SAMPLE QUESTION PAPER – I

BIOLOGY

CLASS – XII

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

General Instruction :

(i) This question paper consists of four sections A, B, C, and D. Section A contains 5 questions of 1 mark each. Section B is of 10 questions of 2 marks each. Section C is of 10 questions of 3 marks each and section D is of 3 questions of 5 marks each.

(ii) All questions are compulsory.

(iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and one question of 5 marks weightage. Attempt only one of the choices in such questions.

(iv) Question number 1 to 5 are to be answered in one word or one sentence each.

(v) Question number 6 to 15 are to be answered in approximately 20 – 30 words each.

(vi) Question number 16 to 25 are to be answered in approximately 30 – 50 words each.

(vii) Question number 26 to 28 are to be answered in approximately 80 – 120 words each.

SECTION–A

1. A potted plant otherwise kept in sunlight is shifted to monochromatic red light (wave length 700mm). Will the rate of photosynthesis increase, decrease or remain the same? 1

2. Name two non-iron products of the breakdown of haemoglobin. 1

3. Flowers that bloom at night are usually small and white but give out a strong scent. Why do they do so ? 1

4. Rearrange the following levels in their correct organisational sequence : 1

Landscape, Organism, Community, Population Ecosystem, Biosphere.

5. During a meristem culture some explants were kept in culture medium containing more of auxins than cytokinins. Which organ of the plant is expected to differentiate from the callus? 1

SECTION–B

6. Name the enzyme that catalyses carboxylation as well as oxygenation reaction. In which cell organelle is this enzyme found and in what way is that organelle different in the mesophyll and bundle sheath cells? 2

7. How do the potassium, chloride and malate ions help in opening the stomata? 2

8. Two green potted plants were kept separately inside oxygen free bell jars, one in sunlight and the other in dark. Which of the two plants will survive for longer period and why? 2

9. A student unknowingly crushed a cockroach under his shoes. Finding that no red fluid comparable to vertebrate blood came out, he is curious to know whether the cockroaches are at any disadvantage. How will your satisfy his curiosity? 2

10. Show by a series of diagrams the manner of regeneration in a hydra if it is cut into two pieces transversely at the middle. 2

OR

Show by a series of diagrams the manner of transverse binary fission in Planaria. 2

11. In extreme summer and winter, certain animals like frogs and lizards abandon active life. This is popularlly called summer sleep and winter sleep respectively. 2

    (i) What are the technical terms for summer sleep and winter sleep?

    (ii) State any two changes in the body that occur during the above mentioned dormant states.

12. State the relationship between biotic potential and environmental resistance. 2

13. Define parthenogenesis. Give one example of parthenogenesis from plants and one from animals. 2

14. What is meant by active immunity and passive immunity? 2

15. A person was born without thymus gland but otherwise normal. Mention any four ways in which the person is likely to suffer due to it absence. 2

SECTION–C

16. Mr. 'X' hardly fell sick when young. As he aged and grew older he started contracting many infectious diseases. 3

    (i) Name the theory of ageing which explains the above mentioned change.

    (ii) What causes susceptibility to infections in old age?

17. How many pairs of ribs are found in the humans? How do you categorise these on the basis of their attachment ? Explain. 3

18. Stomach is the right place where hydrochloric acid is required to be secreted in the gastric juice. Describe any three points to justify this statement. 3

19. Suppose for some reason ATP falls deficient in a nerve fibre, how will it effect the conduction of nerve impulse through it? 3

20. Giving an example of CAM plants explain the process of Crassulacean Acid Metabolism. What is its advantage? 3

OR

Starting from Glycolate produced in the chloroplast, explain the various steps of photorespiratory pathway that takes place in the other two organelles up to the formation of PGA back in the mitochondria. 3

21. Differentiate between morula and blastocyst as stages in human embryonic development. Which of these stages gets implanted in the uterine wall and about how many days after fertilization? 3

22. Name the three major Biomes and state the kind of climax vegetation found in each of them. 3

23. Name and define the environment-related terms for the following. :

    (i) Pertaining to the fact that DDT accumulated in a three step food chain will be maximum in the secondary consumer.

(ii) Pertaining to causing algal bloom.

