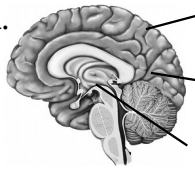
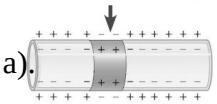
First Term Summative Assessment 2025-'26 BIOLOGY Class 10

Qn	Answer Key / Hints (English medium)	Score
1	d). ii only. **2**. b). i, iv only. **3**. d) P-2, Q-1, R-3 **4**. Mutation.	**4x1**
5	A. a). P, Thiamine is present / Uracil is absent. b). G-C, T-A, A-T, C-G **OR** **B**. a). Errors during DNA replication, certain chemicals, radiations (any 2) b). Mutated genes are transferred through generations which leads to variations in characters.	
6	a). Neurotransmitter. b). Neurotransmitter binds with the receptors of post synaptic membrane and stimulates that neuron.	
7	a). Spinal cord. Covered and protected by a 3 layered meninges with CSF inside. b). Damage to spinal cord affect in the transmission of messages to and fro the brain and different parts of body.	
8	Eight histone proteins join together to form a histone octamer. DNA winds around this octamer to form a nucleosome andchromosome is formed by packing and coiling of nucleosomes.	
9	a). Darwin was unable to explain how variation occurs in organisms. b). Later, it was recognised that the causes of variations that lead to evolution were genetic changes, genetic recombination during sexual reproduction and gene flow.	**7x2**
10	**A**. a). Archaeopteryx possesses the characteristic features of both reptiles and birds. b). Evolution is a gradual process from simple to complex. Also reveals the extinction of some species from earth, like mammoths and dinausars. **OR** **B**. The beaks of fincheswere their main means to obtain food.The finch with adapted beaks (favourable variation) survived and produced more offsprings.	
11	a). Thinking, decision-making, learning, recalling. (Any 2) b). When a person stops learning new things, the number of synapses decreases, making our brain inefficient and defective.	
12	a). Chiasma. Formed by the pairing of homologous chromosomes occurs during the first phase of meiosis. b). The exchange of broken segments causes a recombination of alleles, leading to variation.	
13	**A**.  i). Cerebrum - Problem solving, planning Act as the centre of memory, intelligence, thinking, imagination, voluntary movements and sensory experiences. (any 2) ii). Cerebellum - Maintain equilibrium of the body by coordinating muscular activities. iii). Pons - Coordinates the muscular activities of the eye and the face and regulates the rate of ventilation. **OR** **B**. a).  b). The temporary charge variation in that region occur and this potential transmits as an impulse.	
14	a). Incomplete dominance in plants. Co-dominance in cattle. b).In incomplete dominance, the dominant allele cannot fully hide the allele of the recessive trait. In co-dominance, both the alleles exhibit their traits at the same time.	
15	When scarcity of food occurred, only giraffes with long neck could get their food from tree branches and they survived and produced offsprings. While, giraffes with short neck became unfavourable to that nature and eventually disappeared.	
16	**A**. a). 22 pairs- Somatic chromosomes which control physical characteristics. 1 pair- Sex chromosomes which determine the sex. b). No, XX in females and XY in males. The Y chromosome, which possesses the SRY gene, is comparatively smaller than that of the X chromosome. **OR** **B**. a). X= Transcription, Y= Translation. b). True. The mRNA carries message of protein synthesis from DNA to the ribosomes. TRNA brings specific amino acids to the ribosome and the rRNA helps to bind the amino acids.	**6x3**
17	a). Archaea. b). Fungi and Animalia. c). Bacteria, Archaea, Protista, Plantae, Fungi, Animalia	
18	**A**. a). R and r. b). Phenotype= Round seed, Genotype= Rr c). **Rr** x **rr** R r r F2- **Rr** r**r** (Round) (Wrinkled) B. a). (i)= TR, (ii)= TtRr b).Yes. When two or more different traits are combined, each trait is inherited independently to the next generation without mixing each other. c). Because they are controlled by recessive alleles.	**1x4** **(40)**