S1. Ans.(a)  
Sol. The beetroot is the taproot portion of the beet plant.

S2. Ans.(d)  
Sol. A gene is the basic physical and functional unit of heredity. Genes, which are made up of DNA, act as instructions to make molecules called proteins.

S3. Ans.(d)  
Sol. A nephron is the structural and functional unit of the kidney. A nephron is used separate to water, ions and small molecules from the blood, filter out wastes and toxins, and return needed molecules to the blood.

S4. Ans.(b)  
Sol. The cerebrum or cortex is the largest part of the human brain, associated with higher brain function such as thought and action. The cerebral cortex is divided into four sections, called "lobes": the frontal lobe, parietal lobe, occipital lobe, and temporal lobe.

S5. Ans.(c)  
Sol. The axillary bud is a bud that develops in the axil of a leaf of a plant. Axillary buds develop from the nodes which then becomes a new stem. Sometimes from axillary buds instead of branches (axillary shoot) also arise flowers, these buds are called floral buds.

S6. Ans.(c)  
Sol. Ferns are non-flowering, deciduous or evergreen perennial plants that grow in various sizes having roots. The fern's life cycle continues when spores germinate in sunlit, moist environments.

S7. Ans.(a)  
Sol. The excretory organ of cockroach is the malpighian tubules. It is found at the junction of the midgut and hind gut and are about 150 in number. They are fine, yellow coloured and branched threads present in bundles. They lie freely in the haemolymph.

S8. Ans.(a)  
Sol. Hyperglycemia is an abnormally high blood glucose level. Hyperglycemia is a hallmark sign of diabetes.
S9. Ans.(a)
Sol. The primary use for webbed feet is paddling through water, as the bird pulls its foot backwards through the water, the toes spread apart, causing the webs to spread out and help bird to swim.

S10. Ans.(c)
Sol. Skin cancer is caused due to presence of excess arsenic in water.

S11. Ans.(d)
Sol. Tapi river does not form a delta, it form an estuary. An estuary is a partially enclosed coastal body of brackish water with one or more rivers or streams flowing into it, and with a free connection to the open sea.

S12. Ans.(b)
Sol. Bandhavgarh National Park is one of the wild life sanctuaries in the Indian state Madhya Pradesh. Bandhavgarh was declared a national park in 1968. The density of the tiger population at Bandhavgarh is one of the highest known in India.

S13. Ans.(a)
Sol. Nainital famously referred to as the 'Lake District of India'.

S14. Ans.(d)
Sol. The Coriolis effect influences the paths of moving objects on Earth and is caused by Earth's rotation. Earth surface rotates at different velocities at different latitudes, objects in motion tend to move right in the Northern Hemisphere and to the left in the Southern Hemisphere. The Coriolis effect is nonexistent at the equator but increases with latitude, reaching a maximum at the poles.

S15. Ans.(b)
Sol. The term "continental shelf" is used by geologists generally to mean that part of the continental margin which is between the shoreline and the shelf break or, where there is no noticeable slope, between the shoreline and the point where the depth of the superjacent water is approximately between 100 and 200 metres.

S16. Ans.(a)
Sol. The epicenter is the point on the Earth’s surface that is directly above the hypocenter or focus, the point where an earthquake or underground explosion originates.

S17. Ans.(c)
Sol. Earth’s orbit is not a perfect circle. It is elliptical, or slightly oval-shaped. This means there is one point in the orbit where Earth is closest to the Sun, and another where Earth is farthest from the Sun.
S18. Ans.(a)
Sol. The Atlantic Ocean is the busiest ocean of all Oceans. It connects the South America to North America (Panama Canal), Africa to Europe and Europe to Asia (through Gibraltar Strait connecting Mediterranean Sea). It is the trade route between the continents and is always full of cargo ships being carried around continent.

S19. Ans.(a)
Sol. Atlas Mountains, series of mountain ranges in northwestern Africa, running generally southwest to northeast to form the geologic backbone of the countries of the Maghrib (the western region of the Arab world)—Morocco, Algeria, and Tunisia.

S20. Ans.(c)
Sol. The surface air that flows from these subtropical high-pressure belts toward the Equator is deflected toward the west in both hemispheres by the Coriolis effect. These winds blow predominantly from the northeast in the Northern Hemisphere and from the southeast in the Southern Hemisphere.

S21. Ans.(d)
Sol. Ultraviolet (UV) radiation from the sun or sunbeds is the main cause of skin cancer.

S22. Ans.(b)
Sol. It may seem that current is a vector because it have a magnitude and a direction. But the thing is, a vector always obey the law of addition of vectors. Since current doesn’t obey it and it follows algebraic addition, current is a scalar.

S23. Ans.(c)
Sol. Sublimation is the phase transition of a substance directly from the solid to the without passing through the intermediate liquid phase.

S24. Ans.(a)
Sol. When a ball is thrown vertically upwards, energy remains constant during its motion.

S25. Ans.(a)
Sol. Heat is the amount of energy that flows spontaneously from a warmer object to a cooler one. In SI system, heat energy is measured in joules (J).

S26. Ans.(d)
Sol. The Sun and the planets move around each other with their center of mass lying at the focus of the elliptical orbits. In other words, if the orbit of a planet is an ellipse then the point at which the Sun is located called Focus.
S27. Ans.(a)  
Sol. Willem Einthoven invented the electrocardiogram (ECG).

S28. Ans.(d)  
Sol. If the speed of an object moving along a straight line keeps changing with time then its motion is said to be non-uniform motion.

S29. Ans.(b)  
Sol. A lubricant is a substance, usually organic, introduced to reduce friction between surfaces in mutual contact, which ultimately reduces the heat generated when the surfaces move.

S30. Ans.(c)  
Sol. If the force applied on the object is in the direction opposite to the direction of motion, the speed of the object decreases.