

**KENDRIYA VIDYALAYA SANGATHAN  
LUCKNOW REGION**

**MARKING SCHEME**

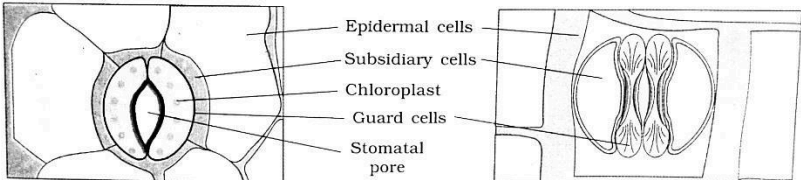
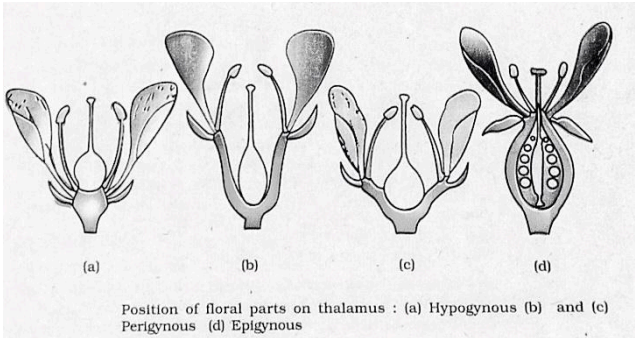
**CLASS XI**

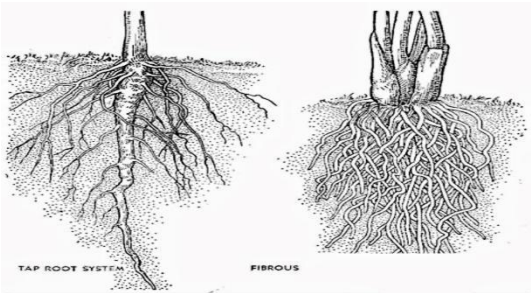
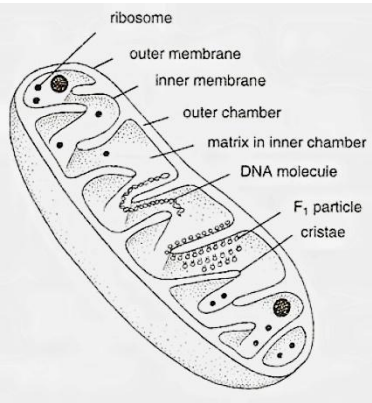
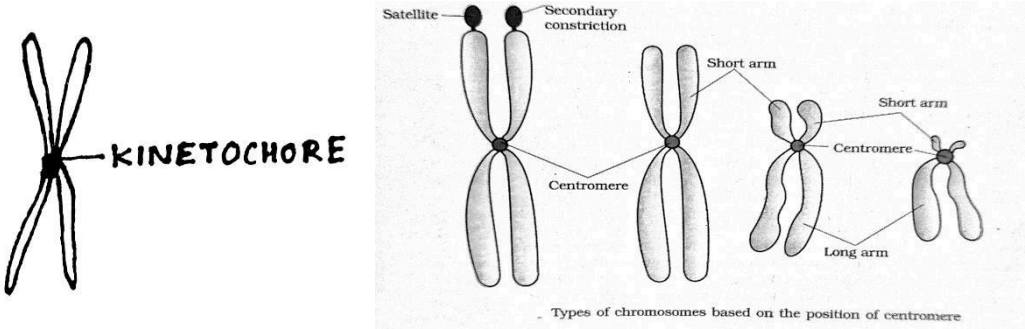
**BIOLOGY (044)**

