

THE CATHEDRAL AND JOHN CONNOR SCHOOL

Preliminary Examination

Class X

BIOLOGY

Marks: 80

Date: 11.1.2008

Theexampapers.com

Time: 1 ½ Hrs

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the paper.

The time given at the head of the paper is the time allowed for writing the answers.

This paper has 8 printed sides

Section I (40 marks)

Question 1

(a) Name the following :

- (i) The plastid found in the cells of red coloured flowers
- (ii) The process by which a living cell loses water when placed in a hypertonic solution
- (iii) The expressed character which is genetically controlled
- (iv) Organelle responsible for synthesis and secretion of enzymes
- (v) The point of intersection between chromatids of homologous chromosomes

[5]

(b) Choose the odd one out from each of the following sets , giving reasons for your choice

- (i) Mitochondria, lysosome, vacuole, centrosome
- (ii) Synapsis, receptor, response, stimulus
- (iii) TSH, ADH, GH, ACTH
- (iv) Hypermetropia, short sightedness, night blindness, cataract
- (v) Testes, Cowper's gland, follicles, vas deferens,

[5]

(c) Given below is an incomplete table relating to certain structures found in plants and animals, their location and function. Study the same and give the appropriate answer in terms of structure location and function for the blanks numbered 1-5.

Structure	Location	Function
Yellow Spot	(1)	(2)
(3)	Glands capping the kidney	(4)
Leydig cells	(5)	Production of testosterone

[5]

(d) Given below are sets of five terms. In each case rewrite the terms in the correct order so as to be in a logical sequence. One has been done for you

E.g.: water molecules, oxygen, grana, $H+OH^-$ ions, photons

Ans: photons, grana, water molecules, $H+OH^-$ ions, oxygen

- (i) implantation , ovulation , child birth , gestation, fertilization
- (ii) Cochlea , tympanum, pinna, auditory canal , ear ossicles
- (iii) Vas deferens,, penis, testis, sperms, semen
- (iv) Intercellular space, palisade parenchyma, xylem vessel, spongy mesophyll, substomatal chamber
- (v) Telophase, prophase, interphase , anaphase, metaphase

[5]

(e) Differentiate between the following pairs on the basis of instructions given in the brackets.

- (i) Centromere and centrosome (function)
- (ii) Turgidity and flaccidity (definition)
- (iii) Cretinism and myxoedema (condition)
- (iv) Hypertonic and hypotonic (type of osmosis)
- (v) Grana and stroma (Reaction)

[5]

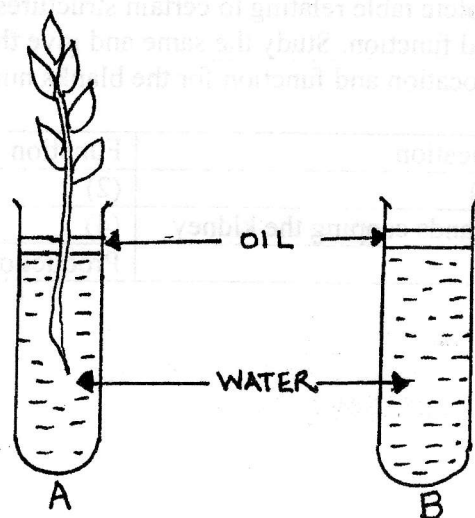
(f) Given below in the box are a set of 14 biological terms. Of these 12 can be paired into 6 pairs. One has been done as an example. Write out the 5 suitable pairs numbering them as 1 to 5

Demography, killed germs, diaphragms, binocular vision, sickle cell anaemia , green plants , three dimensional , mutation, producers, contraception , TAB vaccine , Toxoid, Statistical study of population , carbon dioxide,

E.g.: Demography: statistical study of human population

[5]

(g) Study the diagram below and answer the questions that follow:



- (i) Explain the physiological process being studied.
- (ii) What will be observed in the test tubes A & B after a few days?
- (iii) Give the reasons for your answer in (ii) above
- (iv) Why is the surface of water covered with oil?
- (v) What is the purpose of set up B.?

(h) Match the terms in column A with those which are suitable in column B. You must rewrite the matching pairs.