24. List and briefly describe any three diagnostic techniques by images based on the use of 'X'-rays. 3

25. In regard to transplant of organs, what are isograft, allograft and xenograft? 3

SECTION–D

26. Name any two C_4 plants. Specify how the C_4 photosynthetic pathway increases CO_2 concentration in bundle sheath cells of such plants and explain what is the need of increasing CO_2 concentration. 5

27. Decribe the structure of immunoglobin Ig/antibody. Draw a diagram showing the formation of antigen-antibody complex and label the parts. 5

28. Differentiate between osmoregulators and osmoconformers. How will you categorise humans, hagfish, and camel under these? Mention any four points how camel regulates the water content of its body. 5

OR

Trace the events in a muscle fibre from the time it receives the impulse through the neuromuscular junction up to the contractile response. 5

SAMPLE PAPER – II

BIOLOGY

CLASS – XII

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

General Instruction :

(i) This question paper consists of four sections A, B, C, and D. Section A contains 5 questions of 1 mark each. Section B is of 10 questions of 2 marks each. Section C is of 10 questions of 2 marks each and section D is of 3 questions of 5 marks each.

(ii) All questions are compulsory.

(iii) These is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and one question of 5 marks weightage. Attempt only one of the choices in such questions.

(iv) Question number 1 to 5 are to be answered in one word or one sentence each.

(v) Question number 6 to 15 are to be answered in approximately 20 – 30 words each.

(vi) Question number 16 to 25 are to answered in approximately 30 – 50 words each.

(vii) Question number 26 to 28 are to be answered in approximately 80 – 120 words each.

SECTION – A

1. What does the P wave in a normal electrocardiogram indicate ? 1

2. Why is the larynx raised while swallowing the food? 1

3. Sperms have a tail, whereas eggs do not. Why so ? 1

4. Expand the abbreviations given below – 1

   (i) IUCN (an organisation) 1

   (ii) PAN (a pollutant)

5. Tonsil of a person have been surgically removed. What change do you visualise on lymphocytes of this person? 1

SECTION – B

6. Define Respiratory Quotient (R.Q). Mention the conditions under which

   (i) R.Q. is 1.

   (ii) R.Q. is less than 1. ½+½=1

7. In the root nodules of leguminous plants, what is the role of nitrogenase and leghemoglobin? 1+1=2

8. Describe any two common features in a hinge joint and a ball and socket joint. 1+1=2

9. How do you justify the inclusion of silicosis and asbestosis under occupational lung diseases? 1+1=2

10. Draw a series to diagrams of show exogenous budding in Hydra. 2

OR

Draw a labelled diagram of the sectional view of a pollen grain.

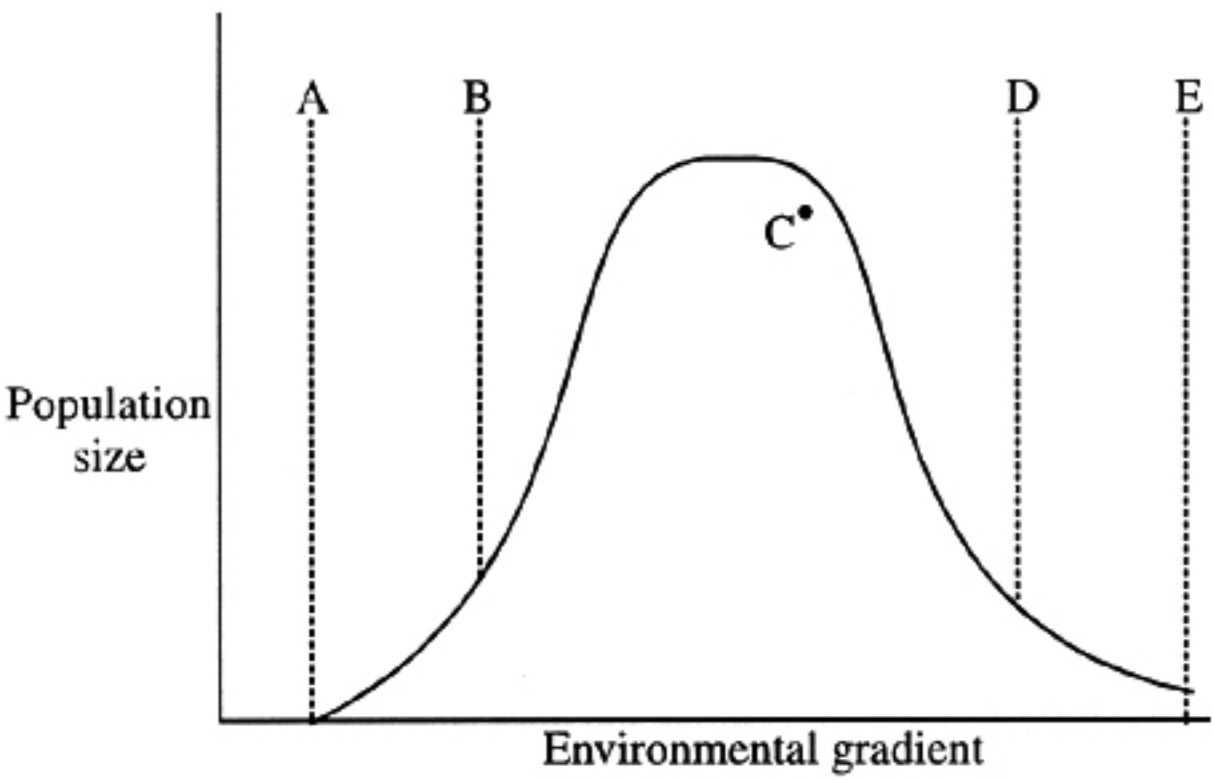
11. What is a bioweapon (biological weapon) and a bioweapon agent in biological war? 2

