2018
BIOLOGY

Total marks : 70 Time : 3 hours

General instructions:

i) Approximately 15 minutes is allotted to read the question paper and revise the answers.

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 contain 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 Parts 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.

PART - A

1. Which of the following is not a type of agamospermy? **1**
   (a) Apospory (b) Apogamy
   (c) Adventive embryony (d) Geitonogamy

2. Enzyme_____ is not required for lactose catabolism(Lac-Operon system). **1**
   (a) endonuclease (b) β-galactosidase
   (c) lac-permease (d) transacetylase

3. The first codon on the the 5′ end of mRNA is **1**
   (a) AUC (b) UAG
   (c) AUG (d) UGA

4. Hot spots of biodiversity are area where **1**
   (a) maximum number of fauna are found
   (b) maximum diversity is found
   (c) maximum number of flora are found
   (d) maximum natural resources are found

5. Species diversity within the community is known as **1**
   (a) beta diversity (b) alpha diversity
   (c) gamma diversity (d) omega diversity

6. Give two functions of RNAs. **2**

7. What is biofortification? **2**

8. Write two points of differences between purines and pyrimidines. **2**

9. Draw a neat labelled diagram of the structure of typical bisexual flower. **3**

10. What is layering? What are the different types of layering? **3**

11. **a.** Mention three effects of ozone depletion.

Or **3**

b. Differentiate between primary and secondary air pollutants.

12. **a.** Explain the mechanism of transcription in prokaryotic cell.

Or **5**

b. Describe the clover leaf model of tRNA.

13. **a.** What is a bioreactor? List down the features of stirred tank bioreactor with labelled diagram.

Or **5**

b. Describe the different methods of introduction of foreign DNA in host cells.

14. **a.** Explain the different stages of biotic succession on bare rock.

Or **5**

b. What is biomagnification? List out the effects of biomagnification.

PART –B

1. The number of chromosomes in Down's syndrome is **1**

(a) 46 (b) 47
(c) 48 (d) 49

2. Sertoli cells are **1**

(a) nurse cells (b) reproductive cells
(c) receptor cells (d) none of these

3. Medical termination of pregnancy (MTP) is considered safe at ____weeks of pregnancy. **1**

(a) eight (b) twelve
(c) eighteen (d) six

4. Soil transported by wind is called **1**
   (a) alluvial soil (b) glacial soil
   (c) colluvial soil (d) eolian soil

5. The causal organism of filariasis/elephantiasis is **1**
   (a) *Wuchereria bancrofti* (b) *Trichophyton*
   (b) *Entamoeba histolytica* (d) *Ascaris lumbricoides*

6. Mention two differences between homozygous and heterozygous individuals. **2**

7. What are the harmful effects of smoking cigarettes? **2**

8. Give the scientific name of soil bacterium which produces crystalline (cry) protein. Mention one use of this protein in agriculture . **2**

9. What are transgenic animals? What are the various methods of production of transgenic animals? **3**

10. **a.** Taking the example of ABO blood types of humans, explain the phenomenon of multiple alleles.
    Or **3**
    b. Differentiate between natural selection and artificial selection.

11. Name two types of competition found amongst organisms. Which one of these is more intense and why? **3**

12. **a.** Define spermatogenesis. Explain the process of spermatogenesis.
    Or **5**
    b. Give the full form of IVF. Explain the procedure involved in IVF.

13. **a.** What is crossing over? Explain the mechanism of crossing over.
    Or **5**
    b. Describe Oparin-Haldane theory on origin of life.

14. **a.** What is acquired immunity? Give a brief account on the cells involved in acquired immunity.
    Or **5**
    b. What is sewage? Write a note on the secondary or biological treatment of sewage.

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