



# ST. LAWRENCE HIGH SCHOOL



A JESUIT CHRISTIAN MINORITY INSTITUTION

## FIRST TERM EXAMINATION

Sub: LIFE SCIENCE

Class: X

F.M: 75

Duration: 2 hours 30 Minutes

Date: 12.04.2019

### Group-A

Write the answers in complete sentences by choosing the correct answer for each question with respective serial number: 1x13=13

- i) Which hormone is present in green coconut water  
(1) IAA (2)Gibberellin (3)**Cytokinin** (4)NAA
- ii) Growth hormone is secreted from  
(1) **Pituitary** (2)Thyroid (3)Adrenal (4)Pancreas
- iii) How many cranial nerves are present in human body  
(1) 31 pairs (2)13 pairs (3)**12 pairs** (4)10 pairs
- iv) In human eye, the blind spot contains  
(1) Rods (2)Cones (3)Both Rods and cones (4)**Neither rods or cones**
- v) Diabetes Insipidus is caused due to a lack of  
(1) **ADH** (2)Glucagon (3)Insulin (4)GTH
- vi) Which of the following is a mixed gland  
(1) Thyroid (2)**Pancreas** (3)Liver (4)Pituitary
- vii) Which is a natural plant hormone  
(1) **IAA** (2)IPA (3)NAA (4)2,4-DIBA
- viii) Which part of the brain is responsible for coordinating balance of the body  
(1) Cerebrum (2)**Cerebellum** (3)Medulla (4)Pons
- ix) Klinostat demonstrates  
(1) **geotropism** (2)hydrotropism (3)thigmotropism (4) phototropism
- x) Which cell of islets of Langerhans of pancreas secrete insulin  
(1) Alpha cell (2)**Beta cell** (3)Delta cell (4)F cell
- xi) The movement of the plant induced by chemical substances is called  
(1) Nyctinasty (2)**Chemonasty** (3)Thermonasty (4)Seismonasty
- xii) The nature of lens in human beings is  
(1) Plano-concave (2)Plano-convex (3)Biconcave (4)**Biconvex**
- xiii) The tentacles of sundew exhibit the following movement  
(1) **Chemonasty** (2)Thermonasty (3)seismonasty (4)photonasty

### Group-B

2.1 Fill in the blanks with proper words in the following sentences (any five):- 1x4=4

- i) **Cerebrospinal fluid** is a clear colourless fluid present in brain and spinal cord.
- ii) **Frontal Lobe** in the brain helps in decision making.
- iii) In the Central Nervous System, the collection of neurones is called **Nuclei**
- iv) **Type II Diabetes** is also called 'Life style diabetes'.

2.2 State whether the following statements are True or False (any five) :

1x4=4

- i) Dopamine is a neurotransmitter. **True**
- ii) In brain grey matter is surrounded by white matter. **False**
- iii) Second Cranial nerve is olfactory nerve. **False**
- iv) Thinning of lens helps in vision of nearby objects. **False**

2.3 Match the words in column A with those which are most appropriate in Column B and re-write the correct pair mentioning the serial numbers of both the columns:

1x4=4

- i) Presbyopia-            d) Bifocal lens
- ii) Cones-                c) colour appreciation
- iii) Corpus callosum - a) nerve band
- iv) Neuroglia-           b) Oligodendrocytes

2.4 Answer in a single word or in a single sentence:

1x5=5

- i) Which layer of eye contains blood vessels? **Choroid**
- ii) What are ciliary bodies? **Choroid forms a circular zone called ciliary body which contains two types of muscles that contract and relax to adjust the diameter of aperture of Iris**
- iii) Which part of the brain is responsible for temperature control of the body?  
**Midbrain/Hypothalamus**
- iv) Give one example of conditioned reflex. **Salivation**
- v) Which lens is used for correcting near-sightedness? **Concave lens**

Group- C

3. Answer the questions given below:

2x10=20

Group C

**3. Answer the questions in 2-3 sentences. The marks for each question are 2.**

3.1 State the structure & function of choroid of human eye.

Ans: Structure: Located between the sclera and the retina, it is richly supplied with blood vessels. A vascular layer of eye.

Function: Choroid is responsible for blood supply and provides nourishment to the outer layers of retina.

