

# 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

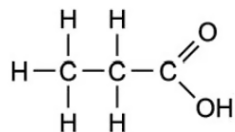
[1 mark]

### Question 3

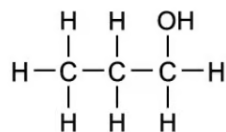
Water has the ability to act as a solvent and dissolve many ionic and covalent compounds.

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

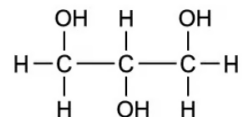
A. Propanoic acid



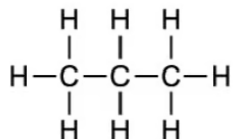
B. Propanol



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]