2.1 Metabolism & Water

Question Paper

Course	DP IB Biology
Section	2. Molecular Biology
Topic	2.1 Metabolism & Water
Difficulty	Easy

Time allowed: 10

Score: /5

Percentage: /100

Question 1

Carbon is one of the most abundant elements found in the molecules of living organisms.

Which of the following statements does **not** refer to a property of carbon that allows it to play an integral biochemical role in the molecules of living things.

A. It has four electrons in its outer shell meaning it can form four covalent bonds with other atoms

B. When it bonds with hydrogen it creates a dipole that allows it to form hydrogen bonds with water and other polar molecules

C. It can form double and triple bonds with adjacent carbon atoms to allow unsaturated compounds to form

D. Produces a tetrahedral-shaped structure which allows the formation of varied carbon compounds which have different 3-D shapes

[1 mark]

Question 2

Which of the options below refers to the features of catabolism?

A. Exergonic, condensation reaction, an example is polypeptide synthesis

B. Endergonic, hydrolysis reaction, an example is respiration

C. Endergonic, condensation reaction, an example is photosynthesis

D. Exergonic, hydrolysis reaction, an example is deamination

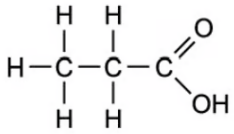
[1 mark]

Question 3

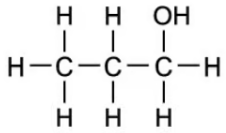
Water has the ability to act as a solvent and dissolve many ionic and covalent compounds.

Which of the following 3-carbon compounds will **not** dissolve in water?

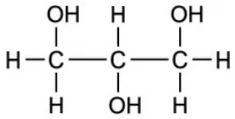
A. Propanoic acid



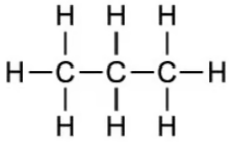
B. Propanol



C. Glycerol



D. Propane



[1 mark]

Question 4

The table below shows four biological molecules and their component elements.

Which of the rows, **A** to **D**, correctly identifies the elements in each molecule?

	Sucrose	Triglyceride	Insulin	DNA nucleotide
A	C, H, O	C, H, O, N	C, H, O	C, H, O, N, P
B	C, H, O, N	C, H, O	C, H, O, N, P	C, H, O, N, S
C	C, H, O	C, H, O	C, H, O, N, S	C, H, O, N, P
D	C, H, O, N	C, H, O, P	C, H, O, N, P	C, H, O, N, S

[1 mark]

Question 5

The specific heat capacity of water is the highest of all liquids. Which of the following would be a correct definition of specific heat capacity?

A. The heat required to change one mole of liquid into one mole of gas.

B. The heat required to raise the temperature of 1kg of liquid by 1°C.

C. The heat required to change one mole of solid into one mole of liquid.

D. The ability of a solid to transfer heat to a liquid.

[1 mark]