

## Excretory Products and Their Elimination

### Assertion Reason Questions

Given below are two statements labelled as Assertion (A) and Reason (R). Select the most appropriate answer from the options given below:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true and R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

**1. Assertion (A):** Whales and seals are considered ureotelic animals.

**Reason (R):** It is due to the fact that urea is the major nitrogenous waste product in whales and seals.

**Ans.** (a) Both A and R are true and R is the correct explanation of A.

**Explanation:** Removal of nitrogenous waste product in the form of urea, is known as ureotelism and the organisms are called ureotelic. Because urea is the main nitrogenous waste product of aquatic mammals like whales and seals, they are known as ureotelic animals.

**2. Assertion (A):** When human urine is let to stand for a long time, it has a strong ammonia odour.

**Reason (R):** Ammonia is the main component in human urine.

**Ans.** (c) A is true but R is false.

**Explanation:** Though urea is the main nitrogenous component of human urine, a minor quantity of ammonia is also present in it. When urine is allowed to remain for an extended period of time, bacterial breakdown occurs, resulting in the creation of ammonia from urine, which has a distinct odour.

**3. Assertion (A):** The vasa recta is not present or highly diminished in cortical nephrons.

**Reason (R):** The main concern of cortical nephrons is urine concentration.

**Ans.** (c) A is true but R is false.

**Explanation:** Cortical nephrons are located in the renal cortex and have a short Henle's



loop with no vasa recta. Hence, they are not included in urine concentration. When the water supply is normal, they regulate plasma volume.

**4. Assertion (A):** Comparative to uric acid urea is a more toxic excretory substance.

**Reason (B):** Birds and insects are uricotelic animals.

**Ans.** (b) Both A and R are true and R is not the correct explanation of A.

**Explanation:** Uricotelic organisms are those that emit uric acid as a nitrogenous waste product. Uric acid excretion is the least hazardous as compared to the other two ammonia and urea, thus requiring the least water. Insects, land snails, birds, and most reptiles which must conserve water, are uricotelic.

