

**Nagaland  
Class XII  
Biology  
Sample Paper-2**

**Time allowed: 3 hours**

**Maximum Marks: 70**

**General Instructions:**

- i. Approximately 15 minutes is allotted to read the question paper and revise the answer.
- ii. All questions are compulsory. Marks are indicated against each question.
- iii. The question paper consists of two parts – Part A and Part B.  
Each part contains 14 questions.
- iv. Internal choice has been provided in some questions.
- v. Write the answers of Part A and Part B in separate answer books.  
Marks shall not be awarded if the answers of both the Part are written in one book nor marks awarded if answers of Part A are written in the answer book of Part B and vice-versa.

**N.B: Check that all pages of the question paper is complete as indicated on the top left side.**

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**PART - A**

1. The inner layer of the exine is [1]  
(a) Sexine  
(b) Nexine  
(c) Endosexine  
(d) Tectum
2. The process of bringing wild species of plants under cultivation to suit human needs is called [1]  
(a) Domestication  
(b) Selection  
(c) Cultivation  
(d) Hybridisation
3. Insect resistance transgenic cotton has been produced by inserting a piece of DNA from [1]  
(a) an insect  
(b) a bacterium  
(c) a wild relative of cotton  
(d) a virus

**Sample Paper-2**

- 4.** Sacred grooves are specially useful in [1]  
(a) generating environmental awareness  
(b) preventing soil erosion  
(c) year-round flow of water in rivers  
(d) conserving rare and threatened species
- 5.** In grafting, the portion to be grafted on the main plant is called [1]  
(a) Adventitious bud  
(b) Stem  
(c) Stock  
(d) Scion
- 6.** What is interspecific hybridisation? Give one example of a crop in which it is practised and mention one advantage derived from it. [2]
- 7.** State two differences between the first trophic levels of the detritus food chain and the grazing food chain. [2]
- 8.** What is the ecological importance of biodiversity? [2]
- 9.** Alien species are a threat to native species. Justify taking examples of an animal and a plant alien species. [3]
- 10.** What would happen to the successive trophic levels in the pyramid of energy, if the rate of reproduction of phytoplankton was slowed down? Suggest two factors which could cause such a reduction in phytoplankton reproduction.

**Or**

[3]

Explain with the help of two examples, how the pyramid of numbers and the pyramid of biomass can look inverted.

- 11.** Trace the development of microsporocyte in the anther to a mature pollen grain.

[3]

- 12.** What will be the fate of the following structures in an angiospermic plant? Ovary wall, ovule, zygote, outer integument, inner integument and primary endosperm nucleus.

**Or**

[5]

Give reasons why

- (i) Most zygotes in angiosperms divide only after certain amount of endosperm is formed.
- (ii) Groundnut seeds are exalbuminous and castor seeds are albuminous.
- (iii) Micropyle remains as a small pore in the seed coat of a seed.

**Sample Paper-2**

(iv) Integuments of an ovule harden and the water content is highly reduced as the seed matures.

**13.** What is somatic hybridisation? Explain the various steps involved in the process. Mention any two uses of somatic hybridisation.

**Or**

[5]

Explain how does: The algal bloom eventually chokes the water body in an industrial area

**14.** Write short notes on

- (a) Embryogenesis (b) Syngamy

**Or**

[5]

You have identified a useful gene in bacteria. Make a flow chart of the steps that you would follow to transfer this gene to a plant.

**PART – B**

- 1.** The receptors found on the zona pellucida of the ova which recognise and bind to the sperm are [1]  
(a) ZP1  
(b) ZP2  
(c) ZP3  
(d) ZP4
  
- 2.** Which bacterium is used in the production of Swiss cheese? [1]  
(a) *Streptococcus faecalis*  
(b) *Pedicoccus cerevisiae*  
(c) *Propionibacterium sharmanii*  
(d) *Penicillium roqueforti*
  
- 3.** A test-tube baby means a baby born when [1]  
(a) it is developed in a test tube  
(b) it develops from a non-fertilised egg  
(c) the ovum is fertilised externally and thereafter implanted in the uterus  
(d) it is developed by tissue culture method
  
- 4.** Which of the following drugs is obtained from the fruiting body of the Mexican mushroom *Psilocybe mexicana*? [1]  
(a) Psilocybin  
(b) Mescaline  
(c) Phencyclidine piperidine  
(d) Methylenedioxy methamphetamine
  
- 5.** List of endangered species was released by: [1]  
(a) IUCN  
(b) BBC  
(c) WCC  
(d) UN
  
- 6.** Name the first oxygenic photoautotrophic organisms. What was effect of evolved oxygen on methane and ammonia of reducing atmosphere? [2]
  
- 7.** Name the enzyme produced by *Streptococcus*bacterium. Explain its importance in medical sciences. [2]
  
- 8.** Biopiracy should be prevented. State why and how. [2]
  
- 9.** Where are fimbriae present in human female reproductive system? Give their function. [3]

**Sample Paper-2**

**10.** Write a note on chorionic villus sampling (CVS).

**Or**

[3]

What are three major classes of RNA? Mention their functions.

**11.** Convergent evolution and divergent evolution are the two concepts explaining organic evolution. Explain each one with the help of an example. [3]

**12.** List the different population attributes which an individual does not possess. Explain any four.

**Or**

Explain the chromosomal theory of inheritance. [5]

**13.** What do you mean by reproductive health? Mention the different ways in which people are made aware of the significance of reproductively healthy society.

**Or**

[5]

Describe the responsibility of GEAC set up by the Indian Government

**14.** Describe the functions of human placenta.

**Or**

[5]

What do you mean by reproductive health? Mention the different ways in which people are made aware of the significance of reproductively healthy society.