

## Sample paper 2

### Question: 1

**An animal with two successive sets of teeth is called**

- A. Diphyodont
- B. Monophyodont
- C. Heterodont
- D. Polyphodont
- E. None of the above

**Correct Answer: A. Diphyodont**

#### **Explanation:**

Diphyodonts have two sets of teeth namely deciduous teeth and permanent teeth. The deciduous teeth are replaced by permanent teeth. Monophyodonts are the organisms having one set of teeth which are not replaced at later stages of life. Heterodonts are the organisms which possess different types of teeth. Polyphodonts are the organisms whose teeth are continuously replaced.

### Question: 2

**Area where the movement of water is from the surface to the ground water system is called**

- A. Catchment area
- B. Springs
- C. Aquifer
- D. Artesian well
- E. None of these

**Correct Answer: A. Catchment area**

#### **Explanation:**

Catchment area is the area where the net water movement is from the surface to the ground water system. Springs are the area where ground water reaches the surface and runs off. Aquifer is the rocky body through which ground water flows. Artesian well is a well drilled into an aquifer that has sufficient hydrostatic pressure to force water up into it.

### Question: 3

**The word 'Savanna' refers to**

- A. Temperate grasslands
- B. Tropical forests
- C. Deserts
- D. Artic region
- E. Tropical grasslands

**Correct Answer: E. Tropical grasslands**

#### **Explanation:**

Tropical grasslands are called as Savanna. It is located near the equator. It is scattered with shrubs and isolated trees. Savanna covers approximately 20% of earth's land area.

**Question: 4**

**The structure of a protein with linear sequence of amino acids is called**

- A. Primary structure
- B. Secondary structure
- C. Tertiary structure
- D. Quaternary structure
- E. None of the above

**Correct Answer: A. Primary structure**

**Explanation:**

Proteins which have a linear sequence of amino acids in a polypeptide chain are primary structured proteins that are held together by peptide or covalent bonds. Secondary structure is the folding of primary sequence of amino acids into specific structures which are bound together by hydrogen bonds. Three-dimensional structure of a protein molecule is the tertiary structure and the three-dimensional structure and arrangement of more than one protein subunit is the quaternary structure.

**Question: 5**

**The type of sex determination found in *Crepidula fornicata* is**

- A. Temperature dependent
- B. Location dependent
- C. Chromosome dependent
- D. Water dependent
- E. Soil dependent

**Correct Answer: B. Location dependent**

**Explanation:**

There are certain species of animals whose sex is determined by environmental factors rather than the chromosomes. One such species is *Crepidula fornicata* in which location plays main role in determining their sex. Temperature dependent sex determination is seen in reptiles such as crocodiles and turtles.

**Question: 6**

**Which of the following blood components carries dissolved nutrients?**

- A. Red blood cells
- B. White blood cells
- C. Platelets
- D. Plasma
- E. None of the above

**Correct Answer: D. Plasma**

**Explanation:**

Plasma is a straw-yellow colored fluid which constitutes 55% of blood. Plasma circulates dissolved nutrients such as glucose, amino acids, fatty acids etc. and it removes the waste products of metabolism. It is an aqueous solution consisting 90-93% of water.

**Question: 7**

**Which of the following fixes nitrogen?**

- A. Azotobacter
- B. Anabaena
- C. Nostoc
- D. Calothrix
- E. All of the above

**Correct Answer: E. All of the above**

**Explanation:**

Azotobacter, anabaena, nostoc and calothrix are free living nitrogen fixing bacteria. Azotobacter can be found in the soil. Anabaena, nostoc and calothrix lives in water as well as on moist rocks.

**Question: 8**

**The substance that inactivates an enzyme by denaturing it is called**

- A. Feedback inhibitor
- B. Competitive inhibitor
- C. Allosteric inhibitor
- D. Irreversible inhibitor
- E. None of these

**Correct Answer: D. Irreversible inhibitor**

**Explanation:**

Irreversible inhibitors modify or denature the enzyme irreversibly. The other inhibitors will not denature the enzyme. DIFP can irreversibly inhibit serine proteases.

