും വിജയാശംസകൾ.

**ശ്രീ. എൻ. നന്ദികേശൻ**  
ജില്ലാ വിദ്യാഭ്യാസ ഉപഡയറക്ടർ  
കാസർകോട്



# **BIOLOGY**

SSLC – English Medium

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# CHAPTER 1

## SENSATIONS AND RESPONSES

1. Complete the Table.

(2 marks)

Organ	A	B
Heart	i	ii
Intestine	iii	iv

Indicators: Parts of Autonomous Nervous System

I, i, ii, iii, iv Functions of Autonomous Nervous System

**Ans:** A. Sympathetic Nervous System

B. Parasympathetic Nervous System

i. Heart beat increases

ii. Heart beats become normal

iii . Peristalsis becomes slows down

iv. Peristalsis becomes normal.

2. Complete the relations

(3 Marks)

a) Dorsal Root : .....

b) Ventral Root : .....

c) Spinal Reflexes : .....

d) ..... : Closing of eyes when an insect move toward eyes.

e) Hypothalamus : .....

f) Thalamus : .....

**Ans :** a) Sensory impulses                      b) Motor Responses

c) Withdraw of leg                      d) Cerebral Reflexes

e) Homeostasis                      f) Act as Relay Station

3. Bike riders should wear helmet?. Justify your answer related with the function of brain.( 2 Marks )

**Ans:** Medulla oblongata controls heartbeat, breathing etc.

4. The different steps of reflex arc of withdrawing legs are given. Arrange the steps in orderly. (2 marks)

a) Sensory neurons carries impulses towards spinal cord.

b) Stimuli is received by receptor and forms impulses.

- c) The responses are carried by motor neuron towards related muscle.
- d) The responses are created by interneuron based on sensory impulses.
- e) Withdrawal of leg due to the action of related muscle.

**Ans:** b, a, d, c, e

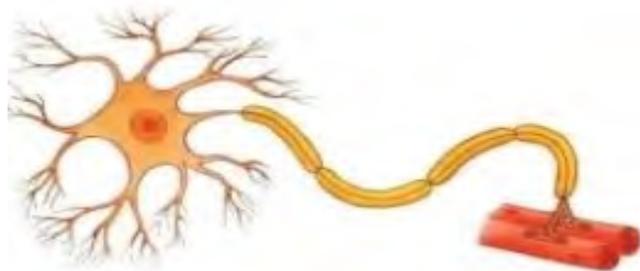
5. “Brain is covered by three layered membranes, meninges”.

- a) Name the fluid filled in the inner layer of meninges.
- b) Write their functions. (2 Marks)

**Ans:**

- a) Cerebro Spinal Fluid (CSF)
- b) Gives oxygen to nervous tissues, insulator, speed up the conduction, protection.

6. Observe the diagram and answer the questions (3 Marks)

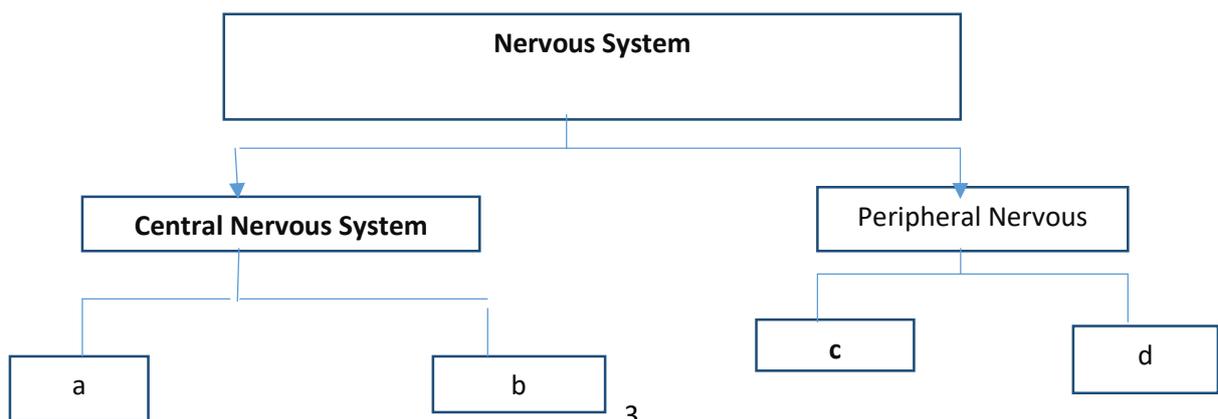


- 1) Identify the diagram.
- 2) How does the impulses are transmitted through this?

**Ans:** 1) Synapse

2) Through Neurotransmitters (Explanation)

7. Complete the illustration. (2 Marks)



**Ans:**

- a) Brain
- b) Spinal cord
- c) Cranial nerves
- d) Spinal Nerves

8. Find out the reason after analysing the statement. (2 Marks)

- a) Blinking of eyes when light falls
- b) Withdrawal of hand when we touch a hot object.

**Ans:** a) Due to Cerebral reflex  
b) Due to Spinal reflex

9. Fill in the Blanks: (1 Marks)

- a) Central Nervous System : Brain and Spinal cord
- b) ..... : Cranial nerves and Spinal Nerves.

**Ans:** a) Peripheral Nervous system

10. The parts of a reflex arc is given below. Write their functions. (2 marks)

- 1) Interneuron
- 2) Motor neuron

**Ans:** 1) The neuron that connects the sensory neuron and motor neuron, generates quick responses,  
2) Neuron which carries impulses from brain and Spinal cord to various parts of the body.

11. The symptoms of a nervous disorder is given.

Loss of body balance, Irregular movements of muscles, Shivering of body, Salvation,

- a) Identify the disease.
- b) What is the cause of the disease? (2 Marks)

**Ans:** a) Parkinson's disease

- c) Destruction of specialised neurons and reduced amount of dopamine.

12. The features of a fluid is given below.

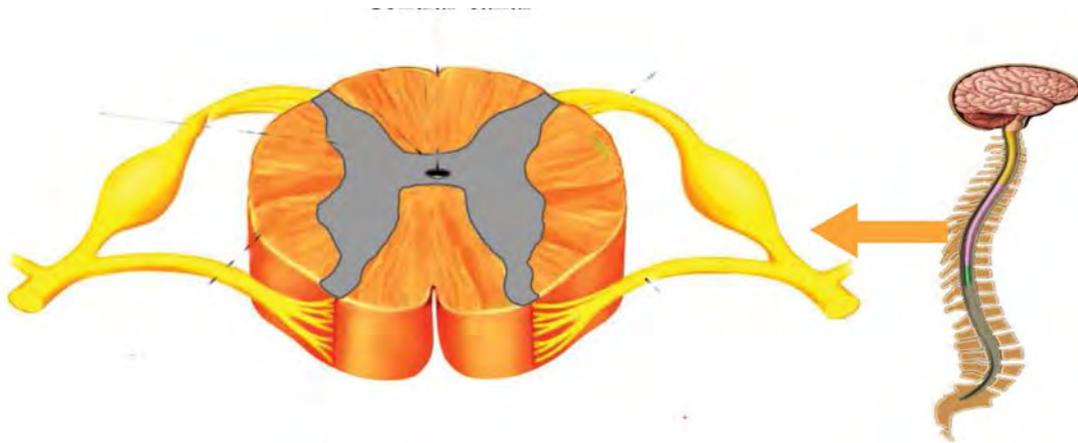
This fluid is formed from blood and reabsorbed into blood. This fluid present in the central canal of spinal cord.

- a) Identify the fluid.
- b) Write the functions of the fluid. (2 Marks)

**Ans:** a) Cerebro Spinal Fluid (CSF)

- b) Provide nutrients and oxygen to the brain tissues, regulate the pressure inside the brain and protection.

13. Observe the diagram given below and find out the answer.



- a) Identify the diagram.
- b) Write the functions of the diagram given above. (3 Marks)

**Ans:** a) Spinal Cord

- b) To control reflex action and coordinates the repeated movements during walking, running etc.,

## CHAPTER 2 WINDOWS OF KNOWLEDGE

1. Find out the relations by using the terms given in the table. (3 Marks)

Organ of Corti, Planaria, Lateral line sense organs. Eye Spot, Housefly ,  
Shark, Jacobson's organs, Omatidia, Snake

Indicator: Planaria: Eye spot

Ans: Housefly : Omatidia,  
Snake : Jacobson's organs  
Shark : Lateral line sense organs.

2. Describe the following terms. (2marks)

- a) Power of Accommodation of Eye.  
b) Binocular vision of eye.

Ans:

- a) The ability of the eye 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 is called Power of Accommodation.  
b) The two images combine as a result of the activities of the brain, a three dimensional image of the object is formed is called Binocular vision

3. Observe the diagram and answer the following questions. (3 Marks)



- a) Name the parts of internal ear which helps in body balance?  
b) How does this part help in body balance?

- Ans:**
- Semi-circular canals and vestibule.
  - Body balance is maintained in accordance with the movement of head. This causes the movement of endolymph in semi circular canal and vestibules results in the generation of impulses in sensory hair cells. These impulses are transmitted by the vestibular nerves to the cerebellum and maintains the equilibrium of the body.

4. Rearrange the statements given below, related with the sense of taste. Arrange it orderly.

(2 Marks)

- Chemo receptors are stimulated.
- The food particles are dissolved in saliva
- Impulses are formed
- Sense of taste
- Impulses are reaches in cerebrum through related nerves.

**Ans:** 2, 1, 3, 5, 4

5. Choose the correct statement related with sense organs.

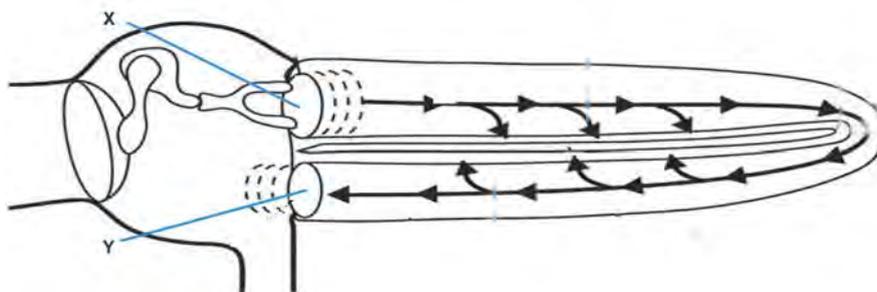
(1 Mark)

- The impulses from taste buds reach cerebellum experiences taste.
- The impulses from olfactory receptors reaches cerebrum through olfactory nerves.
- The receptors are present in skin uniformly.
- The receptors in papilla are known as taste buds.

**Ans: b**

6. Observe the illustration and answer the questions.

(3 Marks)



- Identify X and Y
- Write the functions of X and Y.

- Ans:**
- X - Oval window and Y - Round window
  - Spreads the vibration of ear ossicles to the inner ear and helps in the movement of fluid inside the cochlea.

7. The symptoms of an eye disorder is given.

(3 Marks)

(The pressure inside the eye increases. The destruction of retina and photoreceptors leads to blindness.)

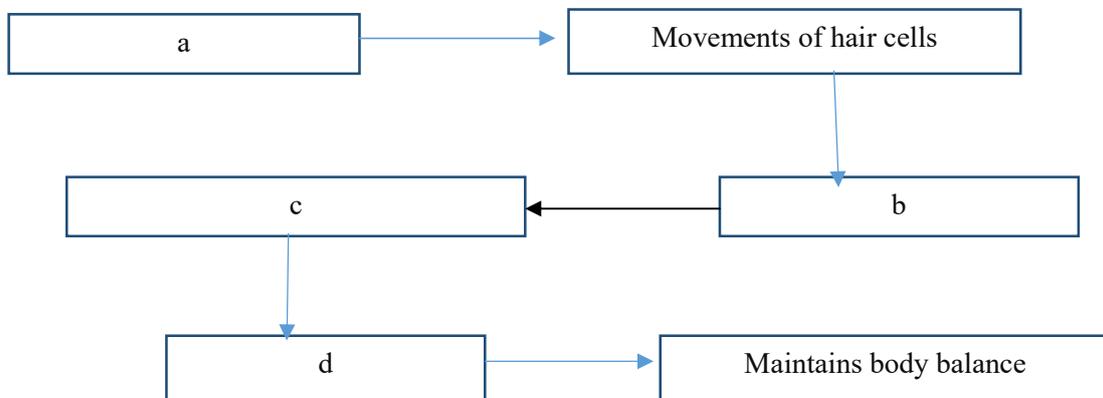
- a) Identify the disease. Write the cause of the disease.
- b) What are the remedial measure to cure this disease?

Ans: a) Glaucoma, the reabsorption of aqueous humour does not occur results in the increase of pressure in the eyes

b) Laser Surgery

8. Complete the flow chart related with body balance.

( 2 Marks )

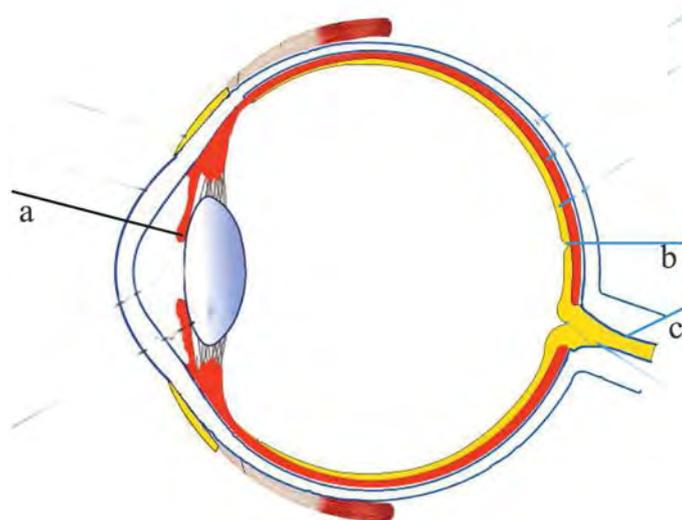


**Ans:**

- a) Movements of head
- b) Impulses are formed
- c) Impulses are carried by vestibular nerve
- d) Cerebellum

9. Redraw the diagram and identify the parts of eye based on the statements given below.

(4Marks).



