

**MARKING SCHEME
CUMULATIVE EXAMINATION(H/Y)
CLASS XI BIOLOGY**

SECTION A		
A.No.	Answers	Marks
1	b	1
2	c	1
3	b	1
4	c	1
5	b	1
6	d	1
7	a	1
8	c	1
9	d	1
10	c	1
11	a	1
12	b	1
13	b	1
14	a	1
15	a	1
16	b	1
SECTION B		
17	The students should write the names of all shapes (cocci, bacilli, spirilla and vibrio) The supporting simple diagram in each type.	2
18	Singer and Nicolson (1972) The quasi-fluid nature of lipid enables lateral movement of protein within the overall bilayer. This ability to move within the membrane is measured as its fluidity. ($\frac{1}{2}+1\frac{1}{2}=2$)	2
19	a. Solanaceae b. Obligately or obliquely placed placenta. (Any one should be correct).	2
20	Mitochondria It produces cellular energy in the form of ATP, hence it is called 'power house' of the cell. The matrix also possesses single circular DNA molecule, a few RNA molecules, ribosomes (70 s) and the components required for the synthesis of proteins. The mitochondria divide by fusion. (any three) <p style="text-align: center;">Or</p> Chromosome synapsis is accompanied by synaptonemal complex and starts in Zygotene or any suitable description.	2
21	Linnaeus time, Plantae and Animalia The system did not distinguish the Prokaryotic and Eukaryotic, Unicellular and multicellular, photosynthetic and non-photosynthetic and large number of organisms did not fall into either category. (Note; Any two should be mentioned in answer)	2
SECTION C		
22	The phyllotaxy is of three types. Name of all three types with one suitable example in each. ($\frac{1}{2} \times 6 = 3$)	3
23	The students have to write at least four features and one example.	3
24	In the nature of the enzyme action, the specific enzyme (E) for particular substrate (S) after reaction forms the product (P). The reaction is completed in to the following steps. $E + S \rightleftharpoons ES \rightarrow EP \rightarrow E + P$ <ol style="list-style-type: none"> 1. First, the substrate binds to the active site, of the enzyme, fitting into the active site. 2. The binding of the substrate induces the enzyme to alter its shape, fitting more tightly around the substrate. 3. The active site of the enzyme, now in close proximity of the substrate breaks the chemical bonds of the substrate and the new enzyme-product complex ix formed. 4. The enzyme releases the products of the reaction and the free enzyme is ready to bind to another molecule of the substrate and run through the catalytic cycle once again. 	3

25	Based on the position of Calyx, corolla and androecium in respect to the ovary on thalamus, the flowers are described as hypogynous, perigynous and epigynous. The student have to write the description of all above given type.	3
26	The suitable differences present between Eubacteria and Archaeobacteria.	3
27	On the basis of the presence of the centromere the chromosomes are divided into four types viz. metacentric, sub-metacentric, acrocentric and telocentric (one line description of all) and simple diagram of all	2+1 =3
28	1½ for diagram + 1½ for labelings.	3
SECTION D		
29	(i) b (ii) d (iii) In cycus, small specialised roots i.e. coralloid roots are found. Coralloid roots shows symbiotic association with Nitrogen – fixing cyanobacteria. Or The leaves in gymnosperms are well-adapted to survive in extremes of temperature, humidity and wind. The needle-like leaves reduce the surface area. Their thick cuticle and sunken stomata also help to reduce water loss.	1+1+2 =4
30	(i) c (ii) b (iii) The essential amino acids present in our diet and body not synthesized. The non-essential amino acids synthesized by our body. Or The nitrogen bases A and G of one strand compulsorily base pairs with T and C, respectively, there are two hydrogen bonds between A and T and three hydrogen bonds between G and C.	1+1+2 =4
SECTION E		
31	a. Any two differences with diagram b. Any two differences with diagram c. Root cap protects the tender apex of the root as it makes its way through the soil. (2+2+1) Or a. The arrangement of flowers on the floral axis is termed as inflorescence. Description of both type of inflorescence (Racemose and Cymose) b. Venation is the arrangement of veins and veinlets in the lamina of leaf. Description of both types reticulate and parallel with reference of dicotyledonous and monocotyledonous c. Suitable diagrams of tap root system and fibrous root system.	5
32	-Carolus Linnaeus (1+3+1) -All the universal rules given in the text book - <i>Musca domestica</i> and <i>Triticum aestivum</i> (Note: The all biological names should be according to the rules.) Or Suitable answers from the text book. (2½ + 2½)	5
33	The description of the process of photosystem I and II (4) Diagram (1) Or The Diagram of Calvin Cycle. (2) The description of all three steps Carboxylation, Reduction and Regeneration. (3)	5

