

KENDRIYA VIDYALAYA SANGATHAN , ERNAKULAM REGION

SECOND PRE BOARD EXAMINATION

SESSION 2018-2019

CLASS: XII

MAX MARKS: 70

SUB: BIOLOGY(044)

TIME: 3hours

General Instructions:

- (i) There are a total of 27 questions and five sections in the question paper. All questions are compulsory.
- (ii) Section A contains question number 1 to 5, Very Short Answer type questions of **one** mark each.
- (iii) Section B contains question number 6 to 12, Short Answer type I questions of **two** marks each.
- (iv) Section C contains question number 13 to 24, Short Answer type II questions of **three** marks each.
- (v) Section D contains question number 25 to 27, Long Answer type questions of **five** marks each.
- (vi) There is no overall choice in the question paper, however, an internal choice is provided in all sections. A student has to attempt any **one** of the alternatives in such questions.

SECTION A

1. Why are cucurbits referred to as monoecious? 1

Or

Mention two major pre-fertilisation events in the reproduction of organisms.

2. What do you mean by the term 'c-onc'? 1
3. Crystals of Bt toxin produced by some bacteria do not kill the bacteria themselves. Give reason. 1
4. Identify the reason for selection of DNA polymerase from *Thermus aquaticus* for Polymerase Chain Reaction. 1
5. Why do snails undergo aestivation? 1

Or

Why is the polar region not a suitable habitat for humming birds?

SECTION – B

6. Mention any four ways in which IUDs work as contraceptives. 2

Or

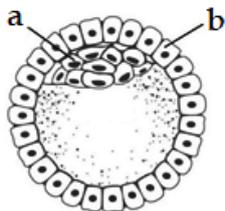
Mention the target cells of LH in males and females. Write the effect and the changes the hormone induces.

7. What do you understand by the term 'SCP'? How can this reduce the pressure on agriculture? 2
8. State the Mendelian principle which can be derived from a dihybrid cross and not from a monohybrid cross. 2

9. (a) Mention two features of Ramsar convention. 2
 (b) An orchid plant is growing on the branch of mango tree. How do you describe this interaction between the orchid and mango tree? 2
10. What is polygenic inheritance? Give two examples. 2
11. (a) How is early detection of infectious diseases possible by molecular diagnosis?
 (b) How did the first transgenic cow Rosie differ from other cows with respect to the quality of milk? 2
12. Why does a doctor administer tetanus antitoxin and not a tetanus vaccine to a child injured in a road side accident with a bleeding wound? Explain. 2
 Or
 Name one plant and the addictive drug extracted from its latex. How does this drug affect the human body?

SECTION – C

13. Study the figure given below and answer the questions that follow 3

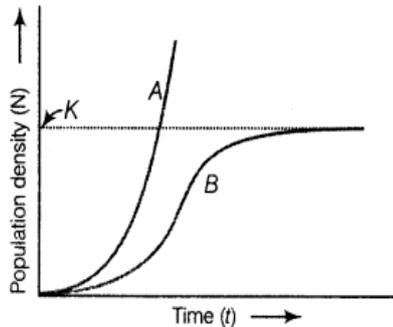


- (a) Name the stage of human embryo the figure represent.
 (b) Identify 'a' and 'b' in the figure and mention the function.
 (c) Where are the stem cells located in this embryo and mention its fate after its implantation.
14. (a) How do mycorrhizae act as biofertilisers? Explain. 3
 (b) Name the genus of fungus that forms mycorrhizal association with plants.
15. A childless couple has agreed for a test tube baby programme. List the basic steps that would involve to conceive the baby. 3
16. Mention the cause of ADA deficiency in humans. Write a possible permanent cure to it and enumerate the steps involved in it. 3
17. (a) Draw and label the parts of a simple stirred tank bioreactor 3
 (b) Name the host cell suitable for the introduction of an alien DNA using
 (i) Gene gun (ii) Microinjection.

18. Interspecific interactions of the two species of any population may be beneficial, detrimental or neutral. Explain each of them with the help of suitable examples. 3

Or

Study the graph given below:



- (a) What does curve 'A' represent in the graph? What does 'K' stand for?
(b) Which one of the two curves is considered a more realistic one for most of the animal population?
(c) Which curve would depict the population of a species of deer if there are no predators in the habitat? Why is it so?
19. (a) Write the scientific names of the sugarcane grown in North India and South India. Mention their characteristic features. 3
(b) Write the feature of the hybrid variety produced by crossing these two varieties.
20. (a) What is Hardy – Weinberg equilibrium? 3
(b) Describe the factors which affect Hardy- Weinberg equilibrium.
21. Protein synthesis machinery revolves around RNA but in the course of evolution it was replaced by DNA. Justify. 3

Or

Both sickle cell anaemia and thalassaemia are blood related genetic disorders. One of them is a quantitative problem and the other is qualitative. Identify the quantitative disorder and write about the inheritance and types of this disorder.

22. Describe the structure and function of a biogas plant along with a diagram. 3
23. A non-haemophilic couple was informed by their doctor that there is a possibility of a haemophilic child being born to them. Draw a checker board and find out the percentage of possibly of such a child among the progeny. 3

- 24.(a) Bring out the limitations of ecological pyramids (any two)
(b) Differentiate between Grazing and Detritus Food Chain. 3

Or

- (a) How does the production of polyblend reduce the plastic wastes?
(b) What causes the depletion of ozone? Explain the role of UV rays and this chemical in its depletion.

SECTION – D

25. (a) What is apomixis? Mention its importance. 5
(b) How does apomictic embryos develop?
(c) Explain the significance of fruit formation.

Or

- (a) Draw a labelled diagram of the sectional view of microsporangium of an angiosperm.
(b) Explain the development of male gametophyte in the microsporangium.

26. (a) What is satellite DNA? Name their two types. Mention the criteria that form the basis for the classification of satellite DNA.
(b) Describe the steps in the sequencing of a genome 5

Or

- (a) How will you calculate the length of human DNA? Explain the packing of DNA in *E. coli*.
(b) Write the two specific codons that a translation unit of mRNA is flanked by on either side.
(c) State the functions of Ribozymes and release factor in protein synthesis.

27. (a) Taking one example each of habitat loss and fragmentation explain how these lead to loss of biodiversity loss? 5
(b) List two criteria to determine a hotspot of biodiversity.
(c) Name two hotspots of biodiversity in India.

Or

Citing lake as an example of a simple aquatic ecosystem, interpret how various functions of this ecosystem are carried out. Make a food chain that is functional in this ecosystem.