- a) The dark coloured part of eye due to the presence of melanin.
- b) The part of the eye that carries impulses towards cerebrum of brain
- c) The part of retina that contains more number of photoreceptors.

**Ans:** a) Iris  
b) Optic Nerve  
c) Yellow spot

10. What are the changes of the parts of eye when the objects are in far. (2 Marks)

- a) Ciliary muscles
- b) Ligaments
- c) Curvature of lens
- d) Focal length

**Ans:** a) Relax  
b) Stretch  
c) Decreases  
d) Increases

11. Justify the statement. Tears have disinfecticidal properties. (1 Marks)

**Ans :** The Lysozyme in the tears destroys germs that enter the eyes.

12. The feature of fluid in an eye is given. Analyse it and answer the following questions. (4 Marks)

This fluid is formed from blood and reabsorbed into blood.

- a) Name the fluid.
- b) Write the function of the fluid.
- c) Which eye disorder is associated with this fluid.
- d) How does it can be treated?

**Ans.** a) Aqueous fluid  
b) Provides Nutrients, Oxygen,  
c) Glaucoma  
d) Laser Surgery

### CHAPTER 3

## CHEMICAL MESSENGERS FOR HOMEOSTASIS

1. Name the gland which is known as biological clock? ( 1 Mark )  
a) Hypothalamus    b) Thymus    c) Adrenal gland    d) Pineal gland

Ans : d

2. Find the odd one out, and write the e common features of others. (1 Mark)  
Civeton, Testosterone, Bombycol, Muscone

Ans : Testosterone, Others are pheromones

3. Find out the hormone which control calcium level in blood from the following pairs.

( 1 Mark)

- 1) Parathormone    -    Oxytocin  
2) Vasopressin    -    Aldosterone  
3) Calcitonin    -    Cortisol  
4) Parathormone    -    Calcitonin

Ans : 4

- 4.A doctor advice an injection for an allergic patient, which hormone contains an injection?

( 1Marks)

- a)    Insulin  
b)    Oxytocin  
c)    Cortisol  
d)    Adrenaline

Ans : c

5. Arrange the column A, B and C (3 Marks)

A GLAND	B HORMONE	C DISEASE
Hypothalamus	Somatotropin	Diabetes mellitus
Pancreas	Vasopressin	Cretinism
Thyroid	Insulin	Diabetes insipidus
	Thyroxine	Dwarfism

Ans:

A GLAND	B HORMONE	C DISEASE
Hypothalamus	Vasopressin	Diabetes insipidus
Pancreas	Insulin	Diabetes mellitus
Thyroid	Thyroxine	Cretinism
	Somatotropin	Dwarfism

6. Ants are moving in a line along a particular trail, due to the production of some chemical substances. (2 Marks)

- Name the chemical substances.
- Write two examples of these chemical substances.

Ans: a) Pheromones  
b) Bombycol, Muscone, Civeton, (any two)

7. Analyse the following statements and answer the questions.(3 marks )

X – The hormones from adrenal gland acts along with sympathetic nervous system

Y – The amount of this hormone increases during night and decreases in day time.

- Name the hormones indicated as X
- Name the hormone which is indicated as Y and name the gland produces Y.

Ans: a) X Epinephrine / Adrenaline  
b) Y Melatonin, Pineal gland

8. Analyse the activity given below which is related with the control of glucose in our body and answer the following questions. (4 Marks)



- Identify the hormones which are indicated as X and Y.

- b) Name the glands which produces X and Y?
- c) Name the disease caused due to the deficiency of X.
- d) Write the symptoms of above mentioned disease.

Ans: a) Insulin and Glucagon

b) Pancreas

c) Diabetes mellitus.

d) Increased appetite, Frequent urination and thirst.

9. Find out the correct pair from the following.

( 1Marks )

- a) Prolactin – Produces milk
- b) Aldosterone – Helps in growth
- c) Cortisol – Salt water balance
- d) Melatonin – Controls blood pressure

Ans: a

10. Complete the table

(2Marks)

Plant Hormone	Functions
Gibberellins	Ripening of leaves and fruits
Auxin	Sprouting of leaves
Abscisic Acid	Fruit formation
Ethylene	Dormancy of embryo

Ans:

Plant Hormone	Functions
Gibberellins	Sprouting of leaves
Auxin	Fruit formation
Abscisic Acid	Dormancy of embryo
Ethylene	Ripening of leaves and fruits

11. Complete the table. ( 2 Marks)

The level of Calcium	Hormone	Gland
a) Increases	i	ii
b) Decreases	iii	iv

(Calcitonin, Parathyroid gland, Parathormone, Thyroid gland)

Ans:

The level of Calcium	Hormone	Gland
a) Increases	i. Calcitonin	ii. Thyroid gland
b) Decreases	iii. Parathormone	iv. Parathyroid gland

12. Complete the table.( 3 Marks )

Gland	Hormone	Disorder	Symptoms
Pancreas	i	Diabetes mellitus	ii
Hypothalamus	Vasopressin	iii	iv
Pituitary	v	vi	After maturity, growth of the bones on the face, jaw and fingers.

(Somatotropin, Diabetes insipidus. Acromegaly, Presence of glucose in urine, Frequent urination, Insulin, Stunted growth and mental development.)

Gland	Hormone	Disorder	Symptoms
Pancreas	i <u>Insulin</u>	Diabetes mellitus	ii <u>Presence of glucose in urine</u>
Hypothalamus	Vasopressin	iii, <u>Diabetes insipidus</u>	iv <u>Frequent urination</u>
Pituitary	v. <u>Somatotropin</u>	vi. <u>Acromegaly</u>	After maturity, growth of the bones on the face, jaw and fingers.

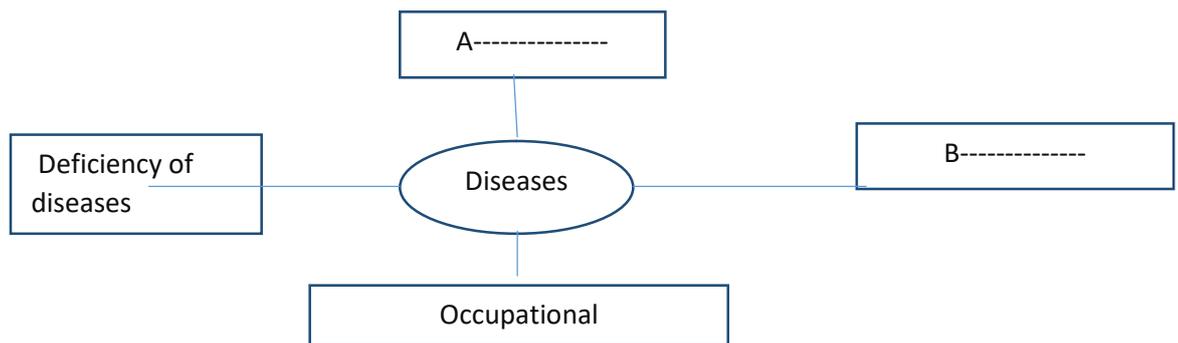
**CHAPTER 4**  
**KEEPING DISEASES AWAY**

1. Identify the disease which is not caused by virus from the following.( 1Marks )

- a) Nipah      b) Anthrax      c) AIDS                      d) Dengue Fever

Ans: b) Anthrax

2. Diseases are not only caused by pathogens and are caused by other reason also. Complete the illustration given below. ( 2 Marks )



Ans: A Lifestyle

B Genetic

3. What are the health habits to be followed for the prevention of lifestyle diseases?

( 2 Marks)

Ans :Exercise, Yoga, Balanced diet, Avoid stress.

4. Should we be scared of AIDS Patients? Justify your answer based on the statement given above. (2 marks)

Ans : No, They should be accepted by the society because AIDS should not spread by touch, shaking hands coughing, sneezing,...

## CHAPTER 5

1. Defense is the ability of the body to prevent the entry of pathogens and to destroy those that have already entered the body..... (2 Marks)

2. What are the defense mechanisms in our body?

3. What are the preventive methods to prevent the entry of germs in our body?

**Ans.** 1. Body coverings, Body Fluids, Body Secretions.

. 2. To wear Mask, Environmental Cleanliness.

2. Skin is the protective covering of the body. Which one among the following is to prevent the entry of germs? (2 Marks)

. 1. Sebum is produced by the Sebaceous gland.

. 2. Sweat is produced by sweat glands.

**Ans.** 1. Sebum produced by the gland makes the skin oily and waterproof.

. 2. The disinfectants present in sweat destroy the germs.

3. A great number of germs get destroyed by useful bacteria in our body. Whether the statement is wrong or right, Justify your answer. (2 marks)

**Ans:** Right, the germs that enter the body need to compete for shelter and nutrients with useful bacteria and get destroyed.

4. Choose the correct answer. (1 mark)

Stomach : HCl

Trachea : -----

**Ans :** Mucus

5. When a wound occurs that part swells up as a result of inflammatory responses, why?

(3 marks)

**Ans:** The cells that get damaged by a wound or by an infection produce certain chemical substances. These substances dilate the capillaries thereby increasing the blood flow. Blood plasma and more WBCs reach the wound site. This defense mechanism is known as inflammatory responses.

6. Identify A, B and C in the following illustration. (2 marks)



Ans : A Thromboplastin  
B Calcium, C Vitamin K

7. Healing of wound is a stage after inflammatory response and blood clotting. Based on the statement Answer the following questions. (2 marks)

- a) What is the reason that the wound scar does not remain in some situations?
- b) What is the reason that wound scar remain in some situations?

Ans: a) When a wound occurs new similar tissues are formed in place of the tissues damaged or lost by the wound. In such situations the wound scar does not remain.

b) But, in cases when new similar tissues cannot be formed, the connective tissue heals the wound. In such situations, the wound scar remains.

8. Lymphocytes are the blood cells that specifically identify and destroy pathogens that enter the body by overcoming the non-specific defense mechanism of the body. Based on this answer the following questions.( 4 Marks)

- a) What are Antigens?
- b) What are B Lymphocyte?
- c) What are T Lymphocytes?
- d) What are the functions of antibodies?

Ans : a) Foreign bodies or pathogens that enter the body and stimulate the defense mechanism are called antigens.

b) B- Lymphocytes matures at Bone marrow and produce certain proteins that act against antigens. These are called antibodies.

c) T- Lymphocytes matures at thymus and Stimulate other defense cells of the body, Destroy the cells affected by virus and Destroy cancer cells.

d) Antibodies destroy the pathogens in three different ways. 1. Destroy the bacteria by disintegrating their cell membrane. 2. Neutralise the toxin of the antigens. 3. Destroy the pathogens by stimulating other white blood cells.

9. Name the WBC that destroys cancer cells. (1 mark)

Ans: T lymphocyte

10. a) Modern Medicine : Hippocrates (1 mark)  
b) Homeopathy : .....

Ans: Samuval Haniman

12. Choose the part of the plant is given below that Protects the inner cells from direct contact of pathogens. (1 mark)

(Cuticle, Bark, cell wall, callose)

Ans : Bark

12. Analyse the statement and answer the questions below. (1 mark)

- a) A blood group with Antigen A and antibody b
- b) B blood group with Antigen Band antibody a
- c) AB blood group without Antigen and antibody b
- d) O blood group with Antigen A and without antibodies.

i) a,b ii) b,c iii )c,d iv 0 a,d

Ans : i

13. The polysaccharide which is formed in the cell wall prevents the entry of germs through cell membrane, Choose the polysaccharide from given below. (1 mark)

- a) Dopamine b) Callose c) Acetyl choline d) Cuticle

Ans: b) Callose

14. Complete the pairs given below. (1 mark)

- a) Bacteria : Antibacterial medicines
- b) Fungus : .....

Ans: b) Antifungal medicines

## Chapter 6

### UNRAVELLING GENETICS MYSTERIES

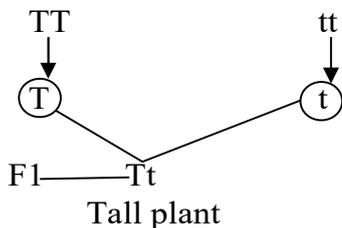
- (1) The branch of science that deals with heredity and variation is called Genetics (2 Marks)

- (a) Father of Genetics
- (b) Heredity
- (c) Variations
- (d) Scientific name of Pea plant

**Answer:**

- (a) Gregor Johann Mendel
- (b) The transmission of features of parents to offsprings is termed as heredity
- (c) The features seen offsprings that are different from their parents are called variation
- (d) *Pisum Sativum*

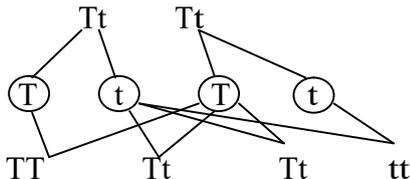
- (2) Tall Dwarf (4 Marks)



- (a) What are the characters of Parent?
- (b) What are the gametes in the illustration?
- (c) Which is the first generation plant?
- (d) Illustrate the second generation formed by the self pollination of the first generation plant?

