



Answer the following questions

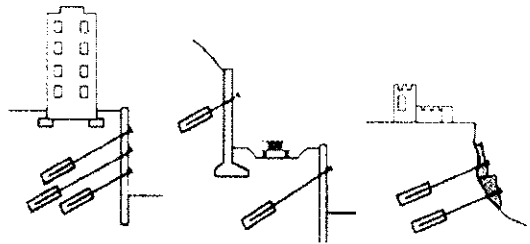
Question 1 (30 marks)

1. What are the main types of retaining wall?
2. Differentiate between different categories of lateral earth pressure.
3. Differentiate between restrained and anchored retaining walls
4. What are the modes of failure of retaining wall?
5. Discuss the needs and types of drainage systems behind retaining walls.
6. Explain briefly, design procedures, loads, and straining actions of Anchored walls.

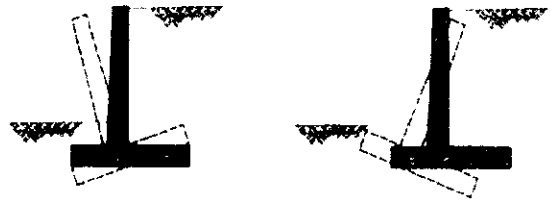
Question 2 (20 marks)

Discuss without calculations the following:

- 1- Type, loads, design of the retaining walls [10Marks]



- 2- The modes of failure of retaining walls [10Marks]

