

#	Ans	Workings/Remarks
1	C	Structure X is lignin.
2	C	Biconcave disc shape increases surface area to volume ratio for efficient diffusion of gases across the surface.
3	C	Water potential is higher in the surrounding than that in the plant cell, hence osmosis occurs.
4	C	Compounds have to dissolve in water to be carried away.
5	C	Activation energy is the energy required to bring the reactants to the transition state (peak of graph) where bonds are broken and made.
6	D	Cell X (xylem) transports water and mineral salts only. Benedict solution and iodine test for reducing sugar and starch respectively.
7	B	
8	B	
9	A	
10	D	D is the palisade mesophyll cell which contains chlorophyll for photosynthesis.
11	A	
12	A	Cell membrane is partially permeable which allows regions with different salt concentrations to exist.
13	A	
14	B	
15	C	Left ventricle has a thicker muscle wall because it needs to exert more energy to pump blood to the rest of the body.
16	A	Water moves down a water potential gradient. Higher pressure in tissue fluid generates a force which causes the water to move into capillary.
17	B	
18	D	Lactic acid is produced during anaerobic respiration where there is not enough oxygen reaching the respiring cells. Since there is no exercise taking place in T-U interval, there should have enough oxygen for respiration.
19	A	Diaphragm muscles contract causing the diaphragm to flatten and volume of thoracic cavity to increase, thus pressure in the lung decreases.
20	D	Most of the water is reabsorbed by osmosis after ultrafiltration taking place at glomerulus.
21	C	
22	B	1 is hair erector muscle whose contraction causes the hair to stand on end. This allows the hair to trap more air and keep the body warm as air is a bad conductor of heat. Muscular wall of arteriole (2) contracts, reducing blood flow to the skin surface and thus heat loss to the surrounding.
23	D	
24	A	Rectus muscle controls movement of eyeball. Ciliary body controls thickness of lens.
25	A	
26	B	
27	D	Sticky pollen grains could be attached to insect body and carried away to another flower which the insect next visits.
28	B	
29	D	X is the prostate gland which produces seminal fluid that keeps sperm alive and helps them to swim vigorously.

30	B	
31	A	Genetic crossing over takes place in prophase 1 meiosis and independent assortment takes place in metaphase 1 meiosis. Random fusion of gametes takes place during fertilization.
32	C	
33	C	
34	C	
35	C	
36	C	
37	A	<p>Let B denote the dominant allele for brown fur. Let b denote the recessive allele for white fur.</p> <p>Parental phenotype Brown Fur X Brown Fur</p> <p>Parental genotype Bb X Bb</p> <p>Gametes</p> <p>F₁ genotype BB Bb Bb bb</p> <p>F₁ phenotypic ratio 75% brown fur 25% white fur</p>
38	D	<p>Artificial selection increases yield of animals and plants with desirable traits; it does not lead to the production of a new trait over time, nor does it remove other animals and plants with less desired traits.</p> <p>Evolution could result from natural selection and genetic drift, in which chance plays a part in the “survival” rate of an allele.</p>
39	B	Most energy is lost as heat. There is presence of carbon and oxygen cycle.
40	D	