



## LIFE SCIENCES FET 3B FOR TEACHERS

### CLASS TEST 2: SENSE ORGANS (TONGUE, SKIN, EYE)

DATE: 18 August 2020

MODULE CODE: LSFT03B

SET BY: Mr J Ramnarain

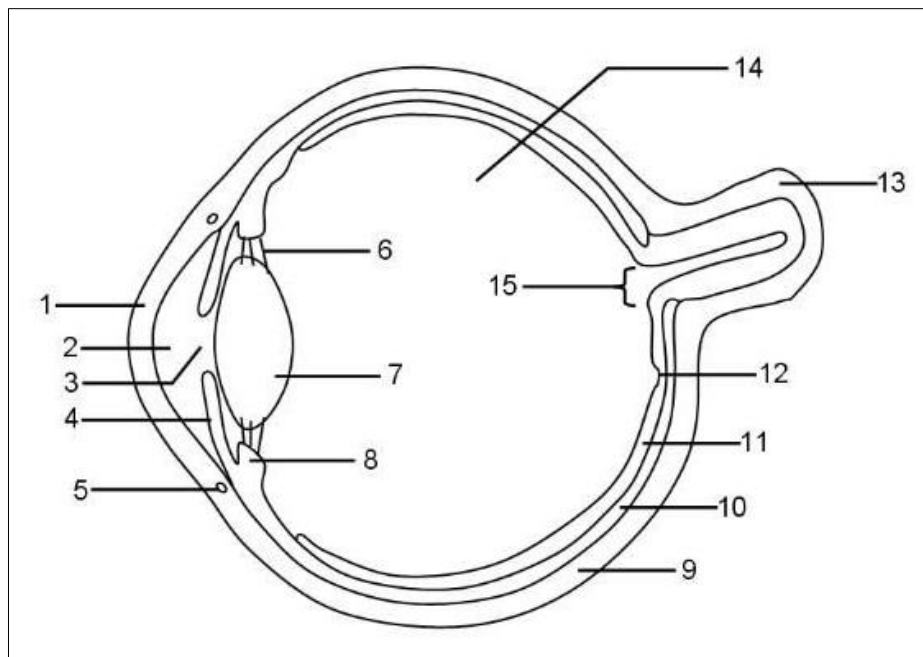
MODERATED BY: Ms J Williamson

#### QUESTION 1

(10)

Various options are provided as possible answers to the following questions. Select and write down the letter of the option that best answers / completes the question.

Question 1.1 to 1.6 relate to the sectional view of a diagram through the human eye, shown below.



1.1 Which of the following is a gel-medium substance?

- A. 1
- B. 4
- C. 7
- D. 6
- E. 14

1.2 Which structure plays the most significant role in refraction of light?

- A. 1
- B. 2
- C. 5
- D. 6
- E. 7

1.3 What is the name of region 12 if it contains only cones?

- A. Blind spot
- B. Optic nerve
- C. Fovea centralis
- D. Macula
- E. Both C and D

1.4 How is structure 1 adapted to perform its function?

- A. It is biconvex
- B. It is tough and rigid
- C. It is elastic
- D. It is transparent
- E. All the above

1.5 How do structure 6 and 7 function when a person is looking at a distant object?

	Structure 6	Structure 7
A	Relaxed	Becomes flattened
B	Relaxed	Becomes rounded
C	Pull right	Becomes flattened
D	Pull tight	Becomes rounded

1.6 Structure 8 is the:

- A. Ciliary body
- B. Aqueous humour
- C. Conjunctiva
- D. Vitreous humour

1.7 The fibrous protein that is responsible for the strength and water resistance of the skin surface is:

- A. Keratohyalin
- B. Eleidin
- C. Collagen
- D. Elastin
- E. Keratin

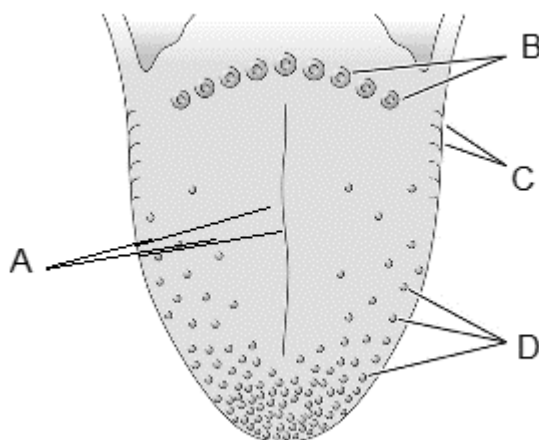
1.8 The layer of the skin that provides protection against bacteria as well as chemical and mechanical injuries is the:

- A. Epidermis
- B. Fay layer
- C. Subcutaneous layer
- D. Sebum layer
- E. Dermis

1.9 Glaucoma in the human eye is caused by a high build-up of:

- A. Pressure
- B. Glucose
- C. Fat
- D. None of the above

1.10 Which of the following represent fungiform papillae?



## QUESTION 2

(10)

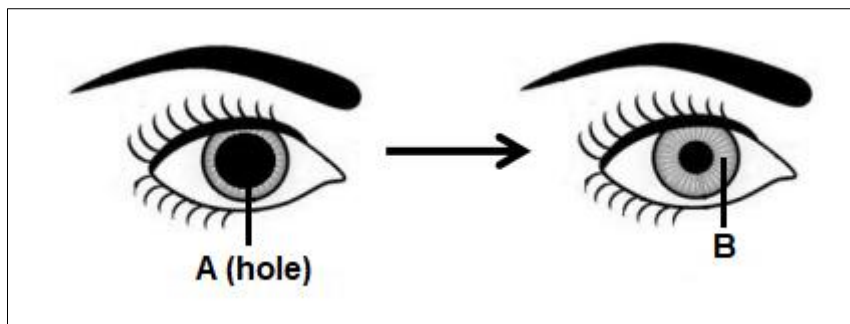
Using your own words, write down the biological definitions for the following terms:

- 2.1 Stereoscopic vision
- 2.2 Pacinian corpuscle
- 2.3 Sebaceous gland
- 2.4 Near-sightedness
- 2.5 Blind spot
- 2.6 Astigmatism
- 2.7 Posterior cavity (of the eye)
- 2.8 Gustation
- 2.9 Thermoreceptors
- 2.10 Refraction

## QUESTION 3

(12)

The diagram below shows how the human eye responds to a stimulus.



**A diagrammatic representation of the pupillary mechanism**

- 3.1 Name the stimulus referred to above. (1)
- 3.2 Name A and B, respectively. (2)
- 3.3 Explain how and why the change in A occurs. (5)
- 3.4 List four (4) physiological protections of the human eye. (4)

**QUESTION 4****(19)**

- 4.1 Complete the table below by writing only the applicable question number and corresponding answer alongside.

**A table showing sensory receptors in the human body**

<b>Specific name of sensory receptor</b>	<b>Type of sensory receptor</b>	<b>Stimuli detected</b>	<b>Location in the body</b>
4.1.1	4.1.2	Slow vibrations	4.1.3
4.1.4	4.1.5	Tastants	4.1.6
Free nerve endings	4.1.7	4.1.8	4.1.9
4.1.10	4.1.11	Pressure and heat	All over body

**(11)**

- 4.2 Draw and label a diagram of 4.1.4 in the above table. **(6)**
- 4.3 Fully name the regions of the brain that integrates the stimulus received by the sensory receptor in 4.1.1 in the above table. **(2)**

**QUESTION 5****(24)**

Read the information below and answer the question that follow.

**HOW BLUE LIGHT FROM YOUR PHONE IS AGEING YOUR SKIN AND DISRUPTING YOUR SLEEP**

According to scientists, the blue light that emits from our phone, laptop and other devices can have a negative impact on sleep, **skin**, and mood. Blue light can penetrate deep into our skin, triggering free radicals and inflammation to generate hyperpigmentation and age spots. Some studies also suggest that blue light damages a molecule in the eye called the retinal, setting off a chemical reaction that may be toxic to the **retina's photoreceptors**.

[<https://www.vogue.in/beauty/content/>]

- 5.1 The retina is a layer of the human eye. Name the other two (2) layers of the human eye. **(2)**
- 5.2.1 Name the two types of **retina photoreceptors**. **(2)**

- 5.2.2 Name the respective pigments found in each photoreceptor. (4)
- 5.3 Show the pathway of light through the human eye using a flow chart. (7)
- 5.4 Explain the function of the following skin structures:
- 5.4.1 Sweat glands (on a hot day) (4)
- 5.4.2 Erector muscles (on a cold day) (3)
- 5.5 Does the information above impact your view on the use of digital devices in online learning? Motivate your answer. (2)

**TOTAL: 75**