Column A	Column B
(1) Supplying blood	(a) Municipality
(2) Disinfectant	(b) Shock absorber
(3) Placenta	(c) Contraception
(4) MTP	(d) Iodine
(5) WHO	(e) Nutrition
	(f) Formalin
	(g) Research
	(h) Red cross

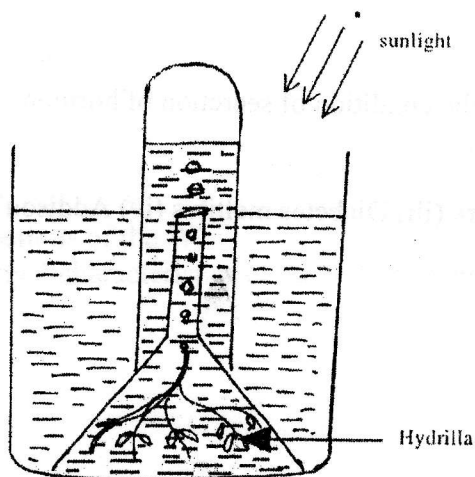
[5]

Section II

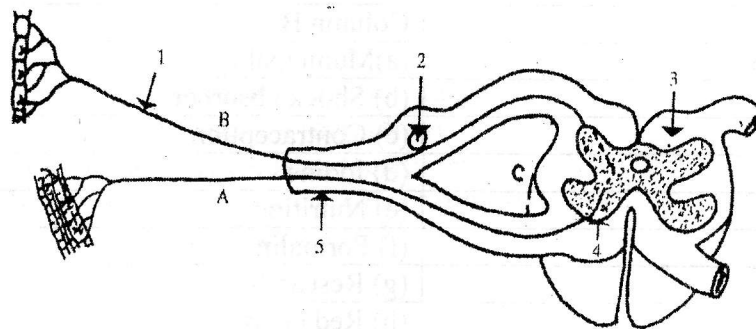
Attempt Any Four Questions

Question 2

- (a) An apparatus as shown below was set up to study a physiological process which occurs in green plants



- (i) Name the process
 - (ii) Name the gas evolved in the process.
 - (iii) What is the source of this gas? Explain.
 - (iv) What will happen if some sodium bicarbonate is added to the water in the beaker?
Explain your observations with reasons.
 - (v) Define the process mentioned in (i) above [5]
- (b) The diagram given below is the diagrammatic representation of a certain phenomenon pertaining to the nervous system. Study the diagram and answer the questions that follow:



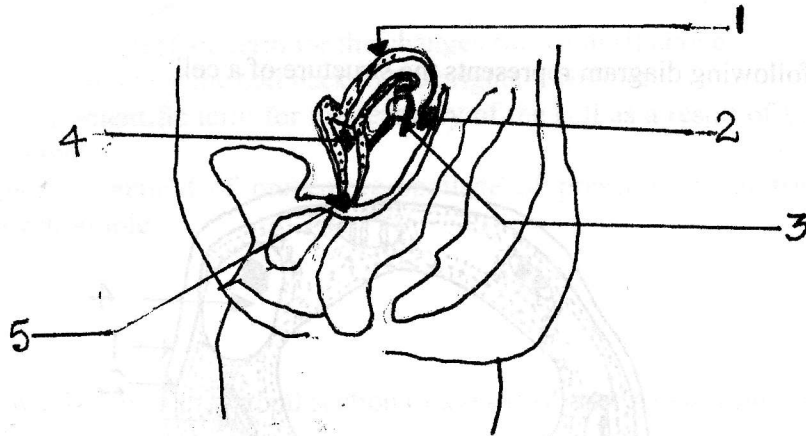
- (i) Label parts 1-5 .
- (ii) Name the phenomenon
- (iii) Name the parts not labeled in the diagram which should be included to complete the pathway of the phenomenon
- (iv) What is the term given to the point of contact between two nerve cells?
- (v) What is a conditioned reflex? [5]

Question 3

- (a) Name the glands and the condition of secretion of hormone which is responsible for the following diseases:
- (i) Gigantism (ii) Goitre (iii) Diabetes mellitus (iv) Addison's disease (v) Acromegaly

[5]

(b) The following represents the sectional view of the female reproductive system



- (i) Label the parts indicated by the guidelines 1-5.
- (ii) Name the site of fertilization
- (iii) Name the ball of cells which attaches itself to the uterus. What is the process of attachment called? How

[5]

Question 4

(a) A colour blind man marries a carrier lady

- (i) By means of a punnet square show the genotype of the progeny
- (ii) What % of progeny will be carriers?
- (iii) What % of progeny will be colour blind?
- (iv) What % of the girl progeny will be colour blind ?
- (v) What is sex linked inheritance? Give 2 examples of sex linked inheritance in males.
- (vi) What is a dihybrid

[6]

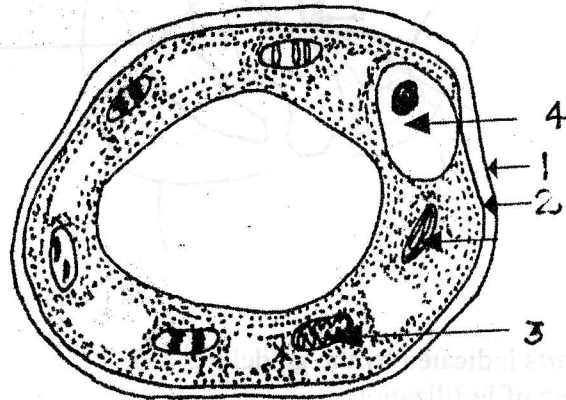
(b)

- (i) State 4 functions of the WHO.
- (ii) Mention any 4 characteristics of passive immunity.