3.2 What problem will arise if the cerebellum does not function properly ?

Ans: The function of cerebellum is to co-ordinate voluntary movements such as posture, balance, co-ordination and speech resulting in smooth and balanced muscular activity. So if the cerebellum does not function properly, any of the above mentioned functions will get affected.

3.3 Differentiate between cranial & spinal nerves.

Ans:

CRANIAL NERVES	SPINAL NERVES
i. Those nerves which branch out from the brain & reach to the various organs such as ears, eye, face, heart etc. ii. There are 12 pairs of cranial nerves.	i. Those nerves which branch out from the spinal cord & supplies to the different parts of the body. ii. There are 31 pairs of spinal nerves.

3.4 What are the different parts of forebrain?

Ans: The forebrain consists of the cerebrum, thalamus, & hypothalamus.

3.5 State two important functions of cytokinin.

Ans: i. They counteract apical dominance, prevent apical growth induced by auxin, so also called anti-auxin & induce lateral branching.

ii. It delays senescence by preventing cell death & changes associated with it, this phenomenon are called Richmond Lang Effect.

**3.6 How does Insulin & Glucagon balance the blood glucose level?**

Ans: When the blood glucose level rises above the threshold, then the beta cells of pancreas produce Insulin, which triggers the absorption of glucose from the blood into the cells. Insulin & Glucagon work together to maintain a steady level of glucose or sugar in the blood & to keep the body supplied with the fuel to produce & maintain stores of energy.

**3.7 Give two salient points of difference between Plant hormone & Animal Hormone.**

Plant hormone	Animal hormone
i. Simple organic substances. ii. Transported through xylem, phloem or by diffusion, mostly by parenchyma cells. iii. No specific organs involved in the synthesis generally from the apical parts of stem, leaf etc.	i. Complex organic substances. ii. Transported by blood. iii. Synthesized in endocrine glands.

**3.8 Explain the cause of Goitre.**

Ans: Iodine deficiency, leading to hypothyroidism is the major cause of Goitre. The thyroid gland needs iodine in order to manufacture thyroid hormones which regulate the body's rate of metabolism. Hypothyroidism is the result of an underactive thyroid gland causing goitre.

**3.9 Explain in brief how major organ systems of our body co-ordinate during running & exercise.**

Ans: The systems which coordinate with each other during running & exercise are nervous system, skeletal system, muscular system etc. During running a signal is sent from our brain to our muscles through the nervous system, thus our muscles start to contract. The process uses a lot of energy using the respiratory system to bring oxygen to the body by interacting with food and thus generates energy. The carbon Dioxide produced is removed by the respiratory system & the gases are transported throughout the body by circulatory system.

**3.10 What are Interneurons? Name any two types of Neuroglia cells.**

Ans: The type of neuron which relays signals between (afferent) sensory neurons, and (efferent) motor neurons is called Interneurons.

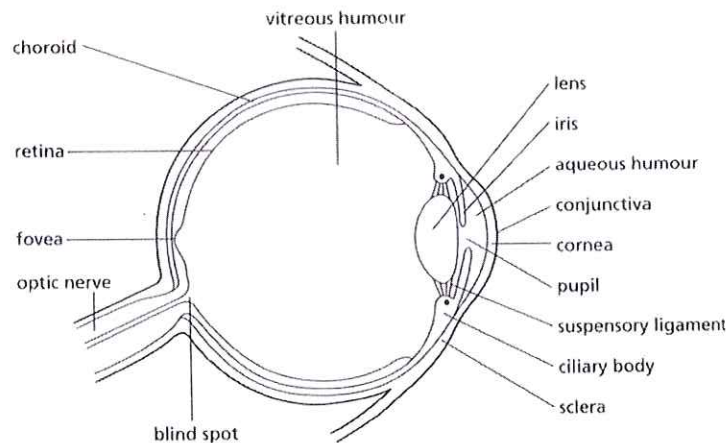
The two types of Neuroglia cells are Astrocytes & Microglia.

