

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

**STD:XII**  
**DATE:28/9/12**

**M.M:70**  
**TIME:3 HRS**

Candidates are allowed additional 15 minutes for only reading the paper. They must NOT start writing during this time. All working including rough work should be done on the same sheet as and adjacent to the rest of answer. Answer all questions in Part I and any five from Part II choosing three questions from Section A and two from Section B. The intended marks for each question or parts of questions are given in brackets [ ]

**Part I**  
**(Answer all questions)**

Question 1

Give significant differences between [5]

Collateral and Bicollateral vascular bundles  
Juxtamedullary and cortical nephrons  
Dermal and Sesamoid Bone  
Collagen and elastin fibres  
Total and Partial Parasites

Answer the following questions briefly [2½]

Give the technical term given for the pollination caused by bats  
Why photosynthesis is called oxidation reduction process  
Name the nerve that can control heart beat  
One molecule of haemoglobin can carry how many molecules of oxygen?  
Which crop is known as the first man made crop

Fill in the blanks with appropriate [2½]

The era which is popularly known as age of mammals is \_\_\_\_\_  
In the lacteals the fatty acids are absorbed in the form of fat droplets called \_\_\_\_\_

The sixth cranial nerve is also known as \_\_\_\_\_  
The head of the epididymis is also known as \_\_\_\_\_  
The pigment present in urine which imparts yellow colour to it is \_\_\_\_\_

Explain the following briefly [3]

Autochory  
Compensation Point  
Chelators

Give the contributions of the following scientists [2½]

S.G.Nawaschin  
K.C.Hamner and J.Bonner  
T.D.Lysenko  
Godfrey Hounsfield  
Billhoyer and Davidkhone

Give the most significant role/function of the following [2½]

Sertoli Cells  
Kuffer Cells  
Meibomian Glands  
Mast Cells

Crypts of Libberkuhn

Expand the following [2]

SCID  
TRH  
BHC  
HCG

**Part II**

**(Answer six questions choosing three questions from Section A and two questions from Section B)**

**Section A**

**(Answer any three questions)**

**Question 2**

- Give the anatomical differences between a dicot leaf and a monocot leaf. [4]  
(b) Enlist the functions of mineral elements in the life of a plant. What do you mean by essentiality of an element? [4]  
(c) Write the differences between nastic and tropic responses. [2]

**Question 3**

- (a) Describe the internal structure of the human heart. [4]  
(b) Explain the counter system in the nephron. [4]  
(c) Explain four functions of the liver. [2]

**Question 4**

- (a) Give the different between cyclic and Non-cyclic photophosphorylation. [4]  
(b) Write the effect of cytokinins on the plant. [4]  
(c) Write four advantages of cross pollination over self pollination. [2]

**Question 5**

- (a) Draw a neat labeled diagram of a transverse section of human ovary. [4]  
(b) Explain the mechanism of hearing by the human ear. [3]  
(c) Difference between:  
[3]  
(i). Reparative and Restorative regeneration.  
(ii). Capacitation and fertilization.

**Question 6**

- What is feedback mechanism ? Explain with reference to a hormone secreted from the posterior lobe of the pituitary. [4]  
Explain briefly the movement of water form the soil across the root to the xylem vessel. [4]  
(c) Name the second and tenth cranial nerves and write one function of each. [2]

**Section B**

**(Answer any two questions)**

**Question 7**

Interpret the results of Lederberg's replica plating on the basis of both Lamarck's and Darwin's Theory. What does the experiment illustrate?

[4]

Explain various kinds of natural selection

[4]

Explain the following terms

[2]

Genetic Variations

Coarcevates

### Question 8

Give an account of the various progressive and retrogressive evolutionary trends in modern day Horse's course of evolution

[4]

Explain the homology in the structure of chromosomes of ape and humans [4]

Ontogeny repeats Phylogeny. Explain

[2]

### Question 9

Examine the role of mutations in speciation

[4]

Write short notes on :

[4]

Genetic Engineering in crop improvement

Turner's Syndrome

The disease colour blindness is incurable. Why?

[2]

### Question 10

With the help of relevant diagrams explain different types of population growth curves

[4]

Write short notes on :-

[6]

Psychosis

FYM

Disposables

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