**Question: 9**

**Glucocorticoid is produced by**

- A. Adrenal medulla
- B. Adrenal cortex
- C. Pancreas
- D. Pineal gland
- E. Pituitary gland

**Correct Answer: B. Adrenal cortex**

**Explanation:**

Glucocorticoids are produced by the adrenal cortex. Glucocorticoids are a class of steroid hormones that bind to the glucocorticoid receptor. They stimulate gluconeogenesis and increase the blood glucose level.

**Question: 10**

**In which part of the human body are Nissl's granules present?**

- A. Osteoblasts
- B. Neuron
- C. Chondroblasts
- D. Goblet cell
- E. All of the above

**Correct Answer: B. Neuron**

**Explanation:**

Nissl's granules are present in the cell body of neuron. These are the site of protein synthesis in neurons and are made of rough endoplasmic reticulum and ribosome. It was named after Franz Nissl.

**Question: 11**

**Rhizobium is a bacterium that lives in the root nodules of leguminous plants. This is an example for \_\_\_\_\_**

- A. Mutualism
- B. Commensalism
- C. Parasitism
- D. Predatism
- E. None of the above

**Correct Answer: A. Mutualism**

**Explanation:**

Mutualism is an association between organisms in which both organisms are benefited. Rhizobium lives in the root of legumes and forms nodule. Rhizobium helps to fix atmospheric nitrogen in leguminous plants. Commensalism is a type of association in which one organism benefits and the other is unaffected. Parasitism is a type of association in which one organism is benefited (parasite) and the other (host) is adversely affected. Predatism is a state of preying on other organisms.

**Question: 12**

**Malleus, incus and stapes are collectively called**

- A. Ear Ossicle
- B. Cranial bone
- C. Sternum bone
- D. Facial bone
- E. None of the above

**Correct Answer: A. Ear Ossicle**

**Explanation:**

Malleus, incus and stapes together form the ear ossicle. They are present in the middle ear space and are the smallest bone in human body. Sound-induced vibrations of the tympanic membrane (ear drum) are transmitted through malleus, incus and stapes respectively to the inner ear where it is interpreted as sound.

**Question: 13**

**Which of the following comes under the domain eukarya?**

- A. Plantae
- B. Animalia
- C. Protista
- D. Fungi
- E. All of the above

**Correct Answer: E. All of the above**

**Explanation:**

Early biologists classified organisms into three major domains namely bacteria, archae and eukarya. Eukarya is a domain which consists of protists (unicellular or multicellular, colonial, diverse reproductive cycles) fungi (multicellular or unicellular, chemoheterotrophic, decomposers, unique reproductive cycles) plantae (photosynthetic autotrophs, multicellular, with cell wall) and animalia (chemoheterotrophs, without cell wall).

**Question: 14**

**Which of the following is secreted by the pancreas?**

- A. Elastase
- B. Carboxypeptidase
- C. Amylase
- D. Ribonuclease
- E. All of the above

**Correct Answer: E. All of the above**

**Explanation:**

Elastase, carboxypeptidase, ribonuclease and amylase are secreted by the pancreas. Elastase breaks down elastin. Carboxypeptidase cleaves peptide bond at the carboxyl terminal. Ribonuclease cleaves RNA molecules.

**Question: 15**

**Nematocyst is a characteristic feature of**

- A. Echinoderms
- B. Arthropods
- C. Molluscs
- D. Cnidarians
- E. Porifera

**Correct Answer: D. Cnidarians**

**Explanation:**

Nematocysts are sub-cellular organelle found in cnidocytes. They carry toxic substances. Nematocysts are powerful weapons and a single nematocyst is sufficient to paralyse smaller organisms. The box jellyfish has one of the most toxic nematocysts.