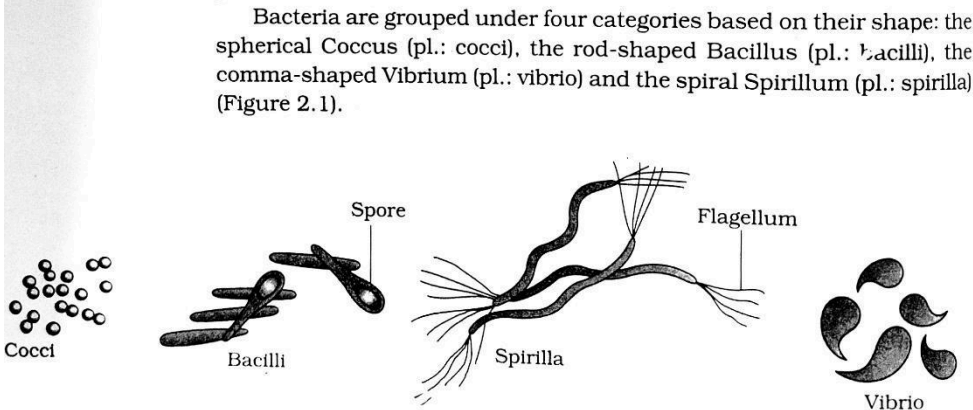
**SESSION ENDING EXAMINATION**

<b>Ans. No.</b>	<b>ANSWER</b>	<b>MARKS</b>
<b>SECTION A</b>		
1	d	1
2	a	1
3	d	1
4	b	1
5	b	1
6	d	1
7	c	1
8	c	1
9	b	1
10	b	1
11	d	1
12	a	1
13	a	1
14	a	1
15	b	1
16	a	1
<b>SECTION B</b>		
17	a. Sycon or Euspongia or spongilla or any one suitable example b. Arthropoda c. Ctenophora d. Jawless or gill slits or any one suitable feature	$\frac{1}{2} \times 4 = 2$
18	External morphology of frog with description consisting- head, eye, fore limb, hind limb and trunk.	2
19	<ul style="list-style-type: none"> <li>The ratio of the volume of CO<sub>2</sub> evolved to the volume of O<sub>2</sub> consumed in respiration is called the respiratory quotient (RQ) or respiratory ratio. RQ = volume of CO<sub>2</sub> evolved / volume of O<sub>2</sub> consumed</li> <li>RQ = 6CO<sub>2</sub> / 6O<sub>2</sub> = 1 In above reaction the RQ is calculated as one.</li> </ul>	1+1=2
20	a. iv b. i c. ii d. v e.	$\frac{1}{2} \times 4 = 2$
21	The list of the important features present in the class Mammalia with a suitable example.	2

## SECTION C

22	<p>The structure of stomata (any one) and properly labelled.</p> <div style="text-align: center;">  <p>Diagrammatic representation: (a) stomata with bean-shaped guard cells (b) stomata with dumb-bell shaped guard cell</p> <p>Or</p>  <p>Position of floral parts on thalamus : (a) Hypogynous (b) and (c) Perigynous (d) Epigynous</p> </div>	3
23	<p>The Calvin cycle can be described under three stages-</p> <ol style="list-style-type: none"> <li><b>Carboxylation-</b> Carboxylation is the fixation of <math>\text{CO}_2</math> into a stable organic intermediate. Carboxylation is the most crucial step of the Calvin Cycle where <math>\text{CO}_2</math> is utilized for the carboxylation of RuBP. This reaction is catalysed by the enzyme RuBP carboxylase which results in the formation of two molecules of 3-PGA. Since this enzyme also has an oxygenation activity it would be more correct to call it RuBP carboxylase-oxygenase or RuBisCo.</li> <li><b>Reduction-</b> These are a series of reactions that lead to the formation of glucose. The steps involve utilization 2 molecules of ATP for phosphorylation and two NADPH for reduction per <math>\text{CO}_2</math> and 6 turns of the cycle are required for the formation of one molecule of glucose from the pathway.</li> <li><b>Regeneration-</b> Regeneration of the <math>\text{CO}_2</math> acceptor molecule RuBP is crucial if the cycle is to continue uninterrupted. The regeneration steps require one ATP for phosphorylation to form RuBP.</li> </ol>	1+1+1=3
24	<p>The required differences between Archaeobacteria and Eubacteria at least three points in both. NCERT page no. 19</p> <p style="text-align: center;">Or</p> <p>The universal rules of binomial nomenclature of living organisms. NCERT page no.7</p>	3

