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Index No:

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Supervising Examiner's/Invigilator's initial:

Paper 3 (Biology)

Writing Time: $1\frac{1}{2}$ Hours

NEW CURRICULUM

Total Marks : 80

READ THE FOLLOWING DIRECTIONS CAREFULLY:

1. Do **not** write for the first **fifteen minutes**. This time is to be spent reading the questions. After having read the questions, you will be given **one and a half hours** to answer all questions.
2. Write your **index number** in the space provided on the **top right hand corner of this cover page only**.
3. In this paper, there are **two** sections: A and B. Section **A** is compulsory. You are expected to attempt **any four** questions from Section **B**.
4. The intended marks for questions or parts of questions, are given in brackets [].
5. Read the directions to each question carefully and write **all** your answers in the space provided in the **question booklet** itself.
6. Remember to write **quickly** but **neatly**.
7. **Do not** remove or tear off any pages from the question booklet.
8. **Do not** draw lines or pictures **on** or **in** the question booklet to beautify it.
9. **Do not** leave the examination hall before you have made sure that you have answered all the questions.

For Chief Marker's and Markers' Use Only

Question Number															Total	Chief Marker's Signature ↓
Award																
Markers' initial →																

SECTION A (40 Marks)

Compulsory: To be attempted by all candidates.

Question 1

(a) *Directions: Each question in this part is followed by four possible choices of answers. Choose the correct answer and write it in the space provided.*

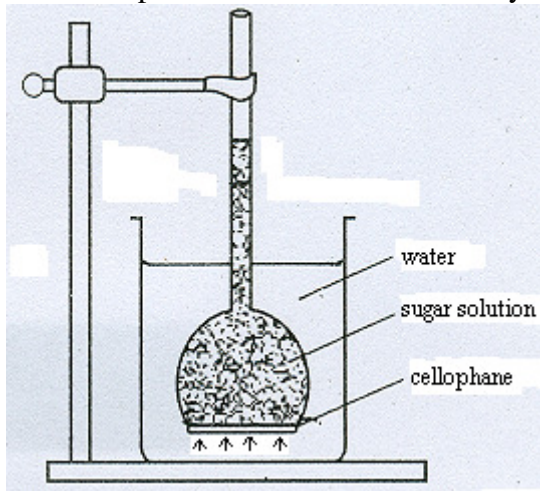
[15]

(i) The suicide bags of the cell are

- A ribosomes.
- B lysosomes.
- C golgi apparatus.
- D endoplasmic reticulum.

Answer:.....

(ii) Name the phenomenon demonstrated by the diagram given below.



- A endosmosis
- B exosmosis
- C diffusion
- D osmosis

Answer:.....

(iii) Transpiration occurs at a faster rate when the day is

- A hot, humid and windy.
- B hot, humid and still.
- C hot, dry and windy.
- D all of the above.

Answer:.....

(iv) Reduction division occurs in

- A plants only.
- B animals only.
- C vegetative cells.
- D reproductive cells.

Answer:.....

(v) The outermost tough fibrous membrane of the meninges is known as

- A durameter.
- B arachnoid.
- C meninges.
- D piameter.

Answer:.....

(vi) Which one of the following is **NOT TRUE** about osmosis?

- A Energy is not required.
- B A semi-permeable membrane is required.
- C It involves the movement of molecules of solute only.
- D It involves the movement of molecules of solvent only.

Answer:.....

(vii) Oogenesis is the process in which

- A a mature ovum is formed.
- B the follicle secretes oestrogen.
- C the follicle changes to corpus luteum.
- D the follicle ruptures to release the egg.

Answer:.....

- (viii) The part of the brain concerned with balance is the
- A medulla oblongata.
 - B cerebellum.
 - C cerebrum.
 - D cochlea.

Answer:.....

- (ix) Birth rate is defined as the
- A net rise in the number of people as difference between birth rate and death rate.
 - B number of live births per thousand people per year.
 - C number of deaths per thousand people per year.
 - D number of individuals per square kilometre.

Answer:.....

- (x) The 23 pairs of chromosomes in human beings comprise of
- A 22 pairs of autosomes and 1 pair of sex chromosomes.
 - B 22 pairs of sex chromosomes and 1 pair of autosomes.
 - C 21 pairs of sex chromosomes and 2 pairs of autosomes.
 - D 21 pairs of autosomes and 2 pairs of sex chromosomes.

- (xi) The vaccine recommended for a person suffering from tuberculosis is
- A DT.
 - B DPT.
 - C BCG.
 - D None of the above.

Answer:.....

- (xii) Which one of the following is **NOT** a function of the WHO?
- A To extend all possible first-aid in any accidents.
 - B To supply information on the latest developments on the use of vaccines.
 - C To collect and supply information about the occurrence of epidemic diseases.
 - D To lay pharmaceutical standards for important drugs to ensure purity and size of dosage.

Answer:.....

- (xiii) The loss of water from the tip of the leaves in the form of droplets is defined as
- A root pressure.
 - B evaporation.
 - C guttation.
 - D bleeding.

Answer:.....

