CBT X (NOVEMBER) SCIENCE

Q1 In the process of Esterification, Acid reacts with Alcohol to form

(a) Ester

(b) Water

(c) Both (a) and (b)

(d) None of these

Correct option: (C) BOTH (a) and (b)

Feedback: When Acid is added to alcohol with few drops of sulphuric acid and heated a sweet smelling substance called Ester is formed with water.

Q2 How many covalent bonds does pentane have *

(A)5 covlalent bonds

(B)16 covalent bonds

(C)12 covalent bonds

(D)17 covalent bonds

Correct option: (B) 16 covalent bonds

Feedback: Pentane is C_5H_{12}. It forms 4 covalent bond between C-C and 12 covalent bonds between C-H

Q3 A salt X is formed and a gas is evolved when ethanoic acid reacts with sodium hydrogen carbonate. Name the salt X and the gas evolved*

(A) Sodium ethanoate and hydrogen

(B) Sodium ethanoate and carbon dioxide

(C) Sodium ethoxide and hydrogen

(D) Sodium ethoxide and carbon dioxide

Correct option: (B) Sodium ethanoate and carbon dioxide

Feedback: Ethanoic Acid + Sodium Hydrogen Carbonate ---> Sodium Ethanoate + Carbon Dioxide + Water CH3COOH + NaHCO3 ---> CH3COONa + CO2 + H20

Q4 The important disadvantage of detergents over soap is *

(A) the cleansing action of detergent is slower than soap

(B) detergents are non biodegradable hence cause water pollution

(C) detergents cannot be used at places were water is hard

(D) detergent form scum with hard water

Correct option: (B) detergents are non biodegradable hence cause water pollution

Feedback: Most of the detergents have branched hydrocarbon chains which are either not attacked or attacked only slowly by bacteria. As a result, detergents remain undegraded in rivers and waterways and thus cause water pollution.

Q5 Assertion(A): In a homologous series of alcohols, the formula of second member is C_2H_5OH and the third member is C_3H_7OH

Reason (R) : The difference between the molecular masses of the two consecutive members of homologous series is 144

(A)Both (A) and (R) are true and (R) is the correct explanation of (A)

(B)Both (A) and (R) are true but (R) is not the correct explanation of (A)

(C)(A) is true but (R) is false

(D)(A) is false but (R) is true

Correct option: (A) is true but (R) is false

Feedback: Consecutive members of homologous series differ by CH_2 or 14u

Q6 In peas pure tall plant (TT) is crossed with pure dwarf plant (tt). The ratio of pure tall plant to short plant in F2 generation is

(a)1:3

(b)3:1

(c)1:1

(d)2:1

Correct option: (C) 1:1

Feedback : When a pure tall plant (TT) is crossed with the pure short plant (tt), then the progeny in the F1 generation will be hybrid (Tt). When the F1 generation is self-crossed (Tt), then in the F2 generation, the progeny produced will be tall homozygous (TT), Tall heterozygous (Tt), and dwarf homozygous in the ratio of 1:2:1. But in the given question, the ratio of pure tall plants to short plants in F2 will be 1:1.

Q7 Assertion(A) : Sex is determined by different factors in various species.

Reason (R):In human beings, the sex of the child depends on whether the paternal chromosome is X or Y

(a)Both (A) and (R) are true and (R) is correct explanation of (A)

(b)Both (A) and (R) are true and (R) is not correct explanation of (A)

(c) (A) is true but (R) is false

(d) (A) is false but (R) is true

Correct option : (a) Both (A) and (R) are true and (R) is correct explanation of (A)

Feedback : Generally sex is determined by sex chromosome but in some organism like turtles and crocodiles , environment play an important role in determining sex.In Human, females have XX chromosome and males have XY chromosome. so, it is male , who determines sex of child . In dogs the barking trait (BB) is dominant over the silent trait (bb) and erect ears (EE) are dominant over drooping(ee) ears . If a dog having barking and drooping ear trait is crossed with silent and Erect ear trait . Now find out

Q8 What is the genetic composition of dogs obtained in F1 generation

(a)BbEe

(b)BBEE

(c)BBEe

(d)BbEe

Correct option: (A) BbEe

Feedback: If a dog having barking and drooping ear trait is crossed with silent and Erect ear trait . In F1 generation all dogs will have barking and Erect ear trait (BbEe)

Q9 The principle of inheritence was given by

(a)Charles Darwin

(b)Gregor Mendel

(c) Hardy Weinberg

(d) Stanley . L. Miller

Correct option: Gregor Mendel

Q10 A student wants to obtain F2 generation of a plant. Which one of the following processes will give him success.

(A)Cross pollination of two parent plant with a pure breed

(B)Self Pollination of flowers of an F1 plant of pure breed.

(C)Cross pollination of an F1 plant of a pure breed with a parent plant.

(D) Self Pollination of the flowers of a parent plant.

Correct option : (B) Self pollination of flowers of an F1 plant of a pure breed.

Feedback : In order to obtain the F1 generation Mendel pollinated a pure-breeding tall plant with a pure breeding dwarf plant. But for getting the F2 generation, he simply self-pollinated the tall F1 plants.