**Answer:**

- (a) Tall and dwarf plant
- (b)  $T$  and  $t$
- (c) Tall plant
- (d)



- (3) Find whether the following statement is true or false and write the reason "The traits that remain hidden in the first generation appear in the second generation" (2 Marks)

**Answer:**

True

During gamete formation the factor that determine a particular character segregate without getting mixed.

- (4) Find whether the following statement is true or false and write the reason  
“The appearance of new combination of characters in offsprings that not expressed in parents” (2 Marks)

**Answer:**

True

The appearance of variations in offsprings is due to the independent assortment of each character.

- (5) The carrier of heredity known as ‘Factors’ were described by Gregor Johan Mendel. Name the Factors. (1 Mark)

**Answer:**

(a) DNA      (b) RNA      (c) Genes      (d) Amino Acids

- (6) Two scientists, James Watson and Francis Crick, presented model of DNA in 1953. (4 Marks)

- (a) What is the model of DNA?  
(b) What are the two molecules that make up the two strands?  
(c) What are the molecules that rungs are made of?  
(d) Basic units of DNA molecules?

**Answer:**

- (a) Double helical model  
(b) Phosphate and sugar molecules  
(c) Nitrogen base  
(d) Nucleotides

- (7) DNA molecules is made up of units called nucleotides. (3 Marks)

- (a) Nucleotide contains  
(b) Specificity maintained by nitrogen bases in pairing

**Answer:**

- (a) Sugar molecules, Phosphate molecules, nitrogenbases  
(b) adenine-thymine, guanine-cytocine

- (8) Analyse the statements and give the reason. (3 Marks)

- (a) Part of DNA crosses over to become the part of another DNA  
(b) Fertilization causes variations in the next generation.  
(c) Mutations bring changes in genes.

**Answer:**

- (a) Crossing over in chromosomes  
(b) Combination of allele during fertilization  
(c) Defects in the duplication of DNA  
certain chemicals, radiations etc.

- (9) What may be the reason for the difference in the colour of skin in people living in various parts of the world? (2 Marks)

**Answer:**

Melanin, a pigment protein impart 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. This is the reason for the colour difference of human skin.

## Chapter 7

### GENETICS OF THE FUTURE

- (1) Genetic engineering is the technology of controlling traits of organisms by bringing about desirable changes in the genetic constitution of organisms. (3 Marks)
- (A) Which enzymes used to cut the gene?
  - (B) Which enzyme used to join the genes?
  - (C) Example of vectors?

**Answer:**

- (A) Restriction endonuclease (REN)
- (B) Ligase
- (C) Plasmids

- (2) Write two scope of genetic engineering? (2 Marks)

**Answer:**

Gene therapy  
Genetically modified animals and crops  
Forensic test

- (3) Genetic engineering has made a great leap in the treatment of genetic diseases. Evaluate the statement? (2 Marks)

**Answer:**

Gene therapy is a method of treatment in which the genes that are responsible for disease are removed and normal functional genes are inserted in their place.

- (4) Endorphin : Pain  
Somatotrpin : .....

**Answer:**

Growth disorders

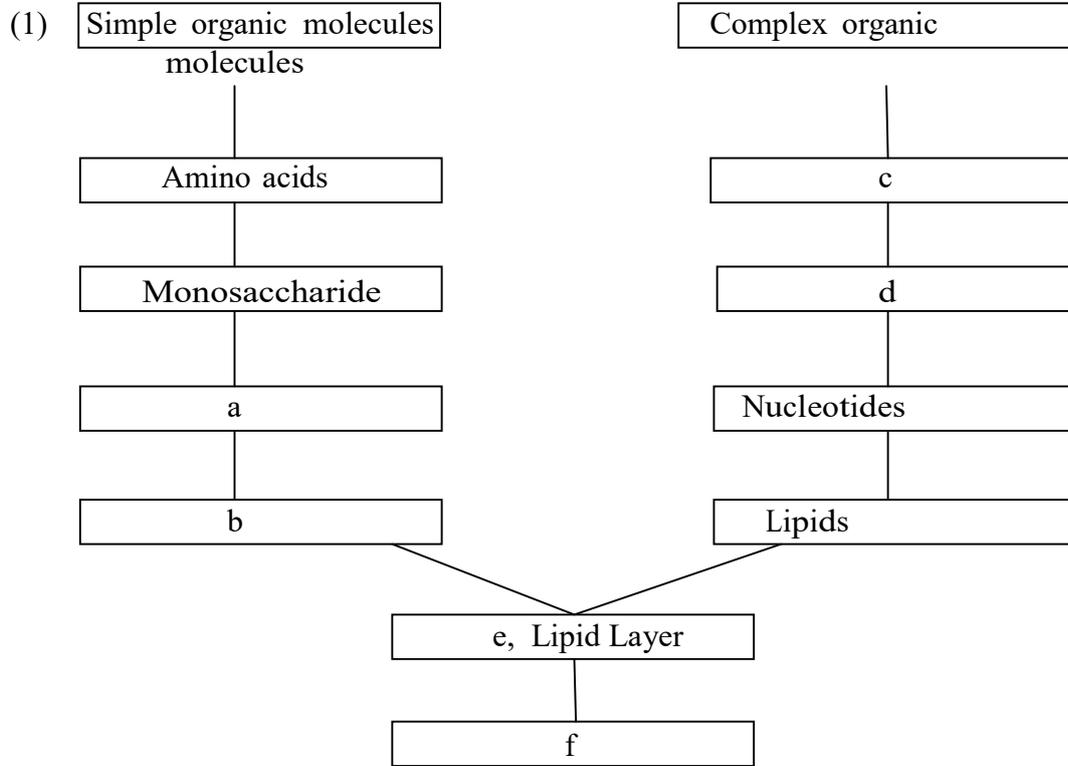
- (5) The technology of testing the arrangement of nucleotides is DNA profiling.
- (A) Who is invented by DNA testing
  - (B) What is the basis of DNA testing
  - (C) Scope of DNA finger printing

**Answer:**

- (A) Alec Jeffreys
- (B) Just like the difference in the fingerprint of each person, the arrangement of nucleotides in each person also differs. This discovery became the basis of DNA testing.
- (C) Identify real parents  
Identify persons found after long periods of missing  
The real culprit can be identified.

## Character 8

### THE PATHS TRAVERSED BY LIFE



**Answer:**

- a. Nitrogen base
- b. Fatty acids
- c. Protein
- d. Polysaccharide
- e. Nucleic acids
- f. Primitive Cell

- (2) Lamarck : Acquired characters  
 Darwin : .....

(1 Mark)

**Answer:** Natural selection

- (3) Biological changes helped human being to emerge in the present form.(4 Marks)
- (A) The most primitive member of the human race
  - (B) Made weapons from stones and bone pieces.
  - (C) Fossils were discovered from Africa and Asia.
  - (D) Contemporary to modern man.

**Answer:**

- (A) Ardipithecus ramidus
- (B) Homo habilis
- (C) Homo erectus
- (D) Homo neanderthalensis

(4) Analyse the statements and give reason

- (A) Man is the member of Hominoidea
- (B) Man and Bacteria evolved from a common ancestor (two reason)

**Answer:**

- (A) Developed brain, freely movable hands.
- (B) Enzymes control chemical reactions, Energy stored in ATP molecules, Genes determine hereditary traits, Carbohydrates proteins and fats are the basic substances.

(5) Which organism is the farthest from human from the evolutionary point of view? (1 Mark)

- (a) R a t
- (b) Gorilla
- (c) C himpanzee
- (d) Monkey

**Answer:**

- (a) Rat

(6) What are the features of modern man that differentiate him from other organisms included in the historical path of human evolution? (2 Marks)

**Answer:**

- Developed brain
- Freely movable hands
- Slender body
- Made weapons from stones and bone pieces
- Thinking capacity

(7)

(4 Marks)

Birds	Shape of Beak	Food
Insectivorous finches	Large beaks	worms
Cactus eating finch	Small beak	seeds
Woodpecker finches	Long and sharp beak	insects
Ground finches	Sharp beaks	cactus

**Answer:**

Birds	Shape of Beak	Food
Insectivorous finches	Small beak	insects
Cactus eating finch	Long and sharp beak	cactus
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Ground finches	Large beaks	seeds

# **EQUIP - 2024**

## **SSLC - EXAMINATION SUPPORT MATERIAL**

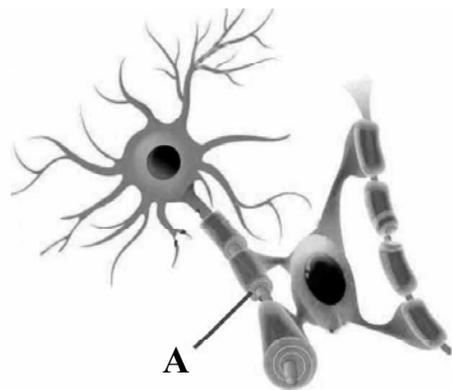
### **BIOLOGY - ENGLISH MEDIUM**

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#### **Questions (1 Score)**

1. Find out the odd one and write the common features of others.  
Cornea, Oval window, Conjunctiva, Iris
2. Give answer like the model given below.  
Bud rot of coconut - Fungus  
Mosaic disease of tapioca - .....
3. Choose the correct pair?  
Myelin sheath - Axonite  
Schwann cells - Brain  
Oligodendrocyte - Spinal cord
4. Find out the different one. Write the common characters of others.  
(Muscone, Cytokinin, Civetone, Bombykol)
5. Which connects the sensory neuron to the motor neuron in a reflex arc?
6. Rhodopsin is the pigment in rod cells. What is the pigment in cone cells?
7. Identify the viral disease among those given in bracket?  
(Leptospirosis, Diphtheria, Nipah, Tuberculosis)
8. In blood clotting process the enzyme thrombin is formed from the protein prothrombin. What is formed from Fibrinogen?
9. Observe the given example. Fill up the second one?  
Pain - Endorphin  
Viral diseases - .....
10. .... is a genetic disease.  
(AIDS, Sickle cell anaemia, Dengue, Hepatitis)

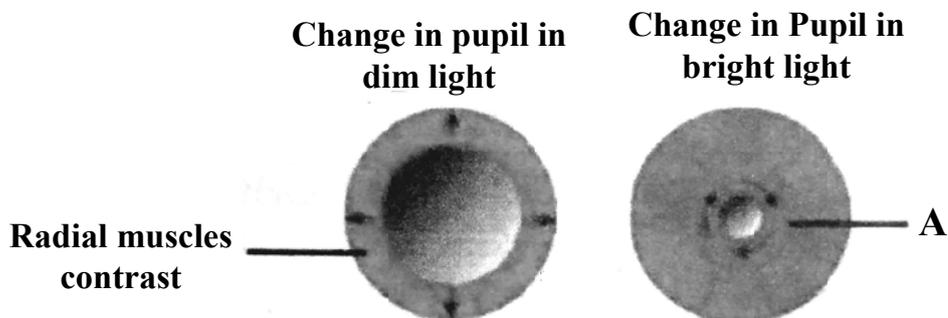
11. Find the odd one out.  
(Struggle for existence, Natural selection, Self acquired characters, Favourable variations)
12. Name the vaccine against Tuberculosis.  
(OPV, MMR, BCG, TT)
13. Which RNA transfers the message from DNA?  
(rRNA, mRNA, tRNA)
14. List out pheromones from the bracket?  
(Cortisol, Civeton, Gibberellin, Bombykol)
16. Fill in the blanks using the pair relationship.  
Genetic glue - Ligase  
Genetic Scissors - .....
16. Observe the picture and name the part which marked A?



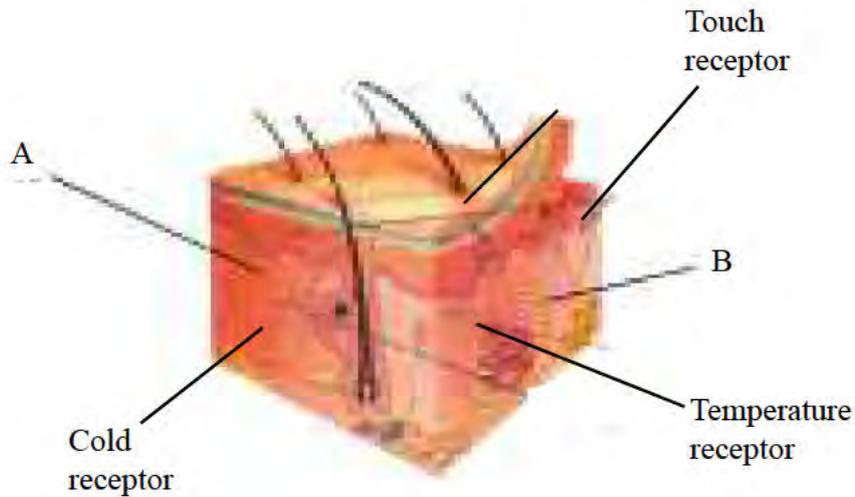
17. Name the most primitive member of human race?  
(Homo habilis, Ardipithecus ramidus, Astralopithecus afarensis, Homo erectus)
18. Choose the right statement?
  - i) Radial muscles contract in dim light
  - ii) Pupil contracts in dim light
  - iii) Circular muscles contract in dim light
  - iv) Pupil dilates in intense light

19. Find the word pair relationship and fill in the blanks appropriately  
 Diphtheria : Coryne bacterium diphtheriae  
 Rat fever : .....
20. Identify the odd one and write the common feature of others?
- Diabetes mellitus
  - Fatty liver
  - Sickle cell anaemia
  - Hyper tension
21. Fill in the blanks suitably  
 The enzyme ..... is used to cut the genes. The enzyme is known as genetic scissors
22. Which part of the brain maintains balance of the body
- cerebrum
  - cerebellum
  - medulla oblongata
  - thalamus
23. Which is not a bacterial disease?
- Blight disease
  - inflammation of udder
  - foot and mouth disease
  - Tuberculosis
24. Rewrite the following sentences by correcting the false sentence?  
 Sickle cell anaemia is caused by the uncontrolled divisions of cells?
25. Find the word pair relationship and fill in the blanks appropriately  
 Hunger : .....  
 Touch : External stimuli
26. Identify the odd one and write the common feature of others?
- Ethylene
  - Cytokinin
  - Auxin
  - Pheromones

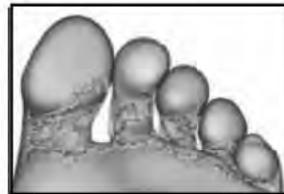
27. Who proposed mutation theory?
28. Which of the following is not made up of neurons?  
(Thalamus, Cerebrum, Pancreas, Hypothalamus)
29. Identify the odd one and write the common feature of others?  
(Sclera, Choroid, Retina, Yellow spot)
30. Identify the word pair relation and fill in suitably.  
Musk deer : Muscone  
Civet cat - .....
31. The Oxygen carrying capacity of red blood cells decreases. The sickle shaped RBC get collected in the blood vessels and block the blood flow. The symptom says about which disease?
32. Write down the false statements related to the T - lymphocytes?
- \* Neutralise the toxins of the antigens
  - \* Stimulate other defense cells of the body
  - \* Destroy the cells affected by virus
  - \* Destroy cancer cells
33. How many strands are present in the DNA?
34. Write the change in pupil in bright light?