[4]

Question 5

(a) The following diagram represents the structure of a cell



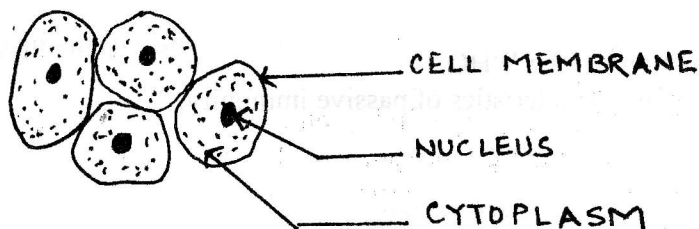
- (i) Name the parts labeled 1-4
- (ii) Identify the type of cell giving one reason as observed in the diagram.

(b) Distinguish between the following:

- (i) Mortality and natality
- (ii) Vasectomy and Tubectomy

[5]

(c) A strip of cheek cells was examined under the microscope. The figure below shows this. This was then placed in a strong solution of sugar on a slide and re-examined after 5 minutes.

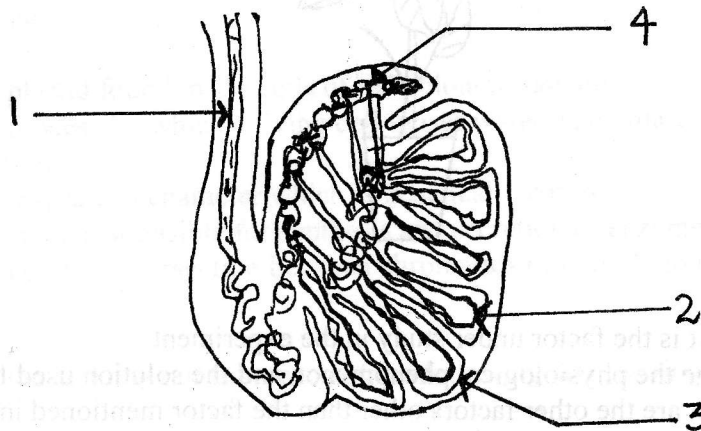


- (i) Make a labeled diagram to show how a cell would appear after immersion in the sugar solution.
- (ii) What is the scientific term for the changes shown in (i) above
- (iii) What would bring the cell back to the original condition?
- (iv) Give the scientific term for the recovery of the cell as a result of step taken in (iii) above
- (v) Suggest 1 method of preventing spoilage of preserved meat based on the above principle.

[5]

Question 6

(a) Diagram shown below is the lateral section of a testis of man Answer the questions that follow.



- (i) Label the parts 1-4
- (ii) State the functions of part labeled 2 and 4
- (iii) Draw a labeled diagram of a sperm

[5]

(b) Define the following terms:

- (i) Vaccine
- (ii) Osmotic pressure
- (iii) Antiseptic
- (iv) Growth rate
- (v) Karyotype

[5]

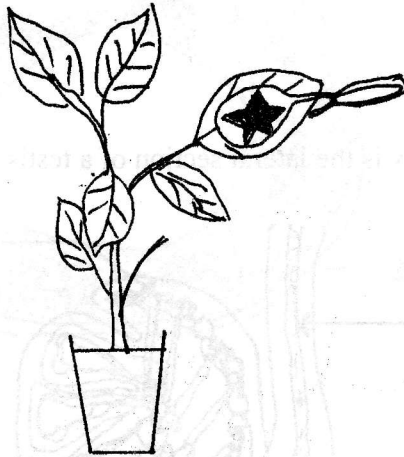
Question 7

(a) Give biological reasons for the following:

- (i) Transpiration is a vital process for plants
- (ii) Testes are located in the scrotal sacs
- (iii) Pituitary is called the master gland

- (iv) The amount of hormone released is determined by the need of the body.
- (v) We gargle with saline water in case of a throat infection. [5]

(b) The diagram below is the set up of an experiment intend to demonstrate the importance of a factor necessary, for a physiological phenomenon, in green plants. A part of leaf B turns blue when tested for starch after the destarched potted plant was exposed to light for 12 hours.



- (i) What is the factor under study in the experiment
- (ii) Name the physiological phenomenon and the solution used for the test
- (iii) What are the other factors other than the factor mentioned in (i) necessary
- (iv) Give the chemical equation for the physiological phenomenon
- (v) What is the carbon cycle?

[5]