25	<p>A general diagram of both root system and description with a suitable example in each.</p>  <p>The diagram shows two types of root systems. On the left is the 'TAP ROOT SYSTEM' which has a single, large, central root. On the right is the 'FIBROUS' root system which consists of many smaller roots of similar size branching out from the base of the plant.</p>	3
26	<p>Diagram</p>  <p>The diagram shows a cross-section of a mitochondrion. It has an outer membrane and a highly folded inner membrane. The space between the membranes is the outer chamber, and the space inside the inner membrane is the matrix. Labels include: ribosome, outer membrane, inner membrane, outer chamber, matrix in inner chamber, DNA molecule, F<sub>1</sub> particle, and cristae (the folds of the inner membrane).</p> <p>The contribution of mitochondria in cell in description.</p>	2+1 =3
27	The suitable functions of each phytohormones given.	1+1+1=3
28	Diagram of a neuron and proper labellings.	3
<b>SECTION D</b>		
29	<p>a. (ii) b. (iii) c. Vasa recta Or In some of the nephrons, the loop of Henle dips into the medulla. These nephrons are called as Juxta Medullary Nephrons. Note:- If any student write the function only then award the full marks.</p>	1+1+2 =4
30	<p>a. Robert Brown (1931) b. Basic dyes c. Perinuclear space, Red Blood Cells (R.B.C.) Or It is a site for active ribosomal RNA synthesis.</p>	1+1+2 =4
<b>SECTION D</b>		
31	 <p>The diagram shows a single chromosome with two sister chromatids joined at a central point called the centromere. Labels include: KINETOCHORE (on the centromere), Satellite (on the short arm), Secondary constriction (on the short arm), Short arm, Long arm, and Centromere. Below the diagram is the caption: 'Types of chromosomes based on the position of centromere'.</p>	5

	<p>Structure of chromosome The description of metacentric, sub-metacentric, acrocentric and telocentric. Or Detail about description of all stages of Mitosis.</p>	
32	<p>The method of circulation as mentioned in NCERT page 283-84. Or The description of following types of the muscles i. Skeletal ii. Visceral iii. Cardiac</p>	5
33	<p>a.</p>  <p>Bacteria are grouped under four categories based on their shape: the spherical Coccus (pl.: cocci), the rod-shaped Bacillus (pl.: bacilli), the comma-shaped Vibrium (pl.: vibrio) and the spiral Spirillum (pl.: spirilla) (Figure 2.1).</p> <p>The description of all shapes given</p> <p>b. The mycoplasma are organisms that completely cell wall. They are the smallest living cells known and can survive without oxygen. Many mycoplasma are pathogenic in animals and plants. Or</p> <ol style="list-style-type: none"> <li>Mycorrhiza- Roots of some genera have fungal association in form of mycorrhiza. Example <i>Pinus</i></li> <li>Agar- One of the commercial products obtained from Gelidium and Gracilaria (student can write any one) are used to grow microbes and in preparation of ice-creams and jellies.</li> <li>Bilateral Symmetry- Animals can be categorized on the basis of their symmetry. When the body can be divided into identical left and right halves in only one plane, exhibit bilateral symmetry. Example annelids, arthropods or any suitable one.</li> <li>Coelom- Presence or absence of a cavity between the body wall and the gut wall is very important in classification. The body cavity which is lined by mesoderm is called coelom. Student can cite any example related to any kind of coelom.</li> <li>Diploblastic animals- Animals in which the cells are arranged in two embryonic layers, an external ectoderm and internal endoderm, are called diploblastic animals. Example coelenterates</li> </ol>	<p>3+2 =5</p> <p>1 x 5 = 5</p>

