

**ATUL VIDYALAYA
FIRST PRELIMINARY EXAMINATION 2012-2013
SCIENCE PAPER 3-BIOLOGY**

**STD:X
DATE:25/9/12**

**M.M:80
TIME:1 ½ HRS**

Session I

- 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.
-The question paper is divided into two Sections.
-Section I contains one questions with five parts (a) to (e); all five 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 parts of questions are given in brackets[].*

Section-I 40 (Marks)

Q1(A) Answer the following in one word. [5]

- (i) The stage in mitosis when the nucleolus starts disappearing.
- (ii) The solution of salts and water present in the vacuole of a plant cell.
- (iii) Increase in heart heat and blood pressure is due to a sudden secretion of this hormone.
- (iv) Removal of testes in domestic animals.
- (v) This phenomenon helps in transport of a substance across the cell membrane using many ATP molecules.

(B) Fill up the blanks with the most appropriate word/s. [5]

- (i) pressure helps roots to crack ceineit walls or soil surface.
- (ii) During _____ the chromatids start unwinding forming the chromatin net work.
- (iii) Release of water in the form of water droplets is _____
- (iv) Growth, maturation and regeneration is controlled by _____hormone.
- (v) After ovulation the remaining mass of the graafianfollicle is known as _____

(C) Explain the following in one or two sentences: [5]

- (i) Compensation point
- (ii) Pathogen
- (iii) contraception
- (iv) Immunity
- (v) Congenital disease

(D) Comment on the following: [5]

- (i) Gametes are always pure
- (ii) XX in F1 generation can be a carrier
- (iii) AIDS is acquired
- (iv) First Aid
- (v) Ear ossicles

(E) Complete the following table: [5]

Name of gland	Hormone secreted	effect
1.....	2.....	Acute change in secondary sexual characters in adults
Adrenal medulla	3.....	4.....
5.....	glucagon	6.....
Thyroid	7.....	8.....

(F) For each term given in Column A. select the most closely associated alternative from column B and re-write the pairs. [5]

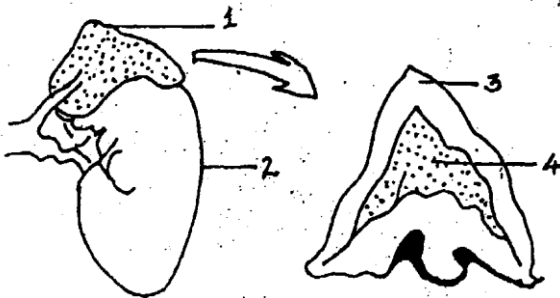
Column A	Column B
Concave lens	Myopia,hypermetropia,presbyopia
Vas deferens	Accessory gland duct,supportive structure
Vulva	Vagina,clitoris,cervix,uterus
Menstrual cycle	Implantation,ovulation,gestation,labour
Gametes	n no. of chromosomes,2n no chromosomes,4n no chromosomes

(G) Select the appropriate words from Group B' for the items in Group A and rewrite the pairs(Do not repeat the choices) [5]

Group A	Group B
Plasma membrane	Guttation
Fertilization	Permeable
Root pressure	Osmosis
Aerobic respiration	Zygote
Implantation	Oviduct
	38 ATP
	Uterus
	Semipermeable

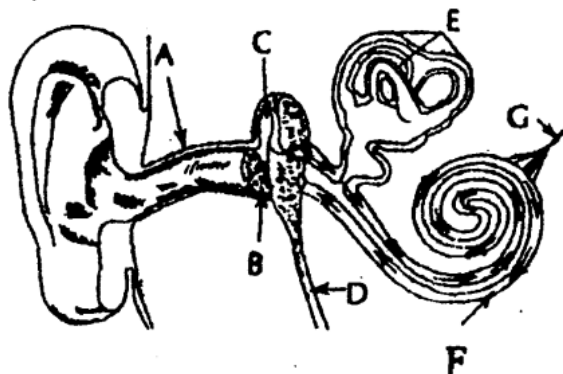
SECTION 11(40 Marks)

Q2 (a) Given below are the diagrammatic sketches of an endocrine gland and the Organ associated with it. Study the diagram and answer the questions that follow. [5]



1. Name the parts labelled 1 and 2.
2. What effects would be observed in a mature woman if there is an over growth of part '3'?
3. Name the hormones secreted by part 3.
4. Name the hormone whose abnormal level in blood causes Cushing's syndrome.
5. What is the function of part 4?

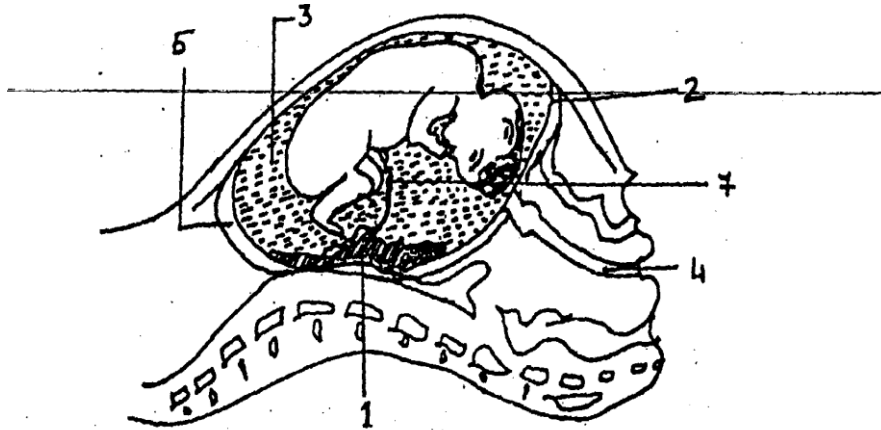
(b) 1. Name the structures marked by guidelines A-F in the diagram of the ear. [3]



