



**Shri Vile Parle Kelavani Mandal's
C.N.M. School & N.D. Parekh Pre-Primary School**

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SECOND PRELIMINARY EXAM 2007 -2008

MAX.MARKS - 80

STD : X

**PAPER 3 (BIOLOGY)
(ONE HOUR AND A HALF)**

Answer to this paper must be written on the paper provided separately.

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

This time is to be spent in reading the question paper.

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

Section I contains one question with eight parts (a) to (h); all eight parts are to be answered.

Section II contains six questions numbered 2 to 7. You are to answer any four of these questions.

The intended marks for questions or for parts of these questions are given in [].

SECTION - I (40 MARKS)

(COMPULSORY: ANSWER ALL PARTS FROM THIS SECTION)

QUESTION 1.

a) Choose the correct option for the following:

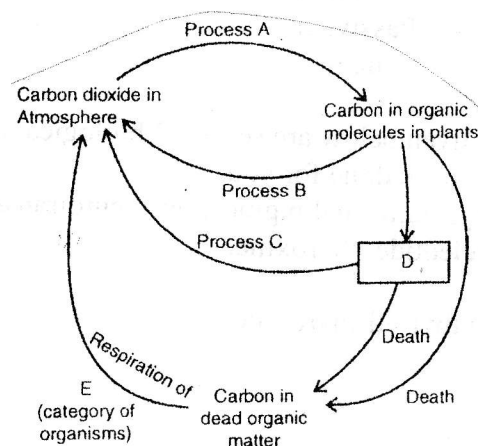
[5]

1. The kind of carbohydrate particularly found in the plant cell wall is _____
(maltose/cellulose/glucose)
2. The number of chromosome in a certain type of cell division is halved ,occurs in _____
(both ovary and testis/all body cells)
3. The bending movements of certain flowers towards the sun is the example of _____
(turgor pressure/turgor movement/plasmolysis)
4. Stomatal transpiration is controlled by the plant by adjusting the size of the _____
(stomata/stoma/guard cells)
5. Stroma is ground substance in _____
(cytoplasm/chloroplast/ribosome)

b) Given alongside is an incomplete representation of carbon cycle in nature. Study it carefully and answer the questions which follow:

[5]

1. Name the process A.
2. Name the process common for B and C.
3. Name the overall category of organisms at E.
4. What does the link D represent?
5. One component of the carbon cycle is missing here.
Mention the same very briefly.



c) State one main function of each of the following: [5]

1. Cuticle on the leaf surface.
2. Iodine solution used in some photosynthesis experiment.
3. Cell membrane.
4. β - cells of pancreas.
5. Ampullae of the semicircular canals.

d) Write the odd one out and give a reason for your answer. [5]

1. Glucocorticoids, mineralocorticoids, oxytocin, testosterone.
2. Sugars, PGA, RUDP, light reaction.
3. Retina, sclera, tympanum, choroids
4. Spermicide, condom, IUD, fungicide
5. Thyroid, pituitary, prostate, adrenal.

e) Differentiate between members of each of the following pairs with reference to the aspect in brackets. [5]

1. Cytokinesis in plant cell and cytokinesis in animal cell [pattern of division]
2. Haploid and diploid [definition]
3. Diabetes mellitus and diabetes insipidus [cause]
4. Cerebrum and cerebellum [function]
5. Oogenesis and ovulation [definition]

f) Elaborate the following forms: [5]

1. WHO
2. AIDS
3. NADP
4. ACTH
5. MTP

g) Explain the following terms: [5]

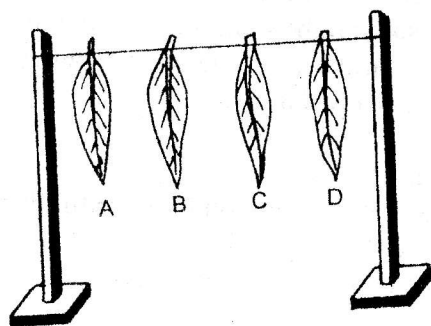
1. Rate of growth population
2. Plasmolysis
3. Gestation
4. Passive immunity
5. Synapse

h) Given below are set of 12 biological terms which can be matched into 6 pairs. Of the 6 pairs one has been done for you. [5]
Thyroid, formalin, glucagons, neurotransmitter, mitochondria, pancreas, acetylcholine, ATP, disinfectant, nucleotide, thyroxine.

e.g. thyroid-thyroxine

SECTION – II (40 Marks)

QUESTION 2.



