Q. 1 – Q. 25 carry one mark each.

Q.1 Different kinds of limbs, such as the wings of birds and bats, and the flippers of turtles, whales and dolphins, have the same underlying skeletal structure. This is an example of:

(A) Analogy (B) Convergence (C) Homology (D) Genetic drift

Q.2 Forests with a high density of native conifer trees are found in:

(A) Gujarat
(B) Haryana
(C) Himachal Pradesh
(D) Odisha

Q.3 Ozone layer depletion, since the 1970s, is primarily attributed to:

(A) carbon dioxide
(B) chlorofluorocarbons
(C) global warming
(D) UV radiation

Q.4 The evolution of the amniotic egg in reptiles allowed them to:

(A) colonize dry terrestrial environments
(B) give birth to live young
(C) lay eggs in water and on land
(D) live in aquatic environments

Q.5 Which of the following phyla are most closely related to chordates ?

(A) Annelida (B) Arthropoda (C) Echinodermata (D) Mollusca

Q.6 Limb lengths were measured for 50 individuals from a population of lizards and the sample variance was calculated to be 64 cm^2. The standard deviation for this sample is _____ cm. (Use decimal notation, not fractions or percentage)

Q.7 Most terrestrial ecosystems have a pyramidal structure of standing biomass across trophic levels where biomass of producers > primary consumers > secondary consumers > tertiary consumers. However, some aquatic ecosystems have an inverted pyramidal structure where the standing biomass of producers < primary consumers. An explanation for this is:

(A) greater efficiency of primary consumers in aquatic ecosystems
(B) high turnover rates of aquatic producers relative to consumers
(C) low nutrient concentrations in aquatic ecosystems
(D) very high light limitation in aquatic ecosystems

Q.8 In an experiment, a PhD student found that the traits, flower colour and seed size, did not follow Mendel's Law of Independent Assortment. A possible explanation for this observation is:

(A) co-dominance between alleles
(B) incomplete dominance
(C) linkage between the traits
(D) loci on different chromosomes

Q.9 Which of the following invertebrates has the lowest gut length:body length ratio?

(A) dragonflies (B) grasshoppers (C) leaf hoppers (D) termites