- (xiv) One of the effects of increased secretion of adrenalin is
- A dry mouth.
 - B flushed face.
 - C shortness of breath.
 - D slowing of heart beat.

Answer:.....

- (xv) If you are to campaign for the control of swine flu, which of the following organizations would you consult with?
- A WHO
 - B WWF
 - C UNICEF
 - D Red Cross

Answer:.....

(b) Fill-in-the blanks. [6]

- (i) An animal cell kept in a solution will burst after sometime.
- (ii) During the process of photosynthesis is reduced and is oxidised.
- (iii) If the shrinks when a cell is placed in a hypertonic solution, then the process is called plasmolysis.
- (iv) If a cell undergoes mitotic division, the number of daughter cells produced is
- (v) When does not take place, the life span of corpus luteum is about 28 days.

(c) Write TRUE or FALSE for the following statements. If false, rewrite the false statements in the correct form by changing only the words printed in BOLD letters.

(i) The dark reaction of photosynthesis is also known as **Hill Reaction**.

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(ii) If the **rods** in the eyes are damaged, then the colour vision is impaired.

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(iii) Motor nerves conduct impulses from the brain to the **effectors**.

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(iv) The hormone **oxytocin** stimulates vigorous contraction of the uterus during child birth.

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(v) The production of food rises by **arithmetic** progression.

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(vi) Iodine is an **antibiotic**.

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(d) *Match each item under Column A with the most appropriate item in Column B. You must rewrite the correct matching pairs in the space provided.*

Column A	Column B
(i) Active transport	(a) catabolism
(ii) Cooling effect	(b) α - cells
(iii) Photosynthesis	(c) energy
(iv) Meiosis	(d) concave lens
(v) Myopia	(e) anabolism
(vi) Glucagon	(f) transpiration
	(g) convex lens
	(h) reproduction
	(i) β -cells

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(e) *Choose the correct words from the brackets and name the following.* [5]

- (i) The anti-venine injection against snake bite.....
(actively acquired immunity, naturally acquired passive immunity, artificially acquired passive immunity)
- (ii) The only contraceptive which can prevent AIDS.
(pills, diaphragms, condoms)
- (iii) The nervous system which causes the dilation of blood vessels and slowing of heart beat.
..... (sympathetic, parasympathetic, cranial)
- (iv) A bilobed structure that pours its alkaline secretion into the semen.
(prostrate gland, cowper's gland, urethral gland)
- (v) The onset of mensuration in a young female at about the age of 13
(puberty, menarche, menopause)

(f) Write two differences between a plant and an animal cell in the table given below.

Plant cell	Animal cell

SECTION B (40 Marks)

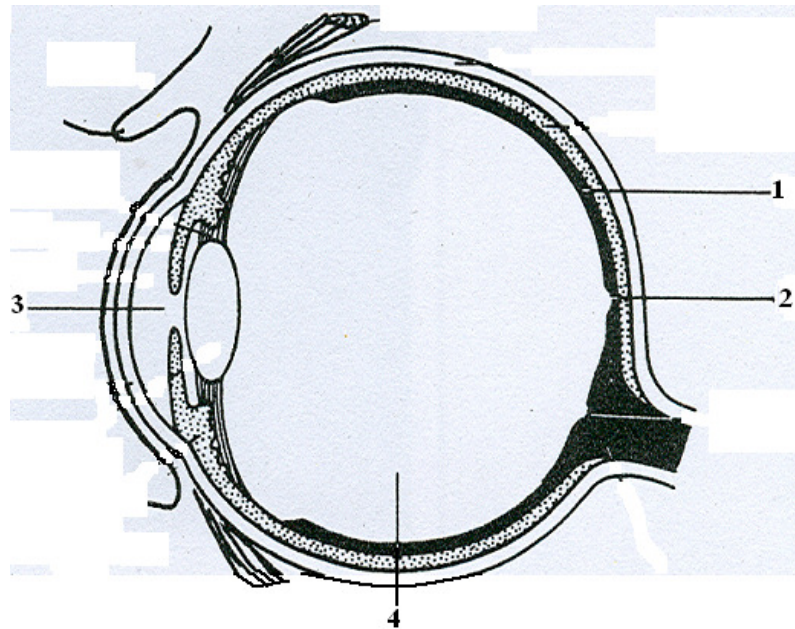
Attempt any four questions

Question 2

(a) Write two differences between turgidity and deplasmolysis in the table given below. [2]

Turgidity	Deplasmolysis

(b) Observe the diagram given below carefully and label the parts numbered 1 to 4

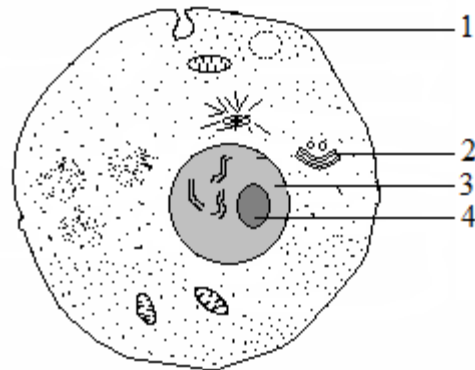


- 1.....
- 2.....
- 3.....
- 4.....