- (a) In an experiment
- (i) First leaf (A) was coated with grease on both the surfaces.
 - (ii) Second leaf (B) was coated with grease on the lower surface.
 - (iii) Third leaf (C) was coated with grease on the upper surface.
 - (iv) Forth leaf (D) was left without application of grease.
- [5]

Answer the following questions:

- (i) Which leaf dries first?
 - (ii) Which leaf dries last?
 - (iii) Which leaf does not show any change?
 - (iv) Give reasons for your answers to A,B,C
 - (v) Define the phenomenon which is being demonstrated in the experiment.
- [1]

b)(i) Name the type of cell division that occurs during:

- A. Growth of shoot
 - B. Formation of pollen grains.
 - C. Repair of worn tissues.
- [2]

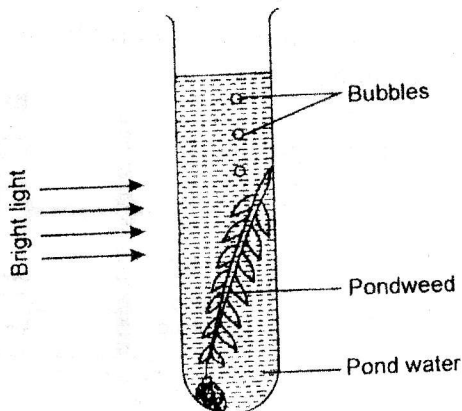
(ii) With reference to cell division explain the following terms:

- A. Chromatid
- B. Centromere

(iii) Draw a neat-labeled diagram to show the telophase stage of mitosis in an animal cell having chromosome number 6. [2]

QUESTION 3.

(a) A pondweed was placed in a test tube containing pond water and was exposed to bright sunlight. Bubbles evolved at the cut end of the stem as shown in fig. In dim light and in darkness, no bubbles evolved. [5]



- (i) Name the gas evolved in bright light.
- (ii) What is the process in which plants produce this gas?
- (iii) As the light intensity decreased, the rate of bubbling slowed down and finally stopped. Why the bubbles stop when there was still some light shining on the plant?
- (iv) Gaseous exchange still takes place in darkness, i.e. gas is still being produced. Suggest one reason why gas bubbles are not evolved in the darkness?

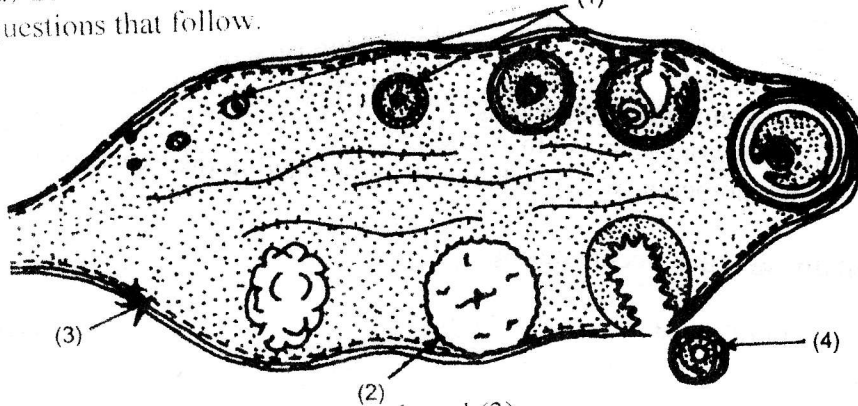
[5]

b) Give appropriate terms for the following:

- i. Resistance to the onset of a disease after infection by harmful germs.
- ii. Once finished their stores can never be replaced.
- iii. Specialised tissue or cell sensitive to a specific stimulus.
- iv. The combination of genes in an organism.
- v. Physical/chemical agents which help in reducing excessive loss of water by keeping stomatal pores closed.

