2020
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 one of the following is regarded as 'terror of Bengal'? **1**
   (a) *Bryophyllum* (b) Water hyacinth
   (c) *Strobilanthus kunthiana* (d) Banana

2. Flowers with exposed anther and stigma are called **1**
   (a) Cleistogamous (b) Geitonogamous
   (c) Xenogamous (d) Chasmogamous

3. _____ is known as the regulatory gene in Lac-Operon. **1**
   (a) *i* gene (b) *z* gene
   (c) *y* gene (d) *a* gene

4. Sonalika and Kalyan Sona is a high yielding and disease resistant varieties of **1**
   (a) rice (b) wheat
   (c) maize (d) soyabean

5. The thickness of the ozone in a column of air is measured in **1**
   (a) Decibel (b) Dobson unit
   (c) Barometer (d) Thermometer

6. Define the term encystation with one example. **2**

7. What is stratification? Give one example. **2**

8. Give two harmful effects of ozone layer depletion. **2**

9. With the help of a well labelled diagram, explain the different parts of a dicot embryo. **3**

10. **a.** Why are both the strands of DNA not copied during transcription?
Or **3**
b. What are the enzymes involved in DNA replication?

11. What is micropropagation? Write down two applications of plants tissue culture. **3**

12. **a.** Discuss Hershey and Chase experiment on bacteriophage to prove DNA as a genetic material.
Or **5**
b. List down the steps of DNA fingerprinting. Write down the applications of DNA finger printing.

13. **a.** What is cloning vector? Write the characteristic features of cloning vectors.
Or **5**
b. Explain the separation and isolation of DNA finger printing.

14. **a.** What is decomposition? Explain the process of decomposition.
Or **5**
b. What is biodiversity? Explain any two factors that can affect the patterns of biodiversity distribution.

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PART –B

1. The embryo with 8 to 16 blastomeres is called a **1**
(a) blastocyst (b) morula
(c) blastula (d) gastrula

2. The prenatal technique to determine the genetic disorders in a foetus is called **1**
(a) laparoscopy (b) amniocentesis
(c) otoscopy (d) cystoscopy

3. Wings of butterfly and wings of bird is an example of **1**
(a) homologous organs (b) analogous organs
(c) vestigial organs (d) none of these

4. *Wucheria bancrofti* causes **1**
(a) amoebiasis (b) ascariasis
(c) filariasis (d) pneumonia

5. The association between orchids and bees is an example of **1**
   (a) ammensalism (b) mutualism
   (c) commensalism (d) parasitism

6. What is pleiotropy? Give one example. **2**

7. What is cyclosporine A? **2**

8. Give any two advantages of genetically modified plants. **2**

9. **a.** How is sex determined in human beings?
   Or **3**
   b. State the Hardy-Weinberg's principle. Explain briefly the algebraic equation of $p^2+2pq+q^2=1$ on the basis of principle.

10. What is biopiracy? How are industrialised nations exploiting the bio-resources? **3**

11. Explain the logistic growth curve of a population with a suitable diagram. **3**

12. **a.** Explain the various phases of menstrual cycle in human female.
   Or **5**
   b. Explain the various special techniques used in Assisted Reproduction Technologies(ART).

13. **a.** State the law of independent assortment. Explain with the hybrid cross of pea plant.
   Or **5**
   b. Give a brief account about the origin and evolution of man.

14. **a.** What is cancer? Explain the causes, diagnosis and treatment of cancer.
   Or **5**
   b. In which food would you find lactic acid bacteria? Mention some of their useful applications..

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