



**Biology (044)**

**Grade XI**

**Sample paper-1**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

- 1.All questions are compulsory.
- 2.The question paper has five sections and 33 questions. All questions are compulsory.
- 3.Section—A has 16 questions of 1 mark each; Section—B has 5 questions of 2 marks each; Section—C has 7 questions of 3 marks each; Section—D has 2 case-based questions of 4 marks each; and Section—E has 3 questions of 5 marks each.
- 4.There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- 5.Wherever necessary, neat and properly labelled diagrams should be drawn.

Qn. No		
<b>SECTION A</b>		
1	It is known that exposure to carbon monoxide is harmful to animals because a. It reduces CO <sub>2</sub> transport    b. It reduces O <sub>2</sub> transport c. It increases CO <sub>2</sub> transport    d. It destroys haemoglobin	1
2	Which of the following is a defining characteristic of living organisms? a. Growth            b. Ability to make sound c. Reproduction    d. Response to external stimuli	1
3	Select a limbless amphibian from the following :  Bufo, Salamander, Ichthyophis, Hyla	1
4	Naked cytoplasm, multinucleated and saprophytic are the characteristics of	1

	a. Monera	b. Protista	c. Fungi	d. Slime molds	
5	Mannitol is the stored food in a)Chara                      b)Porphyra                      c)Fucus                      d)Gracilaria				1
6	Which one of the following statements is incorrect? a. In cockroaches and prawns excretion of waste material occurs through malpighian tubules. b. In ctenophores, locomotion is mediated by comb plates. c. In Fasciola, flame cells help in excretion d. Earthworms are hermaphrodites and yet cross fertilisation take place among them				1
7	Respiratory process is regulated by certain specialised centres in the brain. One of the following centres can reduce the inspiratory duration upon stimulation a. Medullary inspiratory centre b. Pneumotaxic centre c. Apneustic centre d. Chemosensitive centre				1
8	Algae have cell wall made up of; a)Cellulose, galactans & mannans b)Hemicelluloses, pectins & proteins c)Pectins, cellulose & proteins d)Cellulose, hemicelluloses & pectins				1
9	Birds and mammals share one of the following characteristics as a common feature. a. Pigmented skin b. Pneumatic bones c. Viviparity d. Warm blooded				1
10	Select the correct pair a. Arthropoda- silver fish b. Pisces- jelly fish c. Echinodermata- cuttle fish d. Mollusca- star fish				1
11	Cyanobacteria are classified under a. Protista b. Plantae c. Monera d. Algae				1

12	<p>Match the column A with column B and choose the correct option</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Column I</td> <td style="width: 50%;">Column II</td> </tr> <tr> <td>A. Porifera</td> <td>i. Canal system</td> </tr> <tr> <td>B. Aschelminthes</td> <td>ii. Water-vascular system</td> </tr> <tr> <td>C. Annelida</td> <td>iii. Muscular pharynx</td> </tr> <tr> <td>D. Arthropoda</td> <td>iv. Jointed appendages</td> </tr> <tr> <td>E. Echinodermata</td> <td>v. Metameres</td> </tr> </table> <p>a. A-ii, B-iii, C-v, D-iv, E-i  b. A-ii, B-v, C-iii, D-iv, E-i  c. A-i, B-iii, C-v, D-iv, E-ii  d. A-i, B-v, C-iii, D-iv, E-ii</p>	Column I	Column II	A. Porifera	i. Canal system	B. Aschelminthes	ii. Water-vascular system	C. Annelida	iii. Muscular pharynx	D. Arthropoda	iv. Jointed appendages	E. Echinodermata	v. Metameres	1
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<p><b>DIRECTION</b> : Q. No. 13-16: Consist of two statements—  Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:</p> <p>(a) Both A and R are true and R is the correct explanation of A.  (b) Both A and R are true and R is not the correct explanation of A.  (c) A is true but R is false.  (d) A is False but R is true.</p>														
13	<p>Assertion :Plant body is usually grass green in colour in Chlorophyceae.  Reason :Members of Chlorophyceae possess chlorophyll a, c, carotenoids and xanthophyll.</p>	1												
14	<p>Assertion: In ctenophores, digestion is chiefly extracellular.  Reason: Digestive tract is incomplete in ctenophores.</p>	1												
15	<p>Assertion:Pili are motile appendages found in some bacteria.</p>	1												