**Group- D**

(Long answer type question)

4. Write any 5 questions given below. The mark allotted for each question is 5 (the division of marks is either 3+2, 2+3 or 5): 5x5=25

- 4.1 Draw the vertical section of the eyeball of the human eye and label these parts:
- a) Retina      b) Pupil      c) Cornea      d) Choroid      5



**4.2 Differentiate between Nervous system & Endocrine system. What is the other name of Forebrain. (4+1)**

**Ans:**

Nervous System	Endocrine System
Electrochemical pulses and neurotransmitters are the means of signal transmission	Chemicals called hormones are the means of signal transmission
Signal transmission is fast but the functions are not prolonged	Signal transmission is slow, but the functions are long lasting
Use the neurons to transmit the signals	Use the circulatory system to transmit the signal.
The neurotransmitters act locally and not carried far away through blood.	The hormones are carried by blood and they usually act on various tissues remote from their place of origin.

The other name of forebrain is prosencephalon.

**4.3 Explain the structure & function of Myelin sheath & Schwann cell of a typical neuron.**

**Ans: Structure:** i. The axons of many neurons are wrapped in a myelin sheath, which is composed of the membranes of the interstitial cells.

ii. It is made up of electrically insulating material.

iii. Schwann cells supply the myelin for the peripheral nervous system, whereas oligodendrocytes myelinate the axons of the central nervous system. Myelin is a complex material formed of protein & phospholipid.

**Function:** i. The main purpose of myelin sheath is to increase the speed at which impulses propagate along the myelinated fibre.

ii. It also prevents the loss of electrical charges.

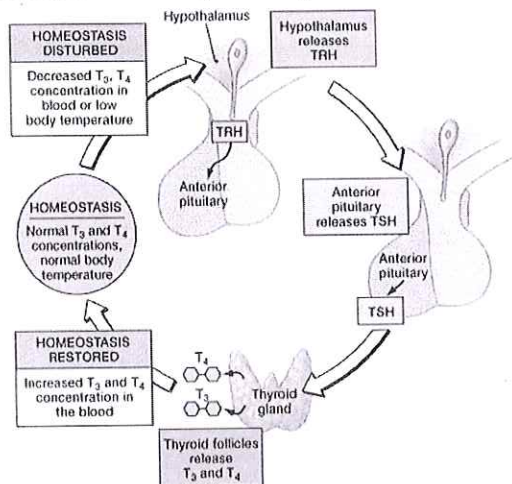
iii. Protection of the nerve fibre.

**4.4 Give five points of comparison between Tropic & Nastic Movements in plants. (5)**

Points of differences	Tropic Movements	Nastic Movements
Direction	Depends on the direction of stimulus	Independent of the direction of stimulus but is initiated by the intensity of the stimulus
Change of place	Only the plant part or organ moves depending on the	The plant part moves in response to the intensity of the

	external stimulus	external stimulus.
Effect of auxin	Auxin has a definite role in this type of movement	Auxin has got no direct influence on this type of movement
Role of turgidity	Turgidity has no direct role in this type of movement	This movement may be initiated by the loss or gain of turgidity
Types	9 (Photo, geo, chemo, etc.)	6(Photo, thermo, nycti, etc.)

#### 4.5 Explain the Negative & positive feedback mechanism of hormone action in animals.(5)



Lower concentration of thyroxine hormone in blood alters the cellular activities i.e. Decrease in basic metabolic rates or temperature. Decreases in BMR stimulate neurosecretory cells of hypothalamus to secrete thyrotropin-releasing hormone (TRH). The releasing of TRH causes anterior pituitary gland to secrete thyroid-stimulating hormone (TSH). This TSH then stimulates the thyroid gland to release thyroxine. Thyroxine causes an increase in the metabolic activity, generating ATP energy and heat and eventually restore homeostasis. Both the raised body temperature and higher thyroxine levels in the body feedback to inhibit the releasing of TRH and TSH.

#### 4.6 What is a Synapse? What does it consist of? Name a Neurotransmitter.

**Ans:** In the nervous system, a synapse is a structure that permits a neuron to pass an electrical or chemical signal to another neuron. Information from one neuron flows to another neuron across a synapse.

The synapse contains:

- A post-synaptic ending- that contains receptor sites for neurotransmitters
- A pre-synaptic ending- that contains neurotransmitters, mitochondria and other cell organelles.
- A synaptic cleft: Between the pre- synaptic knob and post – synaptic knob.

Some neurotransmitters are : Acetylcholine, Dopamine, Serotonin, etc.

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