

## First Mock Examination – December 2017

Roll No.

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Series SSR / 1

Code No. 044/ 1 / 1

- Please check that this question paper contains 5 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 26 questions.
- Please write down the serial number of the question before attempting it.

### BIOLOGY

Class : XII

Date : 30-12-2017

Time allowed : 3 hrs.

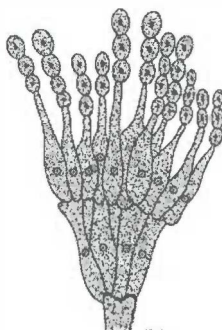
Max marks : 70

#### General Instructions:

1. There are a total of 26 questions and five sections in the question paper.  
All questions are compulsory.
2. Section A contains question number 1 to 5, Very Short Answer type questions of one mark each.
3. Section B contains question number 6 to 10, Short Answer type I questions of two marks each.
4. Section C contains question number 11 to 22, Short Answer type II questions of three marks each.
5. Section D contains question number 23, Value Based Question of four marks.
6. Section E contains question number 24 to 26, Long Answer type questions of five marks each.
7. There is no overall choice in the question paper; however, an internal choice is provided in one question of two marks, one question of three marks and all three questions of five marks. An examinee is to attempt any one of the questions out of the two given in the question paper with the same question number

#### Section-A

1. The base sequence in one of the strands of DNA is **TAGCATGAT**, Give the base sequence of its complimentary strand.
2. Name the organism and mode of reproduction represented in the diagram given below.



3. How does dsRNA gain entry into Eukaryotic Cell to cause RNA interference?
4. Why do predators avoid eating Monarch butterfly? How does Monarch butterfly develop this protective feature?
5. Write the two components of the first artificial recombinant DNA molecule, Constructed by Cohen and Boyer.

#### **Section-B**

6. Some angiosperm seeds are said to be albuminous where as few others are said to have perisperm. Explain each with example.
7. Differentiate between morula and Blastocyst.
8. List two hybrid varieties of Wheat which was introduced in 1963, what were the advantages of these varieties?
9. Enumerate in sequential order the 4 steps that a plant breeder should follow to obtain a disease resistant Crop.
10. Explain the effect of deletion of the gene for ADA in an individual.  
(a) How does gene therapy help in this case?

**OR**

Briefly mention the contribution of T.H. Morgan in genetics.

#### **Section-C**

11. (a) Intra cytoplasmic Sperm injection and Gamete Intra Fallopian Transfer are two assisted reproductive technologies. How one is different from the other?  
(b) What is **ZIFT**?
12. Describe the events taking place during embryogenesis?
13. Why are haemophilia and colour blindness usually seen in human males? Can women also develop these disorders? Explain.
14. Explain metastasis. Why is it fatal?

15. Name the three RNA Polymerases found in eukaryotes and mention their functions.
16. Explain the two major approaches involved in the sequencing of genomes.
17. With the help of any two suitable examples explain the effect of anthropogenic actions on organic evolution
18. Highlight the salient features that are required to facilitate cloning into a vector.
19. Species facing competition might evolve mechanism that promotes coexistence rather than exclusion. Justify this statement in light of Gause's competitive exclusion principle, citing suitable examples.
20. How does the shape of age pyramid reflect the growth status of a population?
21. What is meant by writing H<sub>2</sub>L<sub>2</sub> for an antibody? Name any four types of antibodies produced in our/human body?
22. What is interspecific hybridization? Give one example of crop in which it is practiced and mention one advantage.

**OR**

Explain the procedure of MOET technique in cattle.

**Section-D**

23. A group of scientists are working on creating transgenic cows to produce milk with medicinal properties. But there are adverse side-effects on the cows due to this procedure. Their life span shortens; they become prone to diseases and die very early.

Answer the following questions based on the above information:

- (i) What values are being neglected by the scientists in the above situation?
- (ii) Should they continue with their production of transgenic cows? Give reason.
- (iii) What has been the reaction of different communities and various organizations to such acts?

**Section-E**

24. (a) With the help of a labeled diagram explain semi conservative replication.  
(c) How did Meselson and Stahl prove it experimentally?

**OR**

Describe the various steps involved in the technique of DNA fingerprinting.

25. How does a megaspore mother cell develop into a 7 celled 8 nucleate embryo sac in an angiosperm? Draw a labeled diagram of mature embryo sac.

**OR**

- (a) How does microspore mother cell develop into a mature pollen grain in angiosperms?
- (b) Describe the structure of a mature pollen grain and draw a labeled diagram of its two celled stage.
26. (a) Alien species are highly invasive and are a threat to indigenous species. Substantiate this statement with any three examples.
- (d) What is the association between the bumble bee and its favorite orchid, Ophrys? How would extinction or change of one would affect the other?

**OR**

'It is often said that the pyramid of energy is always upright. On the other hand, the pyramid of biomass can be both upright and inverted.'" Explain with the help of examples and sketches.