35. Observe the illustration of Receptors in the skin and write A and B?



36. Which micro-organism causes the diseases shown in the picture?



37. Identify the word pair relation and fill in suitably?

Thyroid : Calcitonin

Parathyroid : .....

38. Choose the right statement from those given below

- \* The disability in cone cells causes glaucoma
- \* Night blindness is the deficiency disease of vitamin A
- \* Clear Image is formed in blind spot
- \* Vitreous fluid provides nourishment to the tissues of eye

39. Choose the right word pair

- \* Dopamine : Neuro transmitter
- \* Brain : 32 pair nerves
- \* Thalamus : Voluntary movement
- \* Epilepsy : To lose memory

40. Which membrane protect the brain?

- \* Myelin sheath
- \* Meninges
- \* Cerebrospinal fluid
- \* Synapse

41. Rewrite the following sentences by correcting the underlined word if it is wrong?

- \* A protein called keratin present in epidermis prevents the entry of germs
- \* Wax covering prevents the germs which crosses the cell wall.

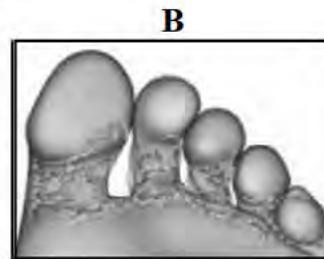
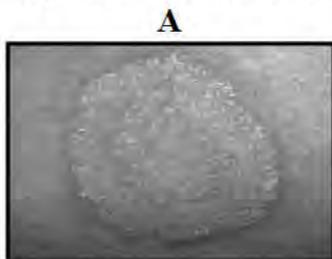
42. Identify the odd one and write the common feature of the others?

- \* Auxin
- \* Ehylene
- \* Cytokinin
- \* Insulin

43. Write sympathetic activity

- \* Increases the heart beats
- \* Trachea contracts
- \* The pupil in the eye contracts
- \* Production of saliva increases

44. Identify and name the following diseases.



45. Which is not a bacterial disease?

- \* Leptospirosis
- \* Tuberculosis
- \* Nipah
- \* Diphtheria

## Questions (2 score)

46. Correct the flow chart by filling up the missed words.

Sound waves → Pinna .....(a)..... → Tympanum → Ear ossicles  
..... (b)..... → Cochlea → Hair cells → ..... (c)..... → Auditory nerve .....(d)... →  
Sense of hearing.

47. Why are the endocrine glands called as ductless glands? When a substance is formed then only the hormone will be activated in the cells. Name the substance.

48. An ash coloured coating is formed in the throat due to this disease. Name the disease and write the pathogen?

49. Who invented DNA finger printing, now a days uses to find out the evidence in crime. What is the base of DNA finger printing?

50. Fill up the column B, according to the column A.

A	B
Shark	Eye spot
Snake	Taste buds
House fly	Lateral line
Planaria	Jacobson's organ
	Ommatidia

51. The condition in which the pressure increases in aqueous chamber due to the blockage of reabsorption of aqueous humor is called .....  
How can we cure this?

52. Justify the statement given below:

- a) Smell can be detected only in the presence of mucus.
- b) Persons with colour blindness cannot distinguish between green and red colours.

53.

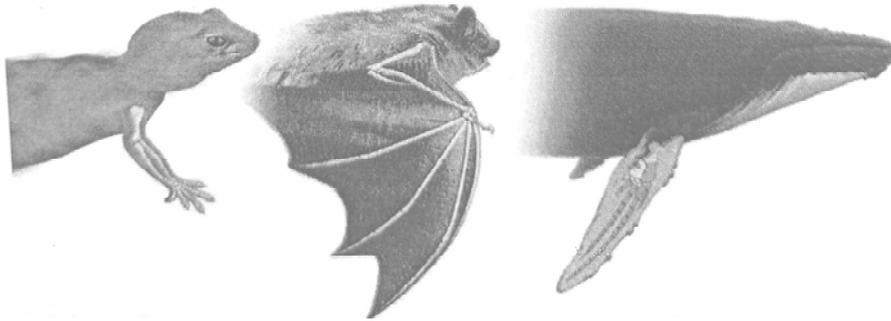
**DNA testing - Dead bodies identified**

Kollam : About twenty dead bodies of those who lost their lives in the Paravoor firework tragedy were identified through DNA test and handed over to relatives.

Didn't you read the news report?

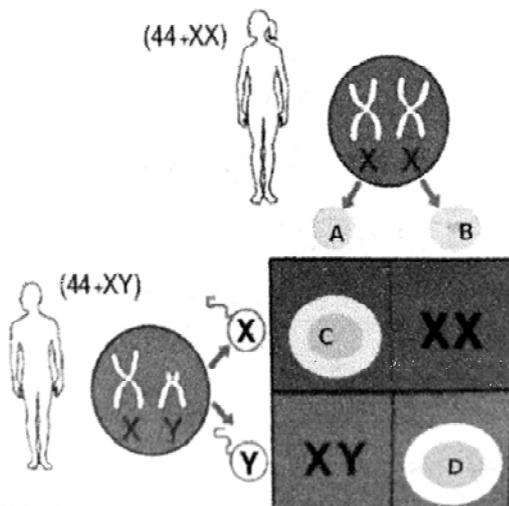
- a) What is the basis of DNA test?
- b) How is it possible to identify relations through DNA test?

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



How will you respond on this statement? Substantiate.

55. Observe the illustration and fill in A, B, C, D

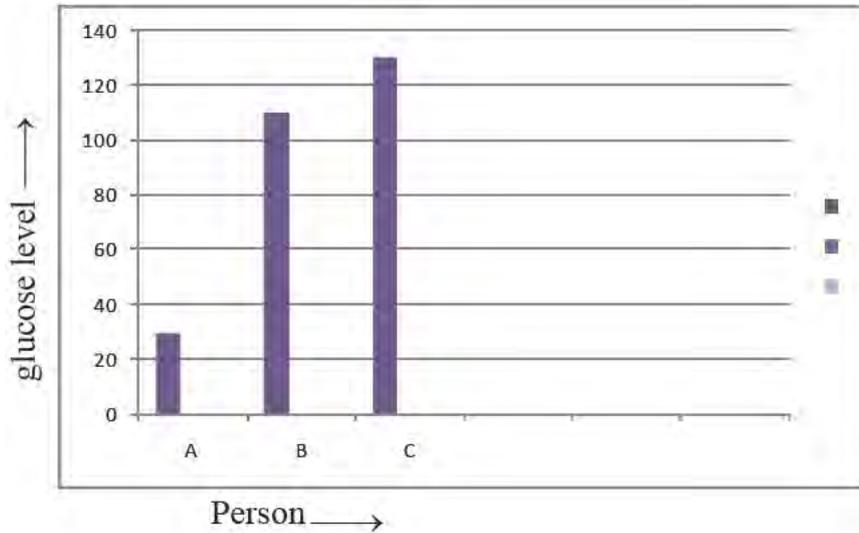


56. a) What is mutation?  
b) What are the causes of mutation?

57.



- a) This logo indicates which project?  
b) What is the relevance of Human genome project?
58. Observe the graph that shows the level of glucose in the blood of various individuals before breakfast.



- a) Who has normal level of glucose in blood?  
b) Which hormones regulate glucose level in blood?

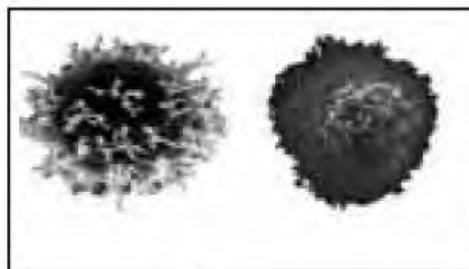
59. Arrange Column B of the table to match Column A.

A	B
1) Ardipithecus ramidus	Had the ability to stand erect
2) Homo habilis	Modern man
3) Homo erectus	Made weapons from stones and bone pieces
4) Homo sapiens	The most primitive member of the human race

60. Observe the illustration and write the name of white blood cells and their functions?



A



B

**Questions (3 score)**

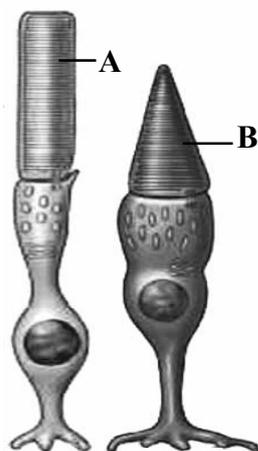
61. Write answers according to the given indicators

- a) The prolonged filament from the neuron cell body
- b) The part which secretes neurotransmitter
- c) The part which carries impulses to synaptic knob

62. Relate the columns A and B suitably

A	B
a) Night blindness	Defect of cone cells
b) Colour blindness	Cornea becomes opaque
c) Xerophthalmia	Loses clear vision in dim light

1. Name the Vitamin related to Xerophthalmia?
  2. Write the colours which a colour blind person cannot identify?
  3. The part of colour pigment, which forms from Vitamin A?
63. Name the hormone which secretes from the alpha cells of Islets of Langerhans  
Write any one function of this hormone?
64. Write down the things about Tuberculosis given below.
- a) Pathogen
  - b) Vaccine
  - c) Any one symptom
65. What is the relation among Anthropeoidea, Cercopithecoidea and hominoidea?  
Give one example each for cercopithecoidea and hominoidea?
66. Make a table to compare both the nucleic acids  
( Indicators - Name of Nucleic acid,  
Type of Sugar, Nitrogen bases)
67. Observe the picture and answer the questions given below.



- a) Sketch A and B.
- b) Where can we see these in the eye?
- c) What are the differences in functions of these?

68. AIDS is caused by HIV.

- a) Which cells are affected by AIDS?
- b) Write two conditions of HIV transmission?

69. Write the missed words in the table.

Disease	Cause	Symptoms
.....(a).....	Reduce production of Dopamine	.....(b).....
.....(c).....	.....(d).....	Frothy discharge from the mouth
Alzheimer's	.....(e).....	.....(f).....

70. Read the statement and answer the questions below.

"Excess blood is lost even through minor wounds"

- a) Name the disease?
- b) What is the cause of the disease?
- c) Write one remedial measure?

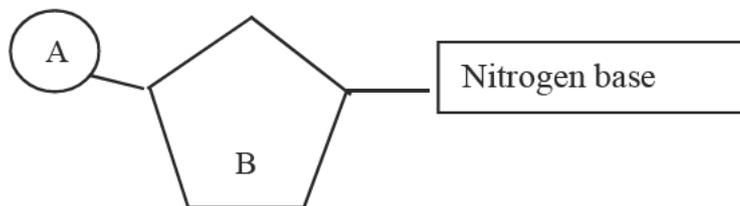
71. It is because of its taste that we like food. Given below are the different stages of experiencing taste. Analyse and arrange them in the correct order.

- a) Experience of taste
- b) Cause impulses
- c) Food particles dissolve in saliva
- d) Reaches in taste buds
- e) Impulses reach the brain
- f) Chemoreceptors get stimulated

72. Chemical substances are secreted by certain animals to surroundings to facilitate communication.
- Name the chemicals
  - Write two functions
  - Write two examples

73. The stages in the process of protein synthesis are given below. Prepare a flow chart using the stages.
- tRNA carries different kinds of amino acids to the ribosome
  - mRNA reaches outside the nucleus
  - mRNA forms from DNA
  - Amino acids are added based on the information in mRNA
  - mRNA reaches in ribosome
  - Proteins are synthesized

74.



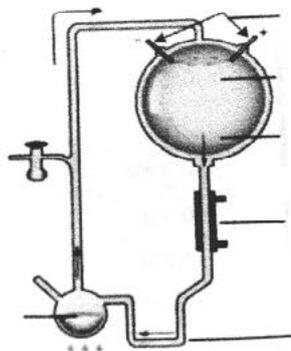
- Identify the figure?
- Write A and B?
- Which nitrogen base found only in RNA?