12. On a trip to Sunderbans your friend saw many mangroves. As a biologist how will you explain to your friend that 2

   (i) they are halophytes.

   (ii) they have pneumatophores, the term he had heard but did not understand? 1+1=2

13. The graph plotted between population size and environmental gradient (e.g. nutrient, light, temperature) is given below :



What do the regions A,B,C,D and E shown in the graph represent? (Give any four) 2

14. In an open heart surgery the patient is put on a heart-lung machine. How the role of the heart and the lung of the person will get performed by the machine? 2

15. Define Parthenogenesis. Give one example of parthenogenesis from plants and one example from animals. 2

SECTION – C

16. Name the three cellular organelles that are involved in photorespiration. Mention the various steps of photorespiratory pathway. 3

17. What is the role of carbonic anhydrase? Show by a series of reactions, how carbonic anhydrase starts the reaction leading to the formation of heamoglobinic acid (H.Hb)? 3

18. How does the proximal convoluted tubule of the nephron contribute in homeostasis? 3

19. Name the three basic types of growth in living organisms. Mention the characteristics of each type. 3

20. Differentiate between renewable and non-renewable resources of energy. How will you justify that hydropower is a renewable energy resource? 3

OR

How the terms edge species, edge effect and ecotone are related in respect to biotic community organisation? 3

21. Pertaining to the process of ageing mention three major steps how the free radicals in the body lead to progressive decline in the functioning of cells. 3

22. Name the causal organism of the disease Anthrax. Mention any *four* symptoms of this disease in subacute cases. 3

23. When the first few Drawin's finches (birds) arrived on the Galapagos Islands from the mainland of south America, they soon grew to enormous number. Later, their number reached a constant and continues till today. How can you explain this phenomenon in ecological terms? 3

24. A person was complaining of excessive thirst and excretion of large amounts of urine. The treating doctor gave some medicines but did not advise him to stop taking sugar in his food. Name the disease and explain what happens in it?

25. The immune system of a person is not making discrimination between the 3

molecules of "self" and "non self". How will this situation affect his body? Name any one pathological disorder which results due to this situation. What happens to nerve cells in multiple sclerosis?

SECTION – D

26. Define transpiration. Mention two ways in which transpiration is useful to the plant. What are the three environmental factors that affect the transpiration. How does the increase in these factors affect the rate of transpiration? 5

27. (i) Draw a schematic diagram of the body of cockroach to show the three sinuses. Indicate the direction of the flow of blood by means of arrows. 5

(ii) Describe how the heart of cockroach maintains the unidirectional flow of blood.

28. In what way the life span of a differentiated normal cell is different from the life span of cancer cell? Mention four different categories of cancer. 5

OR

(i) Distinguish between an autopolyploid individual and an allopolyploid individual.

(ii) How the *Triticale*, a man made crop, was developed? (Answer the question on the basis of the genome content) 5