	Reason: These participate in conjugation.	
16	Assertion: Alveoli are the primary sites for exchange of gases. Reason: All factors in our body are favourable for diffusion of O <sub>2</sub> from alveoli to tissues and that of CO <sub>2</sub> from tissues to alveoli.	1
<b>Section—B</b>		
17	What is the principle underlying the use of cyanobacteria in agricultural fields for crop improvement?	2
18	Mention the main parts involved in the initiating a pressure gradient between the lungs and the atmosphere during normal respiration.	2
19	Endoparasites are found inside the host body. Mention the special structure, possessed by these and which enables them to survive in those conditions.	2
20	Differentiate between open and closed circulatory system?	2
21	In the five kingdom system of Whittaker, how many kingdoms are eukaryotes? Explain	2
<b>Section—C</b>		
22	Give the characteristic features of the following citing one example of each a. Chondrichthyes and osteichthyes	3
23	Differentiate between a. Inspiratory and expiratory reserve volume b. Vital capacity and total lung capacity c. Emphysema and occupational respiratory disorder	3
24	What observable features in Trypanosoma would make you classify it under kingdom Protista?	3
25	How useful is the study of the nature of body cavity and coelom in the classification of animals?	3
26	All vertebrates are chordates but all chordates are not vertebrates. Justify the statement.	3
27	Describe the role of the neural system in controlling respiration.	3

28	Find out what do the terms 'algal bloom' and 'red-tides' signify.	3
<b>Section—D</b>		
29	<p><b>Read the following and answer any four questions:</b></p> <p>Exchange of gases also occurs between blood and tissues. O<sub>2</sub> and CO<sub>2</sub> are exchanged in these sites by simple diffusion mainly based on pressure/concentration gradient. The solubility of the gases, as well as the thickness of the membranes involved in diffusion, are also some important factors that can affect the rate of diffusion.</p> <p>1. Pressure contributed by an individual gas in a mixture of gases is called _____.</p> <p>a) Atmospheric pressure      b) Differential pressure c) Capillary pressure      d) Partial pressure</p> <p>2. _____ are the primary sites of exchange of gases.</p> <p>a) Alveoli      b) Trachea c) Diaphragm      d) Bronchi</p> <p>3. The diffusion membrane is made up of _____ major layers.</p> <p>a) Two      b) Three c) Four      d) Five</p> <p>4. What are the values of pO<sub>2</sub> and pCO<sub>2</sub> in the body tissues?</p> <p>a) pO<sub>2</sub> – 104 mm Hg, pCO<sub>2</sub> – 40 mm Hg b) pO<sub>2</sub> – 104 mm Hg, pCO<sub>2</sub> – 140 mm Hg c) pO<sub>2</sub> – 95 mm Hg, pCO<sub>2</sub> – 40 mm Hg d) pO<sub>2</sub> – 40 mm Hg, pCO<sub>2</sub> – 45 mm Hg</p>	4
30	<p><b>Read the following and answer any four questions:</b></p> <p>Amphibians are the first tetrapods to invade the land. The juvenile phase of the life cycle is dependent on water, where gas exchange occurs through gills. Amphibians have aquatic larval life and terrestrial adult life. Respiration is by gills, lungs and skin. Their body is divisible into head and</p>	4

	<p>trunk and skin is moist without scales. The two pairs of limbs are used for locomotion except for caecilians.</p> <p>They are cold- blooded animals. Respiration is by gills (in larva); lungs and skin (in adults). Amphibians have a three-chambered heart. Fertilisation is external. However, in Salamander and Ichthyophis fertilisation is internal. They are mostly oviparous, except for salamanders, which are viviparous. Development is indirect.</p> <p>(i) Amphibians are cold- blooded animals hence, they are called animals.</p> <p>(a) Homeothermic (b) Homoiothermic (c) Poikilotherms</p> <p>(d) Homothermic</p> <p>(ii) All amphibians use two pairs of limbs for locomotion, however, it is a limbless amphibia.</p> <p>(a) Bufo (b) Salamandra (c) Hyla (d) Ichthyophis</p> <p>iii) Neck is not found in a frog. This absence helps the frog to</p> <p>(a) swim in water (b) respire (c) catch prey (d) jump on ground</p> <p>vi) Even after attaining sexual maturity, larval characters are retained. It is known as</p> <p>(a) Phylogenesis (b) Neoteny (c) Parthenogenesis (d) Ontogenesis</p>	
<b>SECTION-E</b>		
31	<p>Biological classification is a dynamic and ever evolving phenomenon which keeps changing with our understanding of life forms. Justify the statement taking any two examples</p> <p style="text-align: center;">Or</p> <p>What are the characteristic features of euglenoids?</p>	5
32	<p>a) What are the major transport mechanisms for CO<sub>2</sub>? Explain.</p> <p style="text-align: center;">or</p> <p>a) Define oxygen dissociation curve. Can you suggest any reason for its sigmoidal pattern?</p> <p>b) Explain the role of Haemoglobin for the transport of O<sub>2</sub>?</p>	5
33	<p>What are the modifications that are observed in birds that help them fly?</p>	5