75. Analyse the table given below. Rearrange B and C according to the indicators in column A.

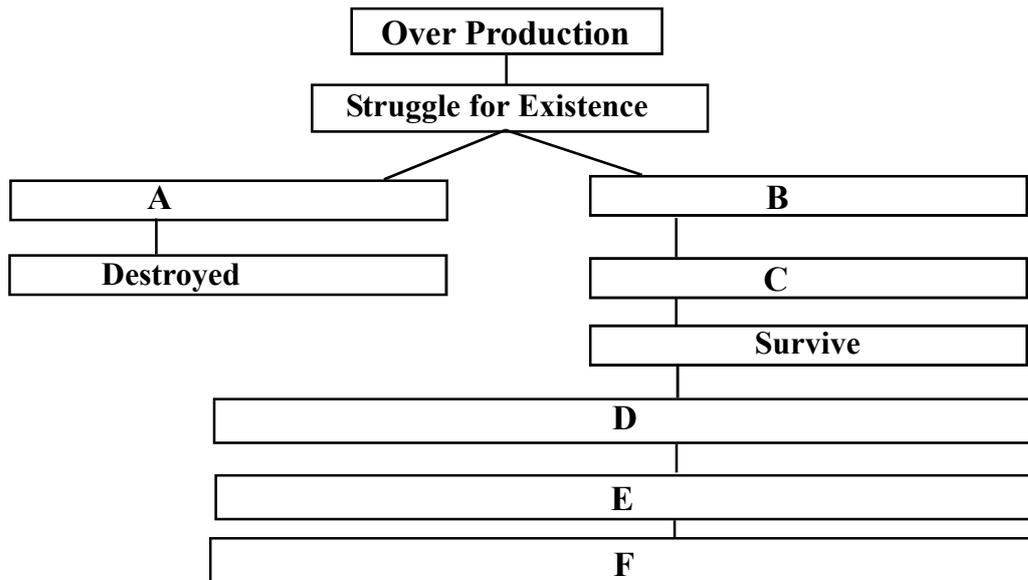
A	B	C
1) Situated above the Kidney	a) Hypothalamus	i) Calcitonin
2) Situated just below the larynx	b) Adrenal gland	ii) Oxytocin
3) Situated in the brain	c) Thyroid	iii) Epinephrine

76. a) What is DNA profiling?  
 b) What is the basis of DNA testing?  
 c) What are the uses of DNA testing?

77.



- a) Write the name of this experiment?  
 b) Which are the gases used in this experiment?  
 c) Which material is get sedimented?
78. Observe the illustration and with the help of given hints fill in A, B, C, D, E and F.



- \* Natural selection
- \* Favourable variations are transferred to the next generations
- \* Origin of new species
- \* Accumulation of variation inherited through generations
- \* Those with favourable variations
- \* Those with unfavourable variations

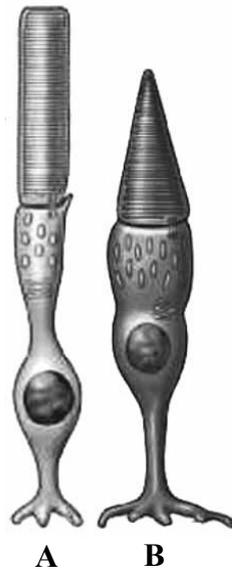
79. Fill in the blanks with suitable words.

	Number of Strands	Type of Sugar	Nitrogen bases
DNA			
RNA			

80. Complete the column B and C in accordance with column A?

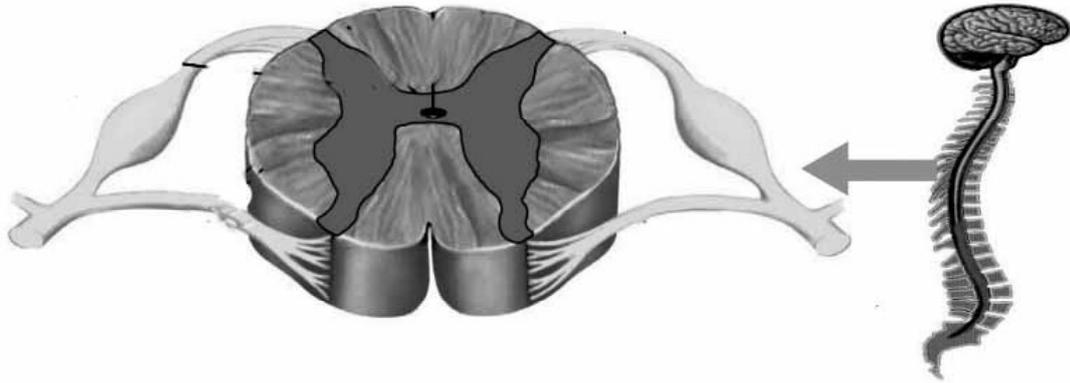
A	B	C
Planaria	Jacobson's organ	Body balance
Housefly	Lateral line	Light
Shark	Eye spot	Olfactory receptors
Snake	Ommatidia	Photoreceptors

81.



- a) In which part of the eye do these cells see?
  - b) Difference between A and B?
  - c) What is the cause of diversity in cone cells?
82. Which chemical help ants moving in a line along a particular trail?
- a) Two other functions of these chemicals?
  - b) Write two examples of these chemicals?
83. Observe the following statements about AIDS and write the correct ones.
- a) AIDS spreads through insects like mosquitoes, houseflies etc.
  - b) From HIV infected mother to foetus
  - c) AIDS spreads through cough, sneezing etc
  - d) Through the reception of blood and organs contaminated with HIV
  - e) By staying together and sharing food
  - f) Through sexual contact with HIV infected person

84. Do not use antibiotics without the recommendation of a Doctor. Why?
85. Observe the picture and answer the following questions



- a) Identify the picture?
- b) Which nerve passes through dorsal route?
- c) Fluid in the central canal?

### **Questions (4 score)**

86. A.I Oparin and JBS Haldane are famous persons who put forth the hypothesis about the origin of life. Name the hypothesis. Write two gases which were prevalent in the ancient earth. Name two simple organic molecules formed in the ancient earth. Which were the source of energy in the ancient earth?
87. Gene functions by producing proteins.  
Write the different phases of protein synthesis according to the instructions from DNA?
88. Now a days we commonly use antibiotics against pathogens.  
Which is the first antibiotic medicine? Who invented it?  
Write two side effects cause by continuous usage of Antibiotics?

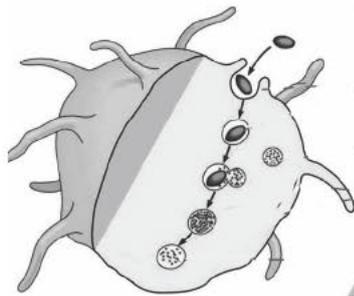
89. Match columns A, B, C by using the words in brackets.

(Planaria, Shark, Jacobson's Organ, Ommatidia, Lateral Line, Eyespot, Smell)

A	B	C
.....	.....	Light
.....	.....	Balancing
Snake	.....	.....
.....	.....	Light

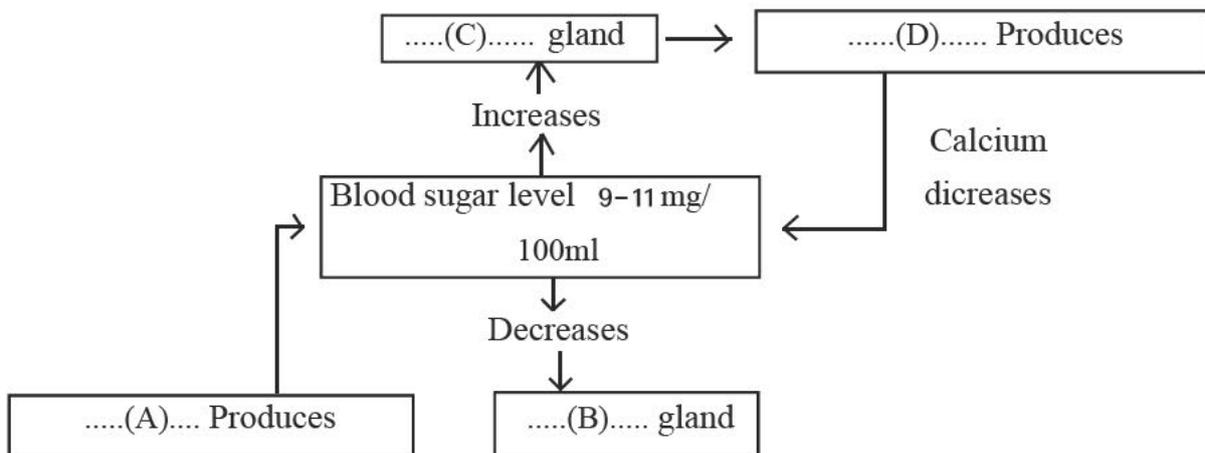
90. The living beings in the modern world are formed due to evolution. It says that all the creatures are formed from a common ancestor. State the evidences given by Biochemistry and Physiology for evolution?

91. Observe the picture and answer the questions given below.



- Which process does picture indicate?
- Which are the two white blood cells included in this process?
- Write the steps of this process?

92. Observe the given illustration and answer the questions.





95. Read the statement and answer the questions.

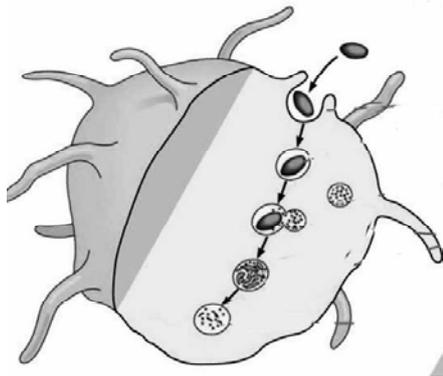
"Blood clotting is a type of defence mechanism"

I. Make a flow chart using the hints given below.

- a) Thromboplastin converts prothrombin into thrombin
- b) Blood flows from the wound
- c) Blood clot forms
- d) Thrombin converts fibrinogen into fibrin fibres.
- e) Tissues and platelets at the side of wound degenerate to form the enzyme called thromboplastin.
- f) Fibrin fibres form a net and RBC and platelets get entangled in the net.

II How does the coagulation become a defence mechanism?

96.



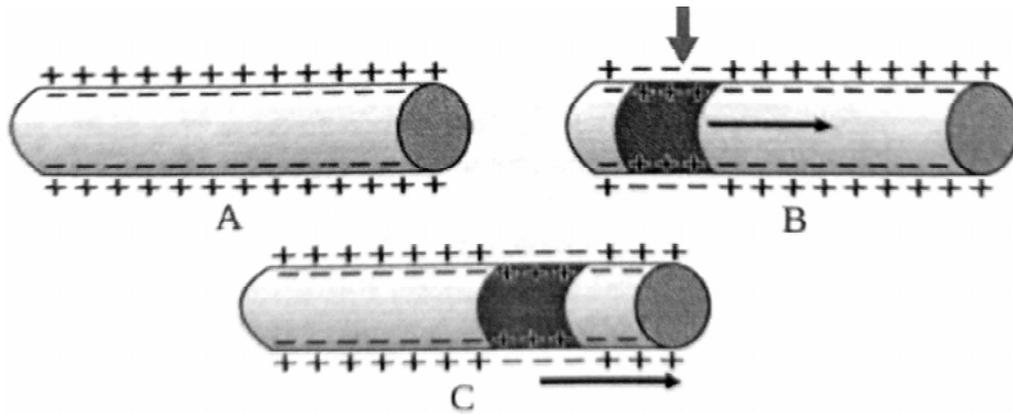
- a) Which is the process indicated in the illustration?
- b) Which are the white blood cells involved in the process?
- c) Is it specific defense mechanism? Justify

97. What are antibiotics? Write side effects of antibiotics?

98. a) Name the AIDS virus?

b) Write the Mode of transmission of AIDS?

99. Analyse the illustration of impulse transmission through axon and answer the following questions?



- a) What are the changes that take place in illustration B when compared to A? Give reason for this change.
- b) Explain how this change brings about the transmission of impulses through axon?

100. Hints about two diseases are given below. Analyse them and answer the questions.

A Internal bleeding, Severe fever,  
Headache, Muscle pain,  
redness in eye

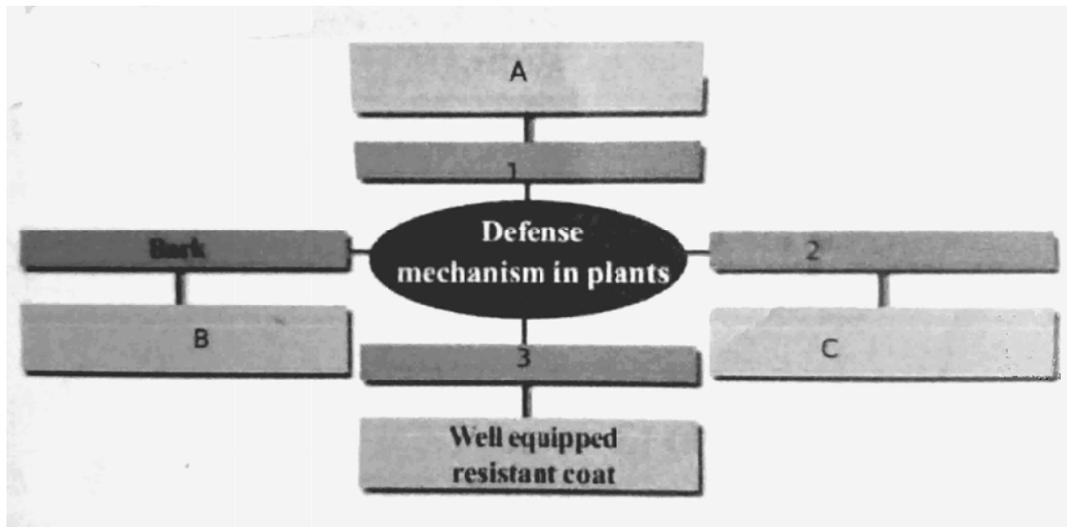
B Genetic disease  
Excess blood is lost even through minor wounds.