QUESTION 4

a) Given below is the internal structure (sectional view) of the ovary in human female. Answer the questions that follow. [5]



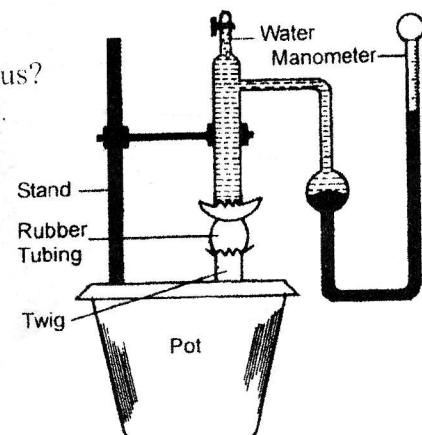
- i. Name the structure numbered (3).
 - ii. How is structure (1) different from structure (4)?
 - iii. Name structure (2)
 - iv. Name the hormone secreted by the structure (4).
 - v. Name the process by which the unfertilized egg along with uterine linings is discharged.
- b) Give biological reasons for the following: [5]

- i. Rate of guttation is not regulated.
- ii. The leaflets of sensitive plant *Mimosa pudica* droops down on touching.
- iii. People living in hilly regions usually suffer from simple goiter.
- iv. Chemicals like carbolic acid should never be applied on body.
- v. Most often only one embryo is formed at a time although there are two ovaries in a woman.

QUESTION 5

a) A cut twig is fitted in a glass tube filled with water with the help of rubber tubing. The glass tube is attached to a manometer as shown in the figure alongside. [5]

- i. What is the aim of the experiment?
- ii. Why is the manometer attached with the glass apparatus?
- iii. Give two examples where it can be observed in plants.



iv. Define the phenomenon.

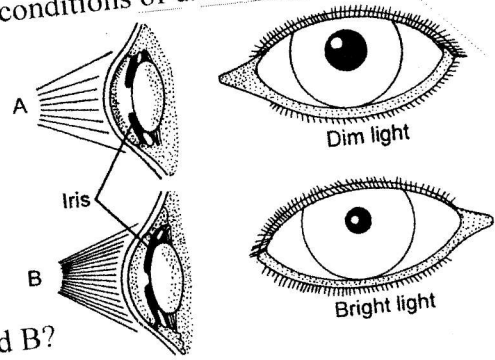
b) Red flower variety of pea (RR) was crossed with white flower variety of pea (rr). Answer the following questions based on the information provided.

[5]

- Write the genotype of parents.
- Draw a Punnett square to derive the F₁ generation.
- Write the phenotype of progeny in F₁ generation.
- What is the genotypic ratio of the F₂ generation?
- Draw a flow chart to represent F₂ generation.

QUESTION 6

a) The figures given below show human eye in different conditions of dim light and bright light. [5]



- What difference do you observe between A and B?
- State the effect and explain.
- What is the similarity between hypermetropia and presbyopia?
- State the cause of night-blindness.

b) Complete the following table by filling in the blank spaces numbered 1 to 5. [Redraw the table in your answer booklet] [5]

GLAND	SECRETIONS	EFFECT ON BODY
_____ 1	LH	_____ 2
_____ 3	_____ 4	Causes stimulation of Nervous sympathetic System.
Posterior pituitary	_____ 5	Contraction of uterine muscles during childbirth.

[10]

QUESTION 7

Answer the following questions:

a) Discuss the cause for the following health problems:

- Insect and air borne diseases
- Health problems related with child labour.

b) How will you provide first aid to a person who is bit by a snake?

c) What are the problems posed by the increased population density in India?

d) Draw and label a nerve cell.

e) Mention any two limitations in the use of potometer.