1 The substrates needed for photosynthesis include

    I water

    II carbon dioxide

    III chlorophyll

(A) III only   (A)

(B) I and II only   (B)
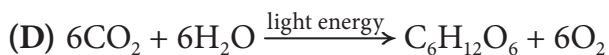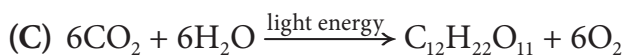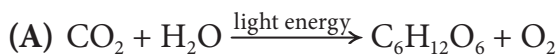
(C) II and III only   (C)

(D) I, II and III   (D)

2 Which of the following chemical equations MOST accurately summarises the process of photosynthesis?

(A) $CO_2 + H_2O \xrightarrow{\text{light energy}} C_6H_{12}O_6 + O_2$ (A)

(B) $6CO_2 + 6H_2O \longrightarrow C_6H_{12}O_6 + 6O_2$ (B)

(C) $6CO_2 + 6H_2O \xrightarrow{\text{light energy}} C_{12}H_{22}O_{11} + 6O_2$ (C)

(D) $6CO_2 + 6H_2O \xrightarrow{\text{light energy}} C_6H_{12}O_6 + 6O_2$ (D)

3 Which reagent would be the BEST to test a hibiscus leaf to see if it has been photosynthesising?

(A) Benedict's solution   (A)

(B) biuret solution   (B)

(C) ethanol   (C)

(D) iodine solution   (D)

4 During photosynthesis, light energy is converted into

(A) heat energy Ⓐ

(B) electrical energy Ⓑ

(C) chemical energy Ⓒ

(D) kinetic energy Ⓓ

5 A farmer wishes to grow maize on the side of a hill, and a gardener wishes to grow sweet peppers, but he has very little space available. Which option gives the MOST suitable method for each to use?

	Method most suitable for the farmer	Method most suitable for the gardener	
(A)	contour ploughing	greenhouse farming	Ⓐ
(B)	organic farming	strip planting	Ⓑ
(C)	contour ploughing	container gardening	Ⓒ
(D)	strip planting	greenhouse farming	Ⓓ

6 Which of the following statements is INCORRECT?

(A) Organic farming uses synthetic pesticides. Ⓐ

(B) Growing crops using hydroponics ensures that they will not be damaged by soil-borne pests. Ⓑ

(C) Soil is less likely to erode when crops are grown on terraces. Ⓒ

(D) Tissue culture can be used to produce crops with desirable characteristics. Ⓓ

7 Which of the following BEST describes an ecosystem?

(A) A community of living organisms interacting with each other and with their physical environment. Ⓐ

(B) All the members of a species living together in a particular place. Ⓑ

(C) The place where an organism lives. Ⓒ

(D) Many populations of different species living together in a particular area and interacting with each other. Ⓓ

8 Which of the following statements is correct?

(A) Green plants are omnivores. Ⓐ

(B) A secondary consumer always feeds on a producer. Ⓑ

(C) Most primary consumers are herbivores. Ⓒ

(D) A food chain always begins with a decomposer. Ⓓ

9 Mosquito larvae are known to feed on microscopic algae. In a freshwater pond, egrets were seen catching the tilapia, and it is also known that tilapia feed on mosquito larvae. The correct food chain for the organisms in the pond is

(A) microscopic algae ⟶ tilapia ⟶ mosquito larvae ⟶ egrets Ⓐ

(B) egrets ⟶ tilapia ⟶ mosquito larvae ⟶ microscopic algae Ⓑ

(C) mosquito larvae ⟶ microscopic algae ⟶ tilapia ⟶ egrets Ⓒ

(D) microscopic algae ⟶ mosquito larvae ⟶ tilapia ⟶ egrets Ⓓ

10 The table below gives the food sources of several animal species in a marine ecosystem.

Animal	Food source(s)
sea turtle	jellyfish and crabs
zooplankton	plant plankton
crab	shrimp
jellyfish	zooplankton
shrimp	plant plankton

Which of following statements is INCORRECT?

(A) Shrimp are primary consumers. Ⓐ

(B) Plant plankton are producers. Ⓑ

(C) Jellyfish are carnivores. Ⓒ

(D) Zooplankton are secondary consumers. Ⓓ

11 Decomposers

    I are macroorganisms

   II return minerals to the environment

  III feed on waste organic matter

(A) I only   Ⓐ

(B) I and III only   Ⓑ

(C) II and III only   Ⓒ

(D) I, II and III   Ⓓ

12 Which option correctly matches the food group with the MAIN nutrient that it supplies in the human diet?

	Food group	Main nutrient supplied	
(A)	non-starchy vegetables	carbohydrates	Ⓐ
(B)	fruits	protein	Ⓑ
(C)	staple foods	fat	Ⓒ
(D)	food from animals	protein	Ⓓ

13 Protein is needed in the human diet

    I for growth and repair of tissues

   II for storage

  III to make enzymes

  IV for insulation

(A) I and III only   Ⓐ

(B) II and IV only   Ⓑ

(C) I, II and III only   Ⓒ

(D) I, III and IV only   Ⓓ