- a) Identify the disease A and B?
- b) How temporary relief brings in disease B?
- c) Which bacteria causes disease A?
- d) How does the disease A spread in human beings?

101. i) Genes are working by synthesising .....
- ii) Prepare a flow chart of protein synthesis using the given tips?
    - a) tRNA brings different kinds of amino acids to ribosome
    - b) mRNA reaches out of the nucleus
    - c) mRNA forms from DNA
    - d) Based on the information in mRNA amino acids are added

- e) mRNA reaches in ribosome
- f) Protein molecules are synthesised

102. Complete the illustration given below by including different defence mechanism in plants?

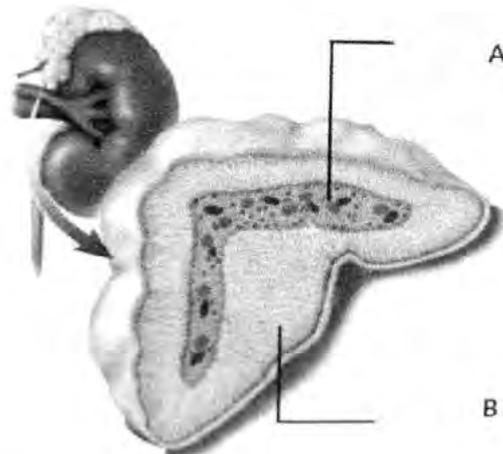


103. Observe the table of blood groups and write the answers?

Blood group	Antigens	Antibodies
A	A	b
B	B	a
AB	A and B	Nil
O	Nil	a and b

- a) Where the antigens are found?
- b) What are the antigens in the blood group AB?
- c) Where the antibody is found?
- d) What are the antibodies in the blood group O?
- e) What is Rh factor?
- f) Which blood group have antigens A, B and D?

104. Observe the illustration and write the answers?

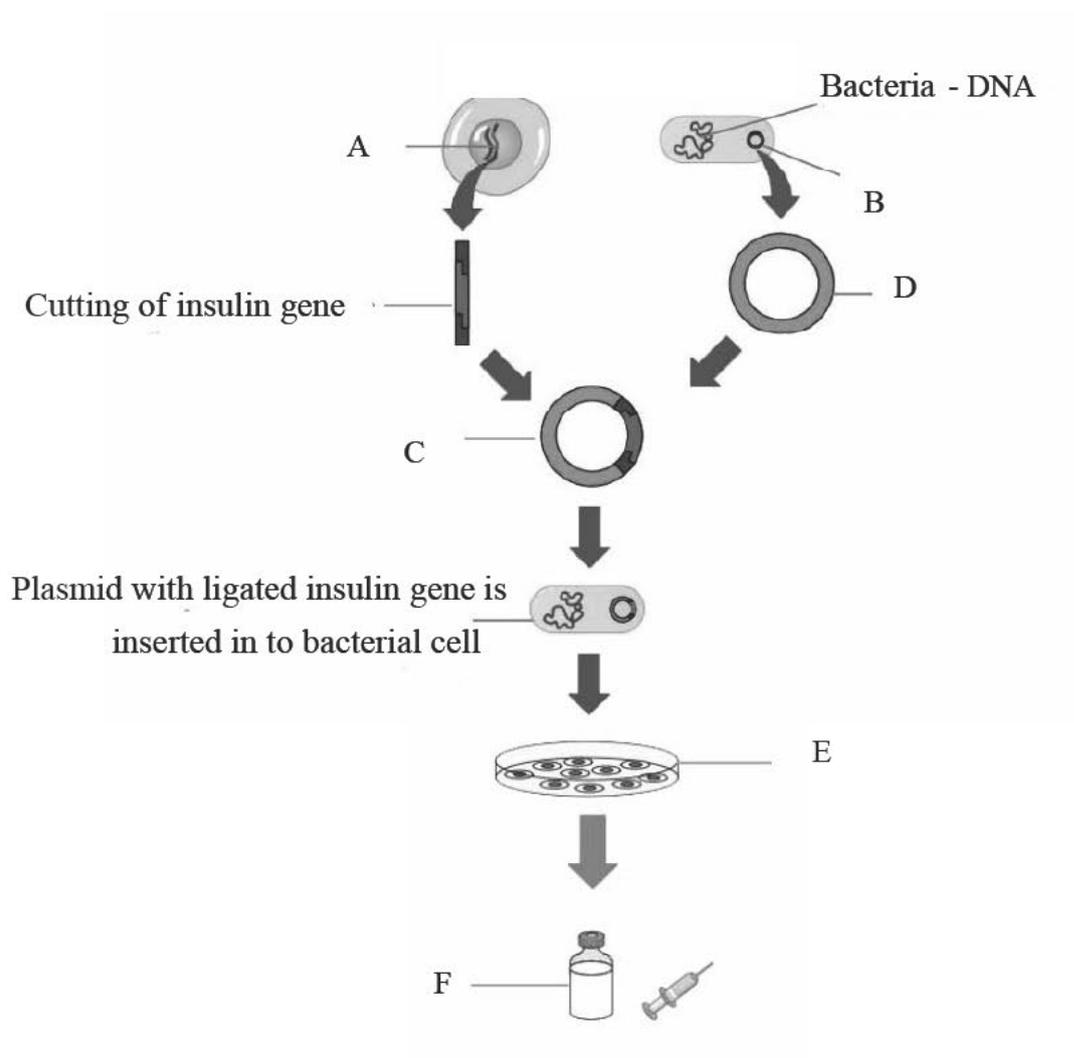


- Name the endocrine gland?
- Identify the parts labelled as A and B?
- Name the hormones synthesised by A?
- Which hormone maintains blood pressure?

105. Complete the table and fill in A, B, C, D and E

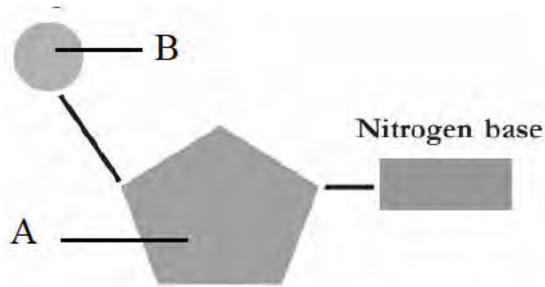
White Blood Cells		Defense Action
	<b>Neutrophil</b>	<b>C</b>
	<b>A</b>	Stimulates other white blood cells. Dilates the blood vessels.
	<b>Eosinophil</b>	Synthesizes chemicals that destroy foreign bodies. Synthesizes chemicals required for the inflammatory responses.
	<b>B</b>	<b>D</b>
	<b>Lymphocyte</b>	<b>E</b>

106. Complete the flow chart.



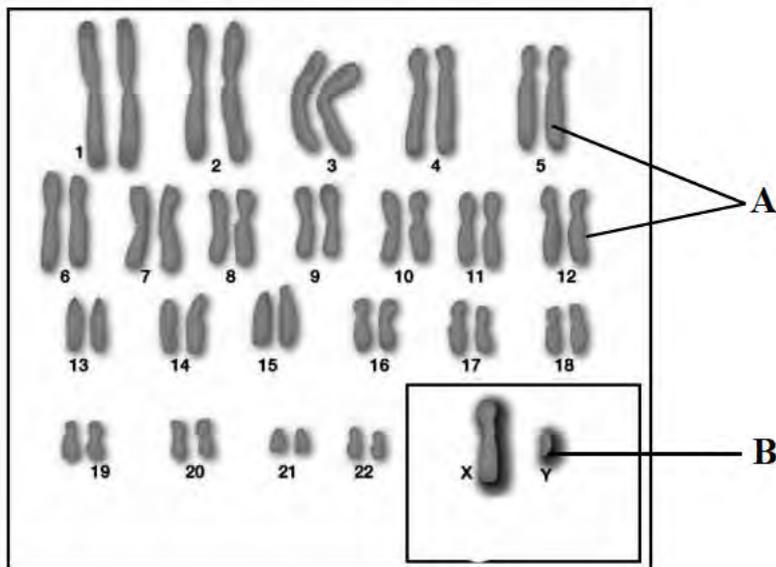
- a) Write A, B, C, D, E and F.
- b) Name the enzymes used to cut and join the genes.
107. a) Who put forward a logical scientific theory on evolution?
- b) Which peculiarity of the finches attracted Darwin?
- c) Explain the reason for variations on the basis of theory of Natural Selection?

108.



- a) Write A and B?
- b) What are the differences between DNA and RNA?

109.



- a) Write A and B?
- b) Which are the sex chromosomes?
- c) Write the genetic make up of  
Male 44 + .....  
Female 44 + .....

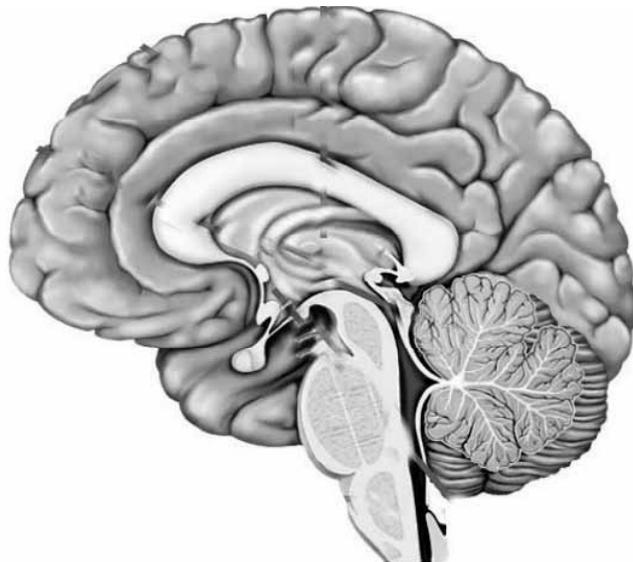
110.



- a) Which disease indicates in the figure?
- b) Disease causing bacteria?
- c) Disease affected organs?
- d) Symptoms of disease?

### Questions (5 score)

111.

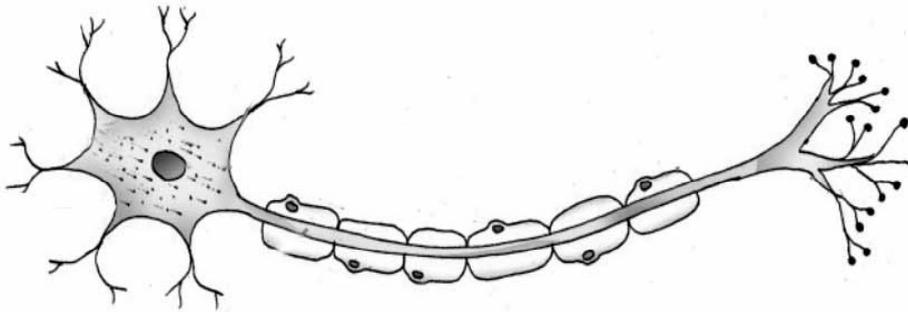


Draw the picture and name the parts according to the given indicators.

- i)
  - a) Evokes sensation
  - b) Controls heart beats.
- ii) State the functions of the below mentioned parts.  
Hypothalamus, Cerebellum.

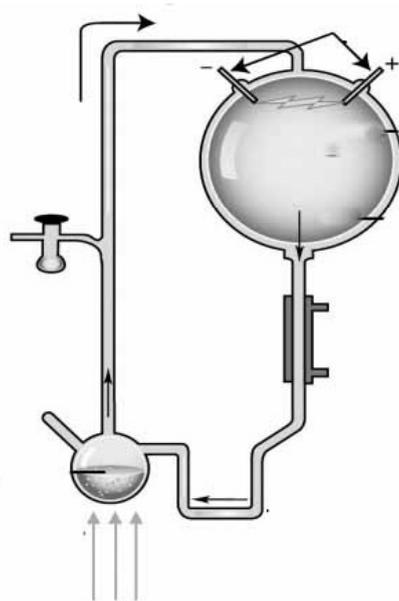
112. Gigantism, Dwarfism, Acromegaly are hormone related disease conditions. Name the hormone. What is the causes of Gigantism? Write the symptom of Dwarfism? Write the causes and symptoms of Acromegaly?