2. Which structure that you have named:

- (i) converts sound waves into mechanical vibrations. (ii) responds to change in position. [2]

Q3. (a) Drawn below is a diagrammatic representation and highly simplified view of the female reproductive system in a state of pregnancy. Study the same and answer the question that follow. [5]



- Name the parts labelled 2, 4, 5 and 7.
- State the functions of parts numbered 1 and 3.
- Define the term capacitation.

(b) 1. State the first aid you would offer in ease of the following. [3]

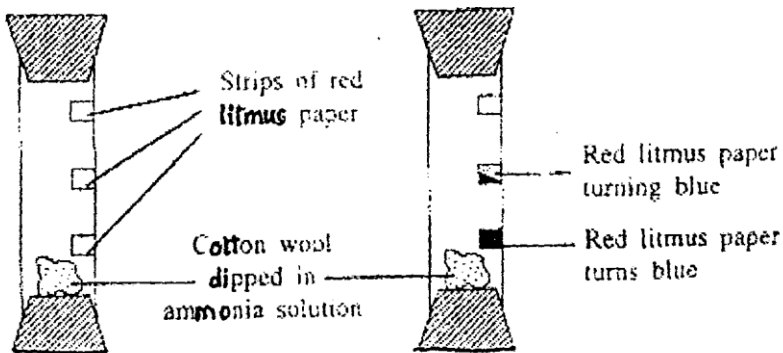
- A person has been bitten by a snake.
- A boy has fallen unconscious.
- A small splinter has entered your eye while playing.

2. Differentiate between the following pairs on the basis of what is indicated in the brackets.

- Corpus luteum and corpus callosum (location)
- Inguinal canal and auditory canal (function)

[2]

Q4. (a) Carefully observe the given experimental set up. The apparatus used are two glass tubes, red litmus paper, cotton wool, ammonium hydroxide. [5]



- State the aim of the experiment.
- Why is the change in the colour of the litmus paper observed?
- Define the process involved.
- How is the process important to plants?

(b) 1. A somatic cell with 32 chromosomes, undergoes three mitotic division. How many daughter cells are eventually formed and what is the number of chromosomes in each cell? [1]

2. List the different changes that occur during karyokinesis of mitosis with diagrams. [4]

Q5. (a) 1. A homozygous yellow seeded pea plant is crossed with a homozygous green seeded pea plant. The F₁ progeny was found to be yellow seeded. [5]

(i) Which character is dominant in the F₁ generation of the cross?

- (ii) Is the above cross a monohybrid or dihybrid cross? Why?
- (iii) Give the ratio, the genotype and phenotype of the F2 generation when two plants of the F1 generation above are crossed.
- (iv) What is the significance of crossing over?

(b) Look at the pose of the person reading a book in the diagram.

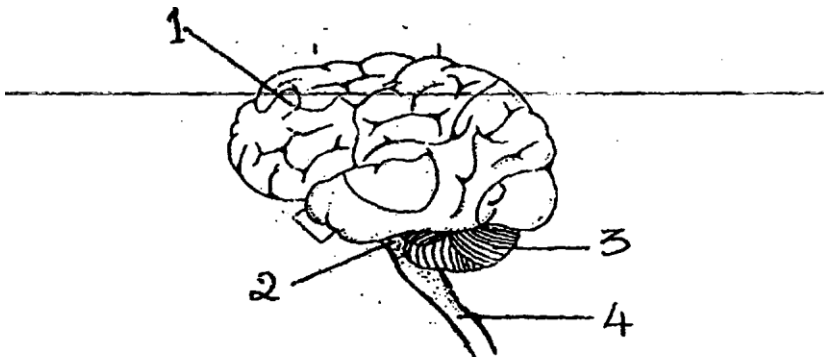
[5]



1. What problem is this person facing? Name it.
2. What are the two conditions shown in section A and section B of the eye?
3. What would be the remedy for this problem? Draw a ray diagram to show it.
4. What are the causes for the above problem?

Q6. (a) The diagram represents the human brain as seen in an external view. Study the same and answer the questions that follow:

[5]



1. Write the functions of parts 2 and 3.
2. Mention the difference in the arrangement of nerve cells in the parts marked 1 and 4.
3. What is the function of cerebrospinal fluid?
4. What is the significance of sulci and gyri?

(b) Answer the following questions.

[5]

1. The opening and closing mechanism of stomata is regulated by the amount of solute and water in the guard cell. Explain.
2. One gets the taste of eye drops when put in the eyes. Why?
3. What are the complementary nitrogenous bases in a DNA molecule?
4. What is the nature of sugar in DNA?

Q7. Explain briefly the idea contained in the following statements.

[10]

1. A person from bright sunlight enters a poorly lit room and feels blinded for a short while.
2. Twins may or may not be identical.
3. There should be enough Vitamin A in our diet.
4. Rate of transpiration increases with the velocity of the wind.
5. Mendel's Law of segregation is called law of purity of gametes.

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