

Urban drainage issues and management 3.2.3.5

Q1	True or False?	
A	Urban areas experience more flash floods than rural areas.	T
B	Urbanisation leads to a decrease in vegetation.	T
C	Urban surfaces absorb water quicker than in rural areas.	F
D	In developing countries, urban drainage systems are often blocked by waste.	T
E	Sustainable urban drainage systems (SUDS) can help to reduce flooding risk	T

Q2	Match the correct term to the correct definition	
A	The system by which water circulates between the atmosphere, oceans and land.	WATER CYCLE
B	Not allowing fluid to pass through.	IMPERVIOUS
C	The collection of water over a natural drainage area.	CATCHMENT
D	The area of land that supplies water to a river via its tributaries	DRAINAGE BASIN
E	A management project to improve a degraded river.	RIVER RESTORATION

Select from: **Catchment** **Drainage basin** **Water cycle** **River restoration** **Impervious**

Q3	One sentence is incorrect in each of the explanations below. Identify the wrong one.
A	Tarmac and concrete in urban areas changes the ability of the catchment area to deal with precipitation. They ensure water is absorbed into the ground and is transferred by throughflow underground. The rivers in cities fill up quickly and cause floods.
B	Land use changes in a city to accommodate the growing population. Traditional land use, such as farming and forestry makes way for housing. This reduces flooding as the ground can't fill up with water and therefore is removed from the area rather than causing a flood.
C	Man-made drainage channels are created in an urban area to remove water from the system. They are efficient and are able to completely eradicate the risk of flooding within the area. Some are called Storm Drains.
D	Sewage and waste is a problem within urban areas. It often clogs up drainage systems and causes blockages which can increase flooding. This occurs more so in developed world cities.
E	Flood hydrographs in urban areas show that the lag time is longer than in rural areas. The impact of flooding can be worse in urban areas due to the larger population living in cities than in rural areas.

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Q4	Decide which heading the various factors would match with, in regards to urban drainage.		
	Urban drainage causes	Urban drainage issues	Urban drainage management
	PEDESTRIANISING AREAS. HIGH BUILDING DENSITY RURAL-URBAN MIGRATION DEMAND FOR TRANSPORT HIGH POPULATION	INCREASED RUNOFF FLASH FLOODING	RIVER RESTORATION URBAN PLANNING
	Pedestrianising areas	Demand for transport	River restoration
	High building density	High population	Urban planning
	Rural-urban migration	Increased runoff	Flash flooding

Q5	Think about the implications of attempting to manage urban drainage
A	<p>What are some of the future negative implications?</p> <hr/> <p>For example:</p> <p>Population growth will increase pressure to build more in urban areas – in particular developing countries</p> <p>Costs associated with implementing drainage systems</p> <p>Difficult to implement urban drainage projects in existing cities</p>
B	<p>What are some of the future positive implications?</p> <hr/> <p>For example:</p> <p>Reduced flood risk</p> <p>Improved environment through SUDs and River Restoration projects</p> <p>Less money spent on flood recovery</p>