113 Draw the picture and label the parts using the hints given below.



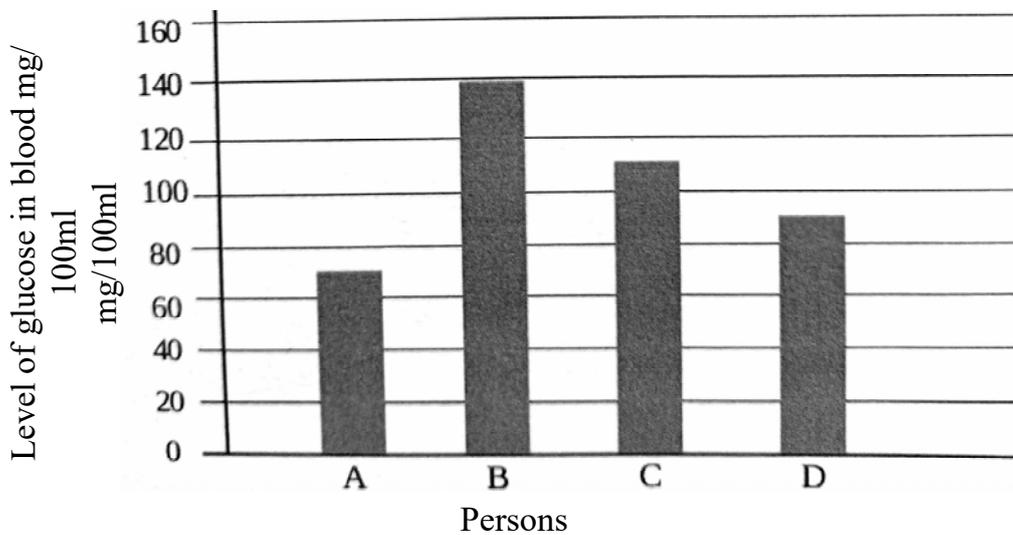
- a) Branches of dendron
- b) Carries the impulse from the cell body to the outside.
- c) Secretes neurotransmitter
- d) Encircles and protects the axon

114. Observe the illustration and answer the questions below.



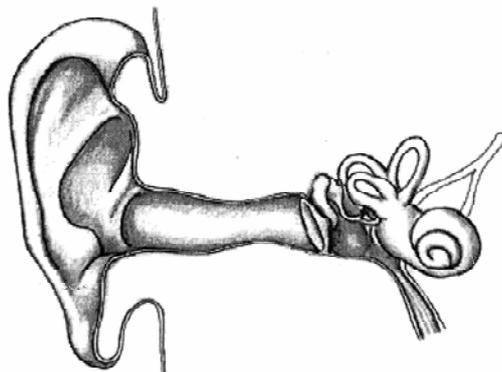
- a) Name the experiment (1)
- b) What are the gases in the flask? (2)
- c) What is the organic molecule formed in this experiment? (1)
- d) Which hypothesis is related to this experiment? (1)

115. Examine the graph indicating the blood glucose level of different Individuals before breakfast.



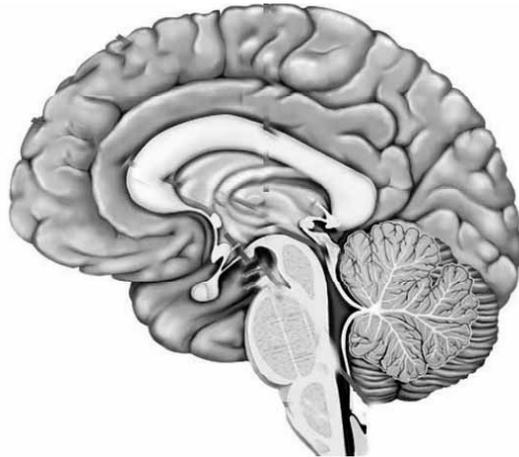
- a) Which individual is affected by diabetes mellitus?
- b) Write two actions of insulin to prevent the rise in the level of glucose in blood.
- c) Why do people having diabetes mellitus experience extreme fatigue?

116. Picture of ear is given below. Draw the picture and mark the parts by analysing the indicators.



- a) Which part receives the vibration from ear drum?
- b) Which canal connects middle ear and pharynx
- c) Where is situated sound receptors?
- d) Through which part sound waves reach to ear drum.

117. Draw the picture and label the parts a, b, c and d?



- a) Cerebrum
- b) Thalamus
- c) Hypothalamus
- d) Medulla oblongata
- e) Write the functions of a, b, c and d

118. Write the answers related to tuberculosis

- a) Disease causing bacteria
- b) Symptoms
- c) Transmission of disease
- d) Treatment
- e) Vaccine

119. Fever is a condition when the body temperature rises above the normal level.

- a) Is fever a disease or symptom of disease?
- b) When the pathogens enter the body, the temperature rises. Why?
- c) Fever is a defense mechanism. Draw a flow chart?

120. Draw the picture and label Sclera, yellow spot, optic nerve, retina.  
Write the functions of Sclera and yellow spot?



# EQUIP - 2024

## SSLC - EXAMINATION SUPPORT MATERIAL

### BIOLOGY - ENGLISH MEDIUM

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#### Answer Key

#### 1 Mark Questions - Answers

1. Oval window. others are parts of eye ( $\frac{1}{2}+\frac{1}{2}=1$ )
2. Virus (1)
3. Oligodendrocyte - Spinal cord (1)
4. Cytokinin : Others are pheromones ( $\frac{1}{2}+\frac{1}{2}=2$ )
5. Interneuron (1)
6. Iodopsin / Photopsin (1)
7. Nipah (1)
8. Fibrin (1)
9. Interferons (1)
10. Sickle cell Anaemia (1)
11. Self Acquired Characters (1)
12. BCG (1)
13. mRNA (1)
14. Civeton, Bombykol ( $\frac{1}{2}+\frac{1}{2} = 1$ )
15. Restriction Endonuclease (1)
16. Myelin sheeth (1)
17. Ardipithecus ramidus (1)
18. Radial muscles contract in dim light (1)
19. Leptospira (1)
20. Sickle cell anaemia, others are life style diseases (1)

21. Restriction endo nuclease (1)
22. Cerebellum (1)
23. Foot and mouth disease (1)
24. Cancer is caused by the uncontrolled divisions of cells. (1)
25. Internal stimulus (1)
26. Pheromones. Others - plant hormones ( $\frac{1}{2}+\frac{1}{2}=1$ )
27. Hugo devries (1)
28. Pancreas (1)
29. Yellow spot (1)
30. Civetone (1)
31. Sick cell anaemia (1)
32. Neutralise the toxins of the antigens (1)
33. 2 (1)
34. Circular muscles contract (1)
35. A - Pain receptor ( $\frac{1}{2}$ )  
B - Pressure receptor ( $\frac{1}{2}$ )
36. Fungus (1)
37. Parathormone (1)
38. Night blindness is the deficiency disease of Vitamin A (1)
39. Dopamine : Neuro transmitter (1)
40. Meninges (1)
41. Callose prevents germs which crosses the cell wall (1)
42. Insulin (1)
43. Increases the heart beats (1)
44. A = Ring worm ( $\frac{1}{2}$ ), B - Athlete's Foot ( $\frac{1}{2}$ ) (1)
45. Nipah (1)

## 2 Mark Questions - Answers

46. a - Auditory canal b-Oval window c - impulse, d- cerebrum  
( $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2} = 2$  score)
47. \* They don't have duct to carry the secretion to the cells. Hormone receptor complex (1+1=2 score)
48. \* Diphtheria, Coryne bacterium diphtheriae (1+1=2 score)
49. Alec Jeffreys  
Each person has different arrangement of nucleotides (1+1=2)
50. Shark - Lateral line  
Snake - Jacobson's organ  
Housefly - Ommatidia  
Planaria - Eyespot ( $\frac{1}{2} \times 4 = 2$ )
51. Glaucoma, Laser surgery (1+1=2)
52. a) Aromatic particles dissolve in the mucus and stimulate olfactory receptors.  
b) They have no cone cells to detect that colours due to genetic disorder.  
(2 score)
53. a) The arrangement of nucleotides in the DNA differs in various individuals.  
b) The arrangement of nucleotides among close relatives have many similarities. (2 score)
54. This statement is not correct  
In These organisms external structure of fore limb is different but internal structure is same. (2 score)
55. a) X ( $\frac{1}{2}$ )  
b) X ( $\frac{1}{2}$ )  
c) XX ( $\frac{1}{2}$ )  
d) XY ( $\frac{1}{2}$ )

56. Sudden change in genetic constitution of organisms (1)  
 Defects in the duplication of DNA  
 Radiations  
 Chemicals  
 (any two  $(\frac{1}{2}+\frac{1}{2})$ )
57. Human genome project  
 Human genome has about 24000 functional genes  
 Major share of human DNA includes junk genes  
 There is only 0.2 percent difference in DNA among humans  
 About 200 genes in human genome are identical to those in bacteria (2)

58. a) B (1)  
 b) Insulin, Glucagon (1)

59.

A	B
1) Ardipithecus ramidus	The most primitive member of the human race
2) Homo habilis	Made weapons from stones and bone pieces
3) Homo erectus	Had the ability to stand erect
4) Homo sapiens	Modern man

$(\frac{1}{2} \times 4 = 2)$

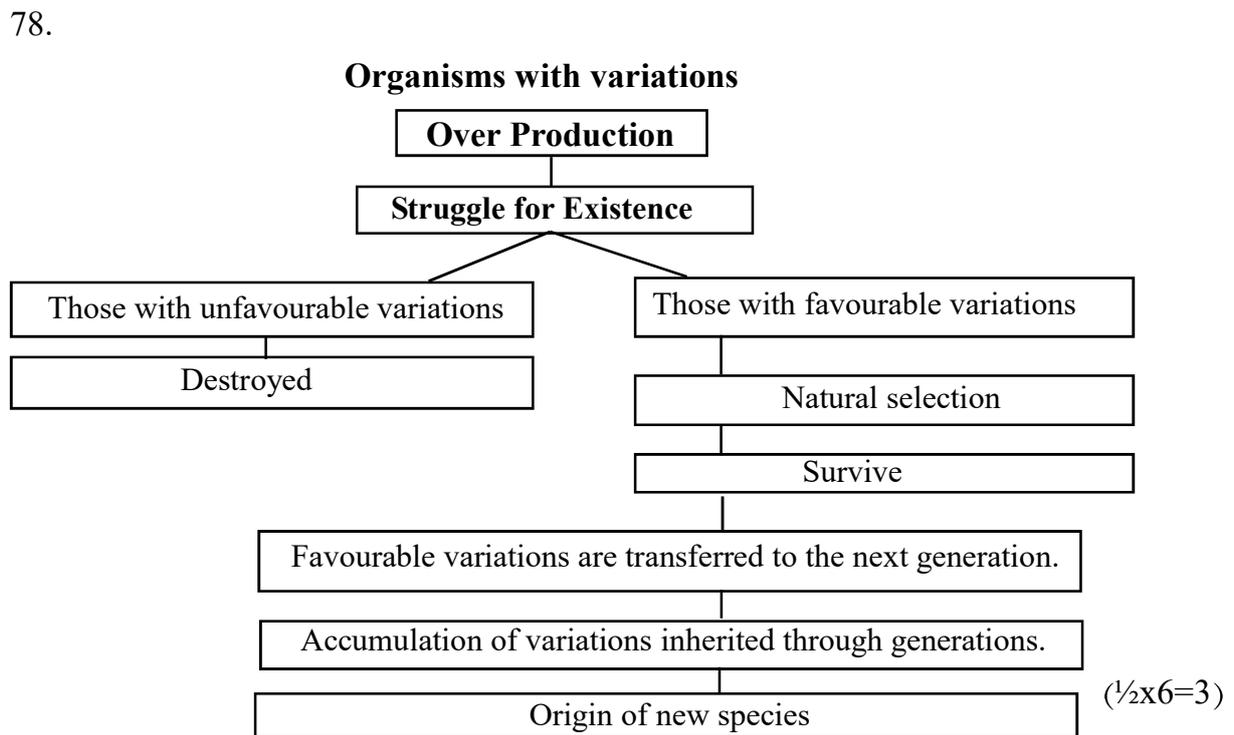
60. A) Monocyte - Engulfs and destroys germs (1)  
 B) Lymphocyte - Identifies and destroys germs specially (1)

### 3 Mark Questions - Answers

- 61 a) Axon  
b) Synaptics knob  
c) axonite (1+1+1 = 3 score)
62. Night blindness - Loses clear vision in dim light  
Colour blindness -Defects of cone cells  
Xerophthalmia - Cornea becomes opaque  
a) Vitamin A  
b) Red, Green  
c) Retinal ( $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2} = 3$  score)
63. \* Glucagon - Transforms glycogen into glucose in the Liver.  
Produces glucose from amino acids  
\* Insulin (1+1+1 = 3 score)
64. a) Myco bacterium tuberculosis  
b) BCG  
c) Loss of weight / fatigue/perisistent cough (1+1+1 = 3 scores)
65. \*Cercopethicoidea - monkey  
Hominoidea - Gibbon / Orangutan/Gorilla/Chimpanzee/man  
(1+1+1 = 3 scores)
66. DNA RNA  
Deoxy ribose Ribose  
Adenine, Thymine A,U,G,C  
Guanine, Cytosine  
( $\frac{1}{2} \times 6 = 3$ )

67. a) A - Rod cell ( $\frac{1}{2}$ )  
       B - Cone cell ( $\frac{1}{2}$ )  
 b) In retina (1)  
 c) Rod - helps to see in dim light ( $\frac{1}{2}$ )  
       Cone - intense light / help to see different colours ( $\frac{1}{2}$ )
68. a) Lymphocyte (1)  
 b) (Cause) (2) mark
69. a) Parkinsons  
 b) any one symptom  
 c) Epilepsy  
 d) (Cause)  
 e) Insoluble protein accumulates, neuron get destroyed.  
 f) Memory loses ( $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2} = 3$ )
70. a) Haemophilia (1)  
 b) (Cause) (1)  
 c) Remedy (1)
71. (c); (d); (f); (b); (e); (a) (3 mark)
72. a) Pheromones  
 b) \* Attracting mates  
       \* Informing availability of food.  
       \* determining the path of travel  
       \* Informing the dangers.
73. c, d, e, a, d, f ( $\frac{1}{2} \times 6 = 3$  score)
74. Nucleotides(1)  
 Phosphate, sugar molecules (1)  
 uracil (1)

75. 1. (b) - (iii)  
 2. (c) - (i)  
 3.(a) - (ii) (3 score)
76. The technology of the testing the arrangements of nucleotides is DNA profiling. (1)  
 Just like the difference the finger print of each person, (1)  
 the arrangement of nucleotides in each person also differs.  
 To identify real parents, to find out hereditary characteristics,  
 to identify the real culprit (1)
77. Urey-Miller experiment (1)  
 Methane, ammonia, water vapour (1)  
 Amino acids (1)



79.