(c) List down *four* consequences of high population density. [2]

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(d) Study the diagram of an animal cell given below and answer the questions that follow



(i) Name the parts labelled 1 to 4. [2]

- 1.....
- 2.....
- 3.....
- 4.....

(ii) State **one** function for the part labelled 3. [1]

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(iii) Name the structure shown in the diagram which shows that it is an animal cell. [½]

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(iii) Which organelle in the diagram holds the key to the life of a cell? [½]

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Question 3

(a) (i) Name the agency responsible to look after maternal and child welfare centres. [1]

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(ii) What is conditioned reflex? [1]

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(iii) Write **one** characteristic of the root which enables it to absorb water.

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(b) 'Transpiration is a price paid for photosynthesis'. Explain. [2]

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(c) Design an Immunization Schedule for a new born baby till she is 15 months old. [4]

(d) 'When it is too hot, the testes hang down away from the body'. Explain the statement.

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Question 4

(a) Justify the following statements.

(i) 'It is necessary to keep a plant in the dark before starting any experiment on photosynthesis'. [1]

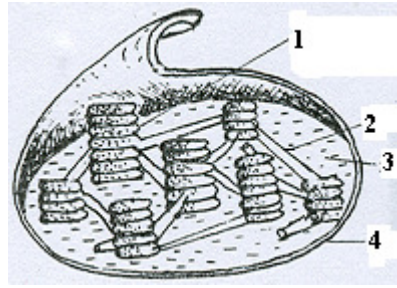
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(ii) 'Most of the leaves appear green in colour'. [1]

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(b) Draw a reflex arc and label the *three* different types of neurones. [2]

(c) Study the diagram given below and label the parts numbered 1 to 4.



- 1.....
- 2.....
- 3.....
- 4.....

(d) Write *two* differences each for the following pairs in the tables given below.

(i) Mitosis and meiosis

[2]

Mitosis	Meiosis

(ii) Diabetes insipidus and Diabetes mellitus

Diabetes insipidus	Diabetes mellitus

Question 5

(a) (i) Define imbibition. [1]

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(ii) How does the temperature affect the rate of photosynthesis? [1]

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(iii) Give *one* difference between antibiotic and antibody in the table given below. [1]

Antibiotic	Antibody

- (b) Draw the structure of an open stomata and label the following parts.
- (i) stoma
 - (ii) guard cells

- (c) Study and complete the table given below. [3]

Name	Function
Fallopian tube	1.-----
2.-----	To educate people in prevention of accidents.
3.-----	Provides food and oxygen to the developing foetus

- 1.....
- 2.....
- 3.....

- (d) What would happen to a person suffering from a severe spinal injury? Why? [2]

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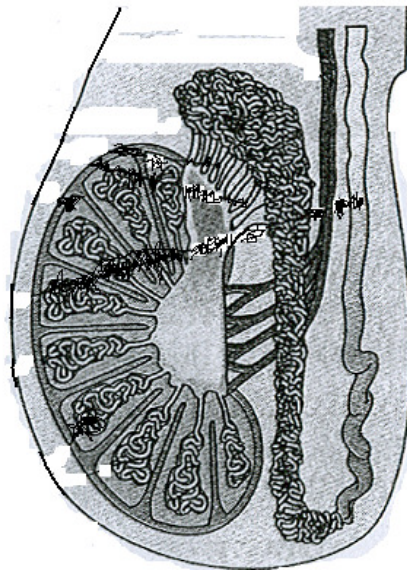
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Question 6

(a) The diagram given below shows the longitudinal section of a testis. On the diagram, label the parts which represent the following: [2]

- (i) scrotum
- (ii) seminiferous tubule
- (iii) vas deferens
- (iv) epididymis



(b) Complete the table given below. [2]

Glands	Hormone produced	Effect of over secretion	Effect of under secretion
1.....	Thyroxine	2.....	Simple goitre
Anterior pituitary	3.....	Gigantism in childhood	4.....

- 1.....
- 2.....
- 3.....
- 4.....

(c) Describe how the following factors are responsible for population explosion in India

(i) Illiteracy

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(ii) Religious and social customs

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(d) Describe briefly an experiment to show the unequal rate of transpiration from the two surfaces of a leaf. (Diagram is not necessary.)

[2]

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- (e) If all the off-springs in a cross is dominant heterozygous, what could be the phenotypic ratio of the parents? Support your answer with a pedigree chart.

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Question 7

- (a) Name the stage in which the chromosomes arrange themselves on the equator of the spindle. [1]

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- (b) Define Immunisation. [1]

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- (c) Complete the following sentences. [4]

- (i) is a defect of the eye where a person has difficulty seeing in dim light.
- (ii) is a product of the union of the male and female gametes.
- (iii) Hormones are secreted directly into the
- (iv) The three bones in the middle ear are collectively known as

(d) In a family, both parents have dimpled cheeks. One parent is homozygous (DD) dominant and the other heterozygous (Dd) dominant. All their children will have dimpled cheeks. Draw a pedigree chart to support the above statements.

[2]

(e) 'It is not advisable to sleep under a tree at night'. Why?

[2]

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