Sample Paper – 2012
Class – XII
Subject – Biology

Time : 3 hours **Max.Marks 70**

General Instructions:

1. *All questions are compulsory.*
2. *This question paper consists of four Sections A, B, C and D. Section -A contains 8 questions of 1 mark each, Section -B is of 10 questions of 2 marks each, Section -C has 9 questions of 3 marks each and Section D is of 3 questions of 5 marks each.*
3. *There is no overall choice .However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage . Attempt only one of the choices in such questions.*
4. *Wherever necessary, the diagrams drawn should be neat and properly labelled.*

Section A

1. Why are some fruits called as false fruits? Look at fruit below and label the parts. [1]

2. How will you justify that placenta acts like an endocrine tissue? [1]

3. A certain mutation in *E.coli* makes the *lac* operator unable to bind to the active repressor. How this would affect the cell? [1]

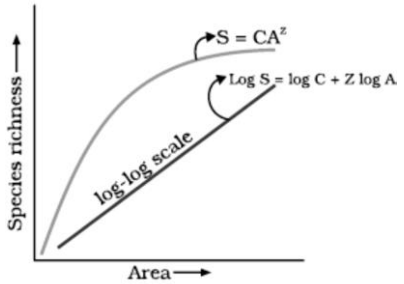
4. Red –green colour blindness is caused by a sex linked recessive allele. A colour- blind man marries a woman with normal vision whose father was colour- blind. What is the probability that their daughter will be colour – blind? What is the probability that their son will be colour – blind? [1]

5. Indicate the kind of defense to which each of the following phrases apply, humoral defense and cell mediated defense.
   [a] Production of antibodies
   [b] the specific recognition and direct killing of virus – infected cells
   [c] T cells are mainly responsible
   [d] B cells are mainly responsible
   [1]

6. Why is the transfer of energy in an ecosystem referred to as energy flow, not energy cycling? Justify
[1]

7. What are the trophic levels for a human eating a cheese sandwich? [1]

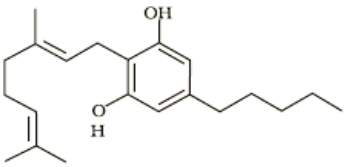
8. What is the significance of slope of regression in a species – area relationship graph as shown below? [1]



Section B

9. Explain the term emasculation. When and why does a plant breeder employ this technique. [2]

10. Identify the chemical structure. Give the scientific name of the plant from which it is obtained. Which two plant parts are used to extract this compound? Name the body system most affected by this compound.



[2]

11. Microbes are used in production of enzymes which are medically useful. Two such useful molecules are *streptokinase* and *statins.* Name the organisms from which they are obtained and state how are they useful for human beings?
[2]

12. A fungi belonging to genera Microsporum are responsible for causing an infectious disease in man. [i] Identify the disease [ii] Name the two other genera of fungi which too cause the same disease [iii] Give two major symptoms of the disease.
[2]

13. How do biofertilisers enrich the fertility of soil? Explain giving examples.
[2]

14. Which property of DNA double helix led Watson and Crick to hypothesize semi

conservative mode of DNA replication. Describe the experiment which proved the above.[2]

15. If a cross is made between a hybrid tall and red flowering plant (TtRr) with dwarf and white flowered (ttrr) what will be the genotype and phenotype of the F_1generation? What is such a
cross called?
[2]

16. Write a short note on Biopiracy.
Or
Explain what is RNA interference with the help of an example.
[2]

17. Where are sacred groves in eastern India? What is their role in conservation?
[2]

18. Explain the consequences of deforestation.
[2]

Section C

19. What is menstruation? What are the specific functions of FSH, LH, estrogen and progesterone in the menstrual cycle?
[3]

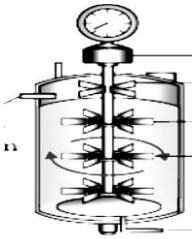
20. How does Miller's experiment support the theory of biochemical origin of life? Explain. [3]

21. Explain central dogma of molecular biology.
[3]

22. A woman sues a man for the parentage of her child. Woman's blood group is A ,her child's
O and the man has blood group B. Explain whether she is right by applying your knowledge
of genetic inheritance of blood groups.
[3]

23. The first clinical gene therapy was given in 1990 to a four year old girl with adenosine deaminase deficiency. Explain how this was brought about?
[3]

24. Identify the device ,label the parts marked and explain its use?
[3]



25. What is a cloning vector? Why are cloning vectors necessary in cloning? Name any two such vectors that are used for experiments.

Or

What are the advantages of molecular diagnostics over conventional methods? Explain a technique with an example used for this purpose.
[3]

26. Expand GEAC. What role does it play? How many documented varieties of Basmati rice are grown in India? How has this variety of rice been exploited?
[3]

27. What is meant by ozone shield ? Name two ozone depleting substances . How do the ozone depleting substances affect the ozone shield? Write two damaging effect of ozone-depletion on humans.
[3]

Section D

28. What is infertility? State the different reasons for the same. Describe the different methods available to assist infertile couples to have children.

Or

Enumerate the events that take place in a flower from the time pollen grains are deposited on the stigma up to the completion of fertilization.
[5]

29. Describe the steps in DNA- fingerprinting. Who developed this technique? Mention its application.

Or

[i] Describe the Hardy Weinberg's equilibrium and the factors affecting it
[ii] Name the common ancestors of ferns ,horsetails and gnetales
[iii] Name the animal that evolved into the first amphibians
[5]

30. [i]What is meant by ecological succession? Differentiate between pioneer community and climax community.
[ii] What would happen to the successive trophic levels in the pyramid of energy ,if the
rate of reproduction of the phytoplankton was slowed down?

Or

Explain the five population interactions with an example in each interaction.
[5]

Best wishes for your exams