

Total number of pages – 12

29T BIOL (BOT-ZOO)

2019

BIOLOGY
(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three hours

*The figures in the margin indicate full marks
for the questions.*

PART-I (BOTANY)

MARKS - 35

Page No. 1 - 6

PART-II (ZOOLOGY)

MARKS - 35

Page No. 7 - 11

*Use separate Answer scripts for Part-I (Botany)
and Part-II (Zoology)*

Contd.

Part-I (Botany)

1. Name the edible part of an apple. 1

2. Why grafting is not possible in monocot plants ? 1

Σ

3. Name the micro-organism that converts milk to curd. 1

4. What is the function of DNA ligase ? 1

Σ

5. What is missing link ? Describe briefly with an example. 1+1=2

Or /

Define Recapitulation theory with examples. 2

6. What is transgenic plant ? Mention *two* advantages and *one* example of transgenic plant. 1+1=2

Or /

Write on the importance of biopiracy. 2

7. Differentiate allelopathy and antibiosis. 1+1=2

Or /

What is age pyramid? Draw the expanding age pyramid and label its parts. 1+1=2

8. Write short note on the following: (*any one*) 2

(i) Gene gun

(ii) Tools of genetic engineering

(iii) Gene cloning

9. What are the conditions of biopatent? 2

Or /

Write about the function and principle of ELISA technique. 2

ELISA

10. Write scientific name and utility of the following plants : (*any two*) 1+1=2

(a) Teak

(b) Indian ginseng

(c) Chinchona

(d) Sissoo

11. Write briefly the chemical origin of life on the earth. 3

Or /

“Survival of the fittest”, explain the statement with the help of Darwin’s theory. 3

12. What is tissue culture ? Write the advantages of tissue culture.

1+2=3

Or /

What is meant by somatic hybridization ? Give an account on necessary steps of the method with an example.

1+2=3

13. Define fermentation and describe briefly how alcohol is produced in this process.

1+2=3

Or /

What are biopesticides ? Write briefly on biopesticides with examples.

1+2=3

14. What is double fertilization ? Describe the process with diagrams from the stage of megaspore formation to zygote formation.

1+4=5

Or /

Why meiosis is essential at the time of sporogenesis in angiosperms ?
Explain the process of development of male gametophyte in angiosperms
with suitable diagrams. 1+4=5

15. What is genetic engineering ? Describe the major steps of gene cloning
technology. 1+4=5

Or /

Write an account of biotechnological applications in medicine. 5

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_____ x _____

Part-II (Zoology)

1. Fill in the blanks : (*any two*) 1×2=2

(a) Anterior part of sperm is called_____.

(b) Archaeopteryx is a connecting link between reptiles and _____.

(c) Genetic constitution of an organism is called _____.

(d) Cancer causing viruses are known as _____.

2. Answer *any two* : 1×2=2

(a) What is interspecific hybridization ?

(b) What are the restriction enzymes ?

(c) What is the first infective stage of malarial parasite in man ?

(d) What is *ex-situ* conservation ?

3. Answer *any four* :

2×4=8

(a) What are the significance of crossing over ?

(b) Write briefly on haemophilia.

(c) What do you mean by adaptive radiation ?

(d) Write the various components of immune system.

(e) Write the various causes of water pollution.

(f) What are the factors of population growth?

Σ

4. Write differences between : (*any two*) 2×2=4

(a) Parturition and lactation

(b) Down's syndrome and Klinefelter's syndrome.

(c) Vaccination and immunisation

(d) Convergent evolution and divergent evolution

5. Draw a neat labelled diagram of a human sperm. 2+1=3

Or /

Diagrammatically express the Watson-Crick's semiconservative models of DNA replication. 3

↵

6. What are sexually transmitted diseases? Write its various types of preventive measures. 1+2=3

Σ

Or /

Write the various methods of cancer detection and diagnosis. 3

7. Describe about the Pedigree analysis. 3

Or /

Describe about the 'greenhouse' effect. 3

8. Describe the Mendel's laws of inheritance. 5

Or /

'DNA is a genetic material', explain the statement with the help of Alfred Hershey and Martha Chase experiment. 5

9. Describe the process of the flow of energy in different trophic level of an ecosystem. 5

Or /

What is ecological pyramid ? Explain different types of ecological pyramid with diagram. 2+3=5

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