CBSE Sample Paper Class 12 Biology Set 3

SUBJECT: BIOLOGY
CLASS : XII

MAX.MARKS: 70
TIME: 3 hours

Instruction

1. There are a total of twenty six 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 1 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.

Section A

1. Which group of organisms, regulators or conformers, can show maximum functional efficiency regardless of the existing weather conditions? Why?
2. Name a deadly disease that is completely eradicated from the world. How was it made possible?
3. The Government of India wants to improve the “blue revolution” programme. What does it aim for?
4. Name the type of pollination that is both genetically and functionally crossing. Which group of flowers will never undergo this type of pollination?
5. In which of the following species- crow, parrots, and tortoise- does speciation occur at the fastest rate? Why?

SECTION- B

6. Two people A and B, developed water-borne diseases. A showed sustained high fever and loss of appetite whereas B produced stools with excess mucous and blood clots. Identify the diseases of A and B.

Mention the target organs of the pathogens.

7. Give reasons for the following: a) Curd is nutritionally better than milk. b) Larger holes are observed in Swiss cheese. c) Alcoholic content in whisky is more than in beer, although both are made using malted barley and yeast. d) Nucleo-polyhedroviruses can be used effectively in ecologically fragile areas

8. How do the following help in cancer treatment?

i) alpha Interferon

ii) radiotherapy.

9. a) Differentiate between zoospore and zygote.

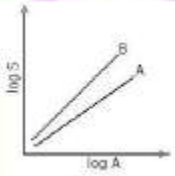
b) Which parts of flower develop into perisperm and pericarp?

10. Observe the graph, which shows the relationship between species richness and area, on a log scale, for two different geographical areas A and B.

(i)Which region shows a greater z value?

(ii)What does a greater z value indicate?

(iii)Provide an equation to show the relationship between species richness and area.



OR

State any three advanced methods of ex- situ conservation. In which way, do you think, is the advanced methods better than the traditional ex- situ methods?

SECTION –C

11. Newspaper reports suggest that the tiger population in our National Parks shows an increase.

a. How is the tiger census taken?

b. What do you call this type of estimation of population density?

c. How does interaction between ‘cuscuta growing on a plant’ differ from ‘orchids growing on a plant’?

12. i) How does primary immune response differ from secondary immune response?

ii) How do spleen and MALT help to defend body from diseases?

13. Draw a pyramid of numbers for a forest and an ocean .Explain the difference between the pyramids. Mark the different tropic levels.
14. a) According to a scientist, it is better to produce single cell protein than cattle rearing, to meet human nutritional needs. Suggest the advantages of single cell protein production.
    b) Suggest two applications of tissue culture.

15. i) Draw the cross-section of an apple and mark the edible part and seeds.
    ii) What type of a fruit is it? Why is it called so? iii) How does it differ from a parthenocarpic fruit?

16. You are instructed to isolate a gene 'X 'from the given tissue of a tomato plant. Explain the procedure followed, in correct sequence, so as to get the gene ready for amplification.

17. To which group of diseases do you include Chlamydiasis, trichomoniasis and syphilis?

18. Although all these diseases can be completely cured, why don't some people take timely treatment?

    a. Mention any four complications that can develop in later stages of life, if these types of diseases are not treated on time.
    b. Name a contraceptive, which can be effectively used to space children

19. . i. What are the key concepts of Darwinian theory?
    ii. State any two biochemical evidences to support evolution.
    iii. In rabbit species, a disease- condition called albinism develops due to recessive alleles.
    Let A be the allele for normal condition and "a" be the allele for albinism, such that AA and Aa represent normal phenotypes and "aa" represents the disease. Assume a large population in genetic equilibrium in which 16% of the individuals are affected. Calculate the frequency of the "a" allele and that of A allele.

20. a. What do you understand by the following terms –minisatellite, codon, exon, and operon?
    c. If a given segment of double-stranded DNA has 20% guanine, calculate the percent of adenine in the DNA.

21. Give six points of difference between replication and translation.

22. a. Name the type of bioreactor which provides greater surface area for oxygen transfer.

b. Why should the bioreactors possess a curved base?

c. What is the purpose of maintaining sampling ports and agitator system in bioreactor?

d. Name any two recombinant proteins, made using heterologous hosts

23. Diagrammatically represent the steps in prokaryotic transcription. Provide suitable captions and labels.

OR

What are the salient features of the human genome, as per the observations made from human genome project?

SECTION D

24. Transgenic animals are widely used in the health - care industry. Midhun and Sheethal had a debate on the topic. Midhun suggested that they are essential for several procedures followed in the industry. But, Sheethal opined that such experiments should be banned.

a. Which is the most widely –used transgenic animal?

b. State three ways in which they are used in human health - care industry.

c. What is your opinion about making and using transgenic animals for human benefits?

SECTION E

25. a) Name the phenomenon, in which a single gene product produces more than one phenotypic effect.

b) Give an example to it, one each from plants and human.

c) Give the genotypes, and phenotypic effects, in both cases mentioned above.

d) Out of the above-mentioned genotypes, which one shows incomplete dominance?

OR

Multiple allelism, polygenic inheritance, polyploidy and polycistronic gene are terms which refer to ‘many’.

i)How does polygenic inheritance differ from multiple allelism?

ii) Why is it said that multiple allelism exists only in populations, and not in individual organisms?

iii) How are polyploids formed?

iv) What do you mean by polycistronic gene? In which group of organisms are they found?

26.

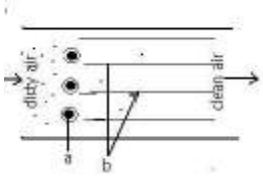
a) Label a and b, shown in the diagram.

b) How do a and b help in carrying out the function of the equipment?

c) Why do doctors suggest that particulate matter, less than 2.5 micrometre in diameter, is more harmful to human?

d) Why is dirty air allowed to pass through the equipment at a low velocity?

e) State two methods, which help to reduce noise in industrial establishments.



OR

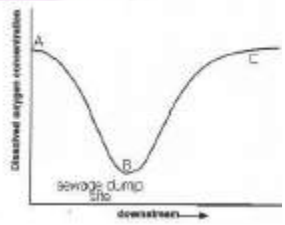
i)Observe the graph given. Name the type of organisms, observed in large numbers at A, B and C.

ii) Why does the concentration of oxygen fluctuate in the water body?

iii) What happens to the BOD of water at B and C?

iv) Mention the effects of UV-B radiations on human eye.

v) Name the hygienic, cost- effective, dry composting toilets. State their environmental effects.

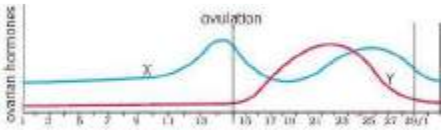


27.

a) From where are these two hormones –X and Y secreted? Mention their effects on the body of human female.

b) Progesterone is described as a pregnancy hormone. Then, how does the intake of progesterone – containing pills inhibit ovulation?

c) How is parturition brought about in human?



OR

i) Differentiate between spermatogenesis and oogenesis, with reference to the following aspects:

(a) formation and multiplication of oogonial and spermatogonial cells.

(b) number of gametes produced from one gamete mother cell.

(c) completion of the processes.

ii) In which stage of development and how does the embryo get implanted? iii) How is placenta formed? Name the hormones secreted only by the placenta.