

BIOLOGY I (THEORY)

STD12

Second Prelim examination 2014-2015

(Three hours)

Answer all questions in Part I and six questions in Part II, choosing two questions from each of the three sections A, B and C.

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

Part II each point carries half mark.

Part I

Answer all questions

Question 1

A. Answer briefly [4]

1. What is Hardy Weinberg principle?
2. What are the components of an annual ring?
3. What is spermiogenesis?
4. Name two *ex-situ* conservation strategies.

B. Give a scientific term for [4]

1. The superiority of F₁ hybrids over either of the parents.
2. A right granted by the government to an inventor to prevent others from commercial use of his invention.
3. Any recognizable feature of an individual
4. A fluid filled eccentric cavity in the Graafian follicle.

C. Give the contribution of. [4]

1. Robert Hill.
2. Sydney Fox
3. Rudolph Camerarius
4. John Otto

D. Elaborate the following: [4]

1. IPM
2. GMO
3. NADP
4. C.T. Scan

E. Choose the correct option (copy and write the answer with the alphabet): [4]

1. Wood is
a. Primary xylem b. secondary xylem c. primary phloem d. secondary phloem
2. The protective and nutritive layer of blastocyst is
a. trophoblast b. amnion c. mesoderm d. ectoderm
3. The gene *cry* is naturally present in
a. *Bacillus thuringensis* b. Potato plant c. cactus plant d. insects
4. 'Hot spots' of biodiversity are areas with
a. Little biodiversity b. Maximum biodiversity
c. Minimum biodiversity d. both a and c.

Part II
Section A

Answer any two questions

Question 2

- a. Give two differences between convergent and divergent evolution. [1]
- b. What are protobionts? [1]
- c. Explain the term connecting links. Explain with one example each from plants and animals. [3]

Question 3

- a. Give two features each of Darwinism and Neo Darwinism. [2]
- b. Explain the Lederberg's experiment and give its significance. [3]

Question 4

- a. Explain the Oparin and Haldane theory of evolution. [2]
- b. Compare the characters of Apes and Man that have developed during evolution. [3]

SECTION B

Answer any two questions

Question 5

- a. Describe the process of gametogenesis in males. [3]
- b. Draw diagrams to show the open and closed stomata in monocots. [3]
- c. Explain the stages of secondary growth in dicot stem. [4]

Question 6

- a. Describe anatomical details of monocot leaf. [3]
- b. Draw the internal section of human ovary. [4]
- c. List the significances of osmosis. (six) [3]

Question 7

- a. Define guttation. Give two differences between transpiration and guttation. [3]
- b. What is *MTP*? [1]
- c. Define Blackman's law of limiting factors. Describe the effect of any two factors on the rate of photosynthesis with the help of graphs. [3]
- d. What is amniocentesis? What is it used for? Describe how it is misused. [3]

SECTION C

Answer any two questions

Question 8

- a. Explain the Hershey and Chase's experiment. [3]
- b. What is DNA finger printing? What are its benefits? [3]
- c. What are the implications of loss of biodiversity? [4]

Question 9

- a. What are multiple alleles? Explain with the help of an example. [3]
- b. What are opioids and what is its effect on human health? [2]
- c. What are green manures? Why are bio fertilizers preferred over chemical fertilizers? [3]
- d. Discuss the types of population growth curves. [2]

Question 10

- a. Define. [3]
 - i. Gene pool
 - ii. Gene bank
 - iii. Genetic erosion
- b. What is AIDS? Discuss its mode of transmission and methods of prevention. [3]
- c. Describe two interspecific relationships in the biotic community. [2]
- d. What is hybridization? How is it beneficial? [2]