	No.of. Strands	Type of Sugar	Nitrogen bases
DNA	2	De-oxy Ribose	Adenine, Thymine Cytosine, Guanine
RNA	1	Ribose	Adenine, Uracil Cytosine, Guanine

( $\frac{1}{2} \times 6 = 3$ )

80.

A	B	C
Planaria	Eye spot	Light
House fly	Ommatidia	Eye
Shark	Lateral Line	Balancing
Snake	Jacobson's organ	Olfactory receptor

81.

- a) Retina
- b) A is rod cell - helps to see in dim light and B is cone cell - helps to see in bright light and to see different colours.
- c) This diversity is due to the difference in amino acids in the opsin molecules. (3)

82.

- a) Pheromone (1)
- b) Attracting mates, informing the availability of food (any two 1 score)  
determining the path of travel, signalling dangers
- c) Muscone, Civetone, Bombykol (any two, 1 score)

83.

- b, d and f are correct

84.

Though antibiotics are effective medicines, their regular use creates many side effects. Some important side effects are listed below:

- \* Regular use develops immunity in pathogens against antibiotics.
- \* Destroys useful bacteria in the body
- \* Reduces the quantity of some vitamins in the body (3 score)

85. Spinal Cord (1)  
Sensory nerves reach the spinal cord through the dorsal route (1 score)  
Cerebro spinal fluid (1)

### 4 Mark Questions - Answers

86. \* Chemical evolution theory  
\*  $H_2$ ,  $N_2$ ,  $CO_2$ , Water Vapour, Methane, Ammonia,  $H_2S$  (any two)  
\* Amino acids, Monosaccharides, Nitrogenbases, Fatty acids (any two)  
\* Thunder and Lighting , UV Rays, Volcanic eruptions (any one)  
(1+1+1+1 = 4 scores)
87. 4 steps (1+1+1+1 = 4 score)
88. \* Penicilin, Alexander Fleming, side effects (any two)  
(1+1+1+1 = 4 scores)
89. Planaria - Eyespot - light  
Snake - Jacobson's organ - smell  
Housefly - Ommatidia - light  
Shark - Lateral line - Balancing (1/2x8 = 4 scores)
90. 4 points (1+1+1+1 = 4 scores)
- 91 a) Phagocytosis (1)  
b) Neutrophil, Monocyte (1/2+1/2)  
c) Steps (2)
92. a) C - Thyroid B - Parathyroid (1/2+1/2=1)  
b) A - Parathormone D - Calcitonin (1/2+1/2= 1)  
c) Explains (2)

93. a) (Causes (1))  
 b) Spreading (1)  
 c) Treatment (2)
94. a) i) Tall, Red flowered ( $\frac{1}{2}$ )  
 ii) ttrr ( $\frac{1}{2}$ )  
 iii) tr ( $\frac{1}{2}$ )  
 iv) Tall, Red Flowered ( $\frac{1}{2}$ )  
 b) Tall, White - TTrr, Ttrr,  
 Dwarf, Red - ttRR, ttRr ( $\frac{1}{2} \times 4 = 2$ )
95. I b) Blood flows from the wound  
 e) Tissues and platelets at the side of wound degenerate to form the enzyme called thromboplastin.  
 a) Thromboplastin converts prothrombin into thrombin  
 d) Thrombin converts fibrinogen into fibrin fibres.  
 f) Fibrin fibres form a net and RBC and platelets get entangled in the net.  
 c) Blood clot forms ( $\frac{1}{2} \times 6 = 3$ )
- II Explanations (1)
96. a) i) Phagocytes reach near the pathogens.  
 ii) Engulfs pathogen in the membrane sac  
 iii) Lysosome comes near the sac  
 iv) The enzyme in the lysosome  
 destroys the pathogens. (4 score)
97. Definition of Antibiotics (1)  
 Regular use develops immunity in pathogens against antibiotics (1)  
 Destroys useful bacteria in the body. (1)  
 Reduces the quantity of some vitamins in the body. (1)
98. HIV  
 Through sexual contact with HIV infected person

From HIV infected mother to the foetus

By sharing needle and syringe contaminated with HIV components

Through the reception of blood and organs contaminated with HIV. (4 score)

99. a) When stimulated, ionic equilibrium in the particular part changes, and the outer surface of the plasma membrane of axon becomes negatively charged while the inner becomes positive.

b) \* These changes generate impulses

\* The momentary charge difference in the axon stimulates its adjacent parts.

\* Similar changes occur there also

\* Impulses get transmitted through axon (4 score)

100. A - rat fever      B - haemophilia

By injecting the deficient protein.

leptospira

any relevant points      (4 score)

101. i) Protein (1)

ii) c → b → e → a → d → f      ( $\frac{1}{2} \times 6 = 3$ )

102. Bark, Leaf Cuticle, Cell wall,

Callose such four defence mechanism and

their functions ( $\frac{1}{2} \times 8 = 4$ )

103. a) RBC (1)

b) A, B ( $\frac{1}{2} \times \frac{1}{2} = 1$ )

c) Blood plasma (1)

d) a, b ( $\frac{1}{2} + \frac{1}{2} = 1$ )

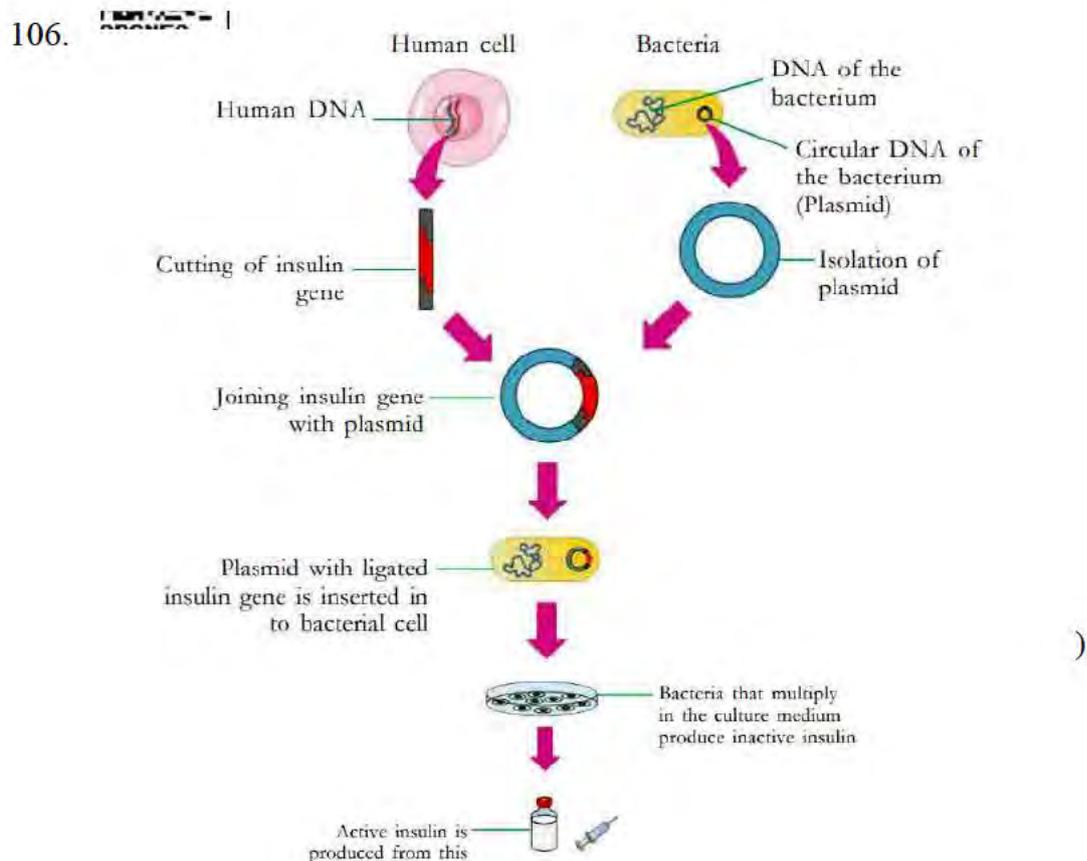
e) Antigen D (1)

f) AB Positive (1)

104. a) Adrenal Gland (1)  
 b) A - Medulla B - Cortex ( $\frac{1}{2}+\frac{1}{2}=1$ )  
 c) Epinephrine, Norepinephrine ( $\frac{1}{2}+\frac{1}{2}=1$ )  
 d) Aldosterone (1)

105.

White Blood Cells		Defense Action
	Neutrophil	Engulfs bacteria, synthesizes chemicals that destroy bacteria
	Basophil	Stimulates other white blood cells, Dilates the blood vessels.
	Eosinophil	Synthesizes chemicals that destroy foreign bodies, Synthesizes chemicals required for the inflammatory responses
	Monocyte	Engulfs and destroys germs
	Lymphocyte	Identifies and destroys germs specifically



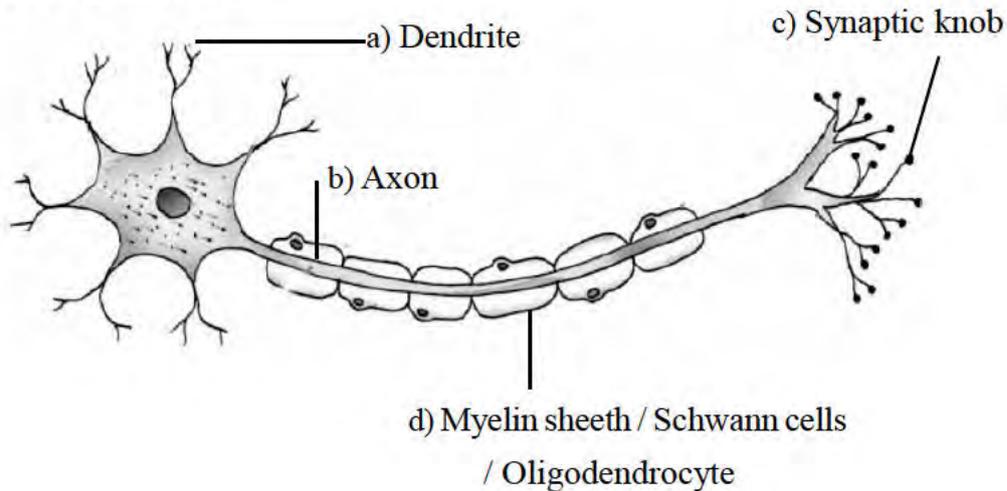
107. a) Charles Robert Darwin (1 mark)  
 b) The beaks of finches (1 mark)  
 c) Variations that are inherited through generations and repeated differently help to form species (1 mark)
108. a) 'A' Sugar molecule, 'B' Phosphate (2 mark)
- |    |               |              |
|----|---------------|--------------|
| b) | DNA           | RNA          |
|    | Two strands   | One strand   |
|    | De-oxy ribose | Ribose       |
|    | Adenine       | Adenine      |
|    | Thymine       | Uracil       |
|    | Guanine       | Guanine      |
|    | Cytosine      | Cytosine (2) |
109. a) A - somatic chromosomes, B - sex chromosomes (1)  
 b) X and Y (1)  
 c) Male 44+XY  
 Female 44+XX (2)
110. a) Diphtheria  
 b) *Corynebacterium diphtheriae*  
 c) Mucus membrane of the nose and throat  
 d) Fever, throat, pain, inflammation in the lymph glands (4 mark)

### **5 Marks Questions - Answers**

111. Diagram (1 score)
- i) a - Cerebrum  
 b - Medulla Oblongata
- ii) 1) Hypothalamus Maintains homeostasis  
 2) Cerebellum  
 maintains equilibrium. (5 score2)

112. Hormone - Somatotropin (1)  
 Gigantism - Increase production of somatotropin during the growth phase (1)  
 Dwarfism - Decreased growth, becomes dwarf (1)  
 Acromegaly - Excess production of somatotropin after growth phase (1)  
 Excess growth bones on the face, jaws and fingers (1)

113. Drawing (1)



(5)

114. a) Urey - Miller experiment (1)  
 b) Methane, Ammonia, Water vapour (any two) (2)  
 c) Amino Acid (1)  
 d) Chemical evolution theory (1)
115. a) (B)  
 b) \* Enhance the entry of glucose into the cell  
 \* Converts glucose to glycogen in liver and muscles.  
 c) \* Sufficient quantity of glucose is not reaching the cell.  
 Energy production decreases. Excess amount of glucose is eliminated through urine. (5 score)
116. Draw the picture  
 Malleus  
 Eustachian tube  
 Cochlea  
 Auditory canal (5 score)

117. Draw the picture (1)  
 Label the parts ( $\frac{1}{2} \times 4 = 2$ )  
 Write the functions ( $\frac{1}{2} \times 4 = 2$ )
118. *Pathogen* : Mycobacterium tuberculosis (1)  
*Major symptoms* : Loss of body weight, fatigue, persistent cough ( $\frac{1}{2} + \frac{1}{2} = 1$ )  
*Transmission of Disease* : When the patient speaks, coughs or sneezes, the pathogens spread into the air and thereby to others. (1)  
*Treatment* : By administering antibiotics. (1)  
*Vaccine* : BCG (1)
119. a) Symptom of disease.  
 b) The Presence of toxins produced by the pathogens stimulates the white blood cells.  
     The Chemical substance produced by the white blood cells raises the body temperature  
 c) \* Pathogens enter the body  
     \* The presence of toxins produced by the pathogens stimulates the white blood cells.  
     \* The chemical substances produced by the white blood cells raises the body temperature  
     \* The rise in body temperature reduces the rate of multiplication of pathogens. Increases the effect of phagocytosis. (4)
120. Draw the picture  
 Label the parts  
 Write functions of sclera and yellow spot (5)

