FIGURE 1.5: DELTAS

DELTAS ARE SINKING

The world's river deltas take up less than 0,5% of the Earth's land area, but they are home to hundreds of millions of people. With fertile soils and easy access to the coast, deltas are important areas for food production. They also have unique ecosystems. Now many of the world's deltas are facing a crisis. Sea levels are rising as a result of climate change, while deltas are sinking.

As sediments in deltas compact under their own weight, deltas naturally sink. If left undisturbed, new river sediment can accumulate and help to maintain the delta surface above sea level.

But deltas are now subsiding much faster than they would do naturally. That's due to groundwater being pumped from aquifers (permeable rock) underneath them and used to irrigate crops and provide water for rapidly growing cities. Under these conditions, only the continued deposition of sediment on deltas can keep them from 'drowning'.

Difficult decisions need to be made about development priorities between countries upstream of deltas and those including the deltas themselves. There will be trade-offs to be made between hydropower, agricultural practices and delta sustainability.

[Source: https://www.asiatimes.com/2019/11/article/river-delta-changes-threaten-hundreds-of-millions/]

1.5 FIGURE 1.5 is an extract on deltas.

1.5.1 Where do deltas form? (1 x 1) (1)

1.5.2 What evidence in the extract indicates that deltas are densely populated? (1 x 1) (1)

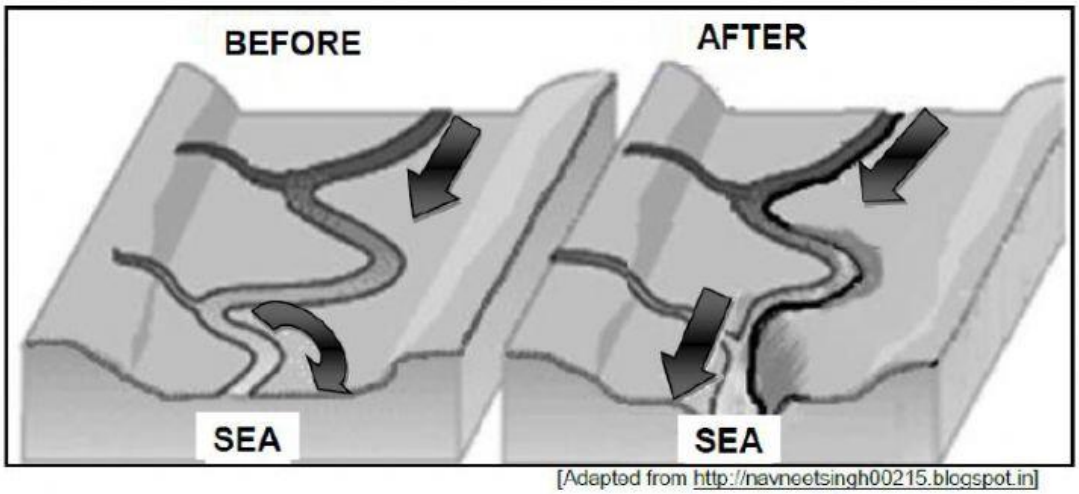
1.5.3 According to the extract, how are cities disturbing the natural formation of deltas? (1 x 1) (1)

LIVEWORKSHEETS

1.5.4 Discuss the importance of protecting deltas. (2 x 2) (4)

1.5.5 A recent environmental impact assessment has highlighted concerns about the future sustainability of deltas. In a paragraph of approximately EIGHT lines, suggest strategies to protect areas like deltas from the negative impact of human activities. (4 x 2) (8)

FIGURE 1.6: RIVER REJUVENATION



[Adapted from http://navneetsingh00215.blogspot.in]

1.6 Refer to FIGURE 1.6 showing river rejuvenation.

1.6.1 What is *river rejuvenation*? (1 x 1) (1)

LIVEWORKSHEETS

1.6.2 Which stage (course) of the river is illustrated in FIGURE 1.6?
(1 x 1) (1)

1.6.3 Give evidence from FIGURE 1.6 to support your answer to QUESTION 1.6.2. (1 x 1) (1)

1.6.4 Why is there an increase in the rate of erosion in the river after rejuvenation? (2 x 2) (4)

1.6.5 Identify the changes to the following features after river rejuvenation took place:

(a) River channel (1 x 2) (2)

(b) Meander (1 x 2) (2)

1.6.6 Discuss the possible negative impact of river rejuvenation on storage dams in the lower course after the point of rejuvenation (knickpoint). (2 x 2) (4)
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LIVEWORKSHEETS

QUESTION 2

2.1.1 Associated with rising air

2.1.2 Air diverges on the surface from this pressure cell

2.1.3 Associated with the clockwise movement of air

2.1.4 Unstable weather conditions over the interior

2.1.5 Associated with ridging

2.1.6 Associated with heavy rain and hail

2.1.7 Dominates the land in winter

2.1.8 Berg wind conditions develop when it interacts with a coastal low

(8 x 1) (8)

	COLUMN A		COLUMN B
2.2.1	Area drained by a river and its tributaries	A	catchment area
2.2.2	High-lying area that separates two different drainage basins	B	interfluve
2.2.3	Starting point of a river	C	confluence
2.2.4	Term that describes the main river and its tributaries	D	drainage basin
2.2.5	Point where the river enters the sea	E	river system
2.2.6	Elevated land that separates streams in the same drainage basin	F	watershed
2.2.7	Point along the river where two or more streams meet	G	river source
		H	river mouth

(7 x 1) (7)

LIVEWORKSHEETS