

Sample Paper – 2014
Class – XII
Subject - Biology

Time: 3Hr.

M.M. 70

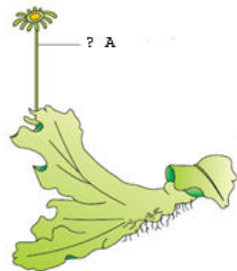
- a. All Questions are compulsory
- b. This question paper consists of four Section A, B, C and D. Section A contains 8 questions of one mark each, Section B is of 10 questions of two marks each, Section C is of 9 questions of three marks each and Section D is of 3 questions of five marks each.
- c. Use of calculator is not permitted. However, you may ask for log tables, if necessary.

Section A

1. Give the life span and number of chromosomes in meiocytes of fruit fly.
2. State two different roles of lymph nodes in the human body.
3. A garden pea plant produced inflated pod shape. Another of the same species produced constricted pod shape. Identify the dominant traits.
4. What are two expensive metals use in catalytic converters?
5. Where are mitochondria present in sperm of humans? Write it function.
6. Write the name of the following:
 - (a) The real product of honey bees.
 - (b) An improved breed of sheep developed in Punjab.
7. Comment on the sweet potato and potato example in evolution. What do you infer from the above, with reference to evolution?
8. Mention the role of *Glomus* as a biofertiliser.

Section B

9. (a) Draw a neat labeled diagram of a tRNA.
(b) What is codon of tyrosine amino acid?
10. State one advantage and one disadvantage of xenogamy.
11. (a) Which layer of uterus participate major role in parturition in humans?
(b) The first movements of foetus and appearance of hairs on head are observed in which month of pregnancy?
12. (a) What is the significance of 'heat shock' method in bacterial transformation?
(b) Which steps are catalysed by Taq polymerase in a PCR reaction?
13. If a population of 50 *Paramecium* present in a pool increases to 150 after an hour, what would be the growth rate of population?
14. (a) Which gland in male reproductive system release the fructose.



(b) Identify the plant and structure A.

15. Name the plant source of smack. How does it affect the body of the abuser?

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What are the two types of barriers of innate immunity? How do they differ in their roles in immune response?

16. (a) Mention the cause and the body system affected by ADA deficiency in humans?
(b) Name the vector used for transferring ADA-DNA into the recipient cells in humans. Name the recipient cells.
17. How did Ramesh Chandra Dagar a farmer in Sonipat, solve the problem of accumulation of chemical insecticide and chemicals fertilizers in soil?
18. Name the worm that causes filariasis. Mention two diagnostic symptoms. How is this disease transmitted to others?

Section C

19. (a) Explain the phenomena of pleiotropy.
(b) In sickle cell anaemia glutamic acid is replaced by valine. Which type of change in DNA and RNA are responsible for this problem?
20. What is Hardy-Weinberg principle? Give five factors affect Hardy-Weinberg equation. Frequency of dominant allele in population is 0.6. Calculate the frequency of heterozygous population,
21. (a) What is the Programme called that is involved in improving success rate of production of desired hybrid and herd size of cattle?
(b) Explain the method used for carrying this programme for cows.
22. Explain the function of each of the following:
(a) Oxytocin
(b) Sporopollenin
(c) Tapetum
23. Illustrate the design of a bioreactor. Highlight the difference between a flask in your laboratory and a bioreactor which allows cells to grow in a continuous culture system.
24. Trace the life-cycle of malarial parasite in the human body when bitten by an infected female anopheles.
25. What is Genetic code? Give two degenerate of phenylalanine? Why genetic code is known as unambiguous and specific,

OR

What are the steps of DNA finger printing? What is the size of VNTR.

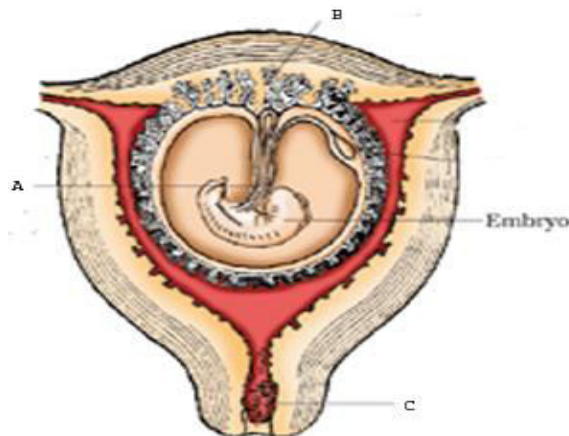
26. What is common to *Lantana*, *Eichhornia* and African catfish? Explain.
27. (a) Tobacco plants are damaged severely when infested with *Meloidegryne incognitia*. Name and explain the strategy that is adopted to stop this infestation.
- (b) Name the vector used for introducing the nematode specific gene in tobacco plant.

Section D

28. (a) According to David Tilman, greater the diversity, greater is the primary productivity. Can you think of a very low diversity man-made ecosystem that has high productivity?
- (b) Red data book? What does 'Red' indicate in the IUCN Red list (2004)?

OR

- (a) How does an electrostatic precipitator work?
- (b) What is the main idea behind “Joint Forest Management Concept” introduced by the Government of India?
29. The following is the illustration of the foetus in a human female uterus:



- (a) Identify the A, B and C. Give role of A, B and C.
- (b) Specify the endocrine function of placenta.

OR

- (a) Why are post fertilization structures and events in dicot angiosperms.
- (b) Draw a neat labeled sketch L.S of maize seed.

30. Describe Frederick Griffith's experiment on *Streptococcus pneumoniae*. Discuss the conclusion he arrived at.

OR

Gene expression can be regulated at several levels. Give various levels of gene regulations.

How are the structural genes activated in the lac operon in *E.coli*?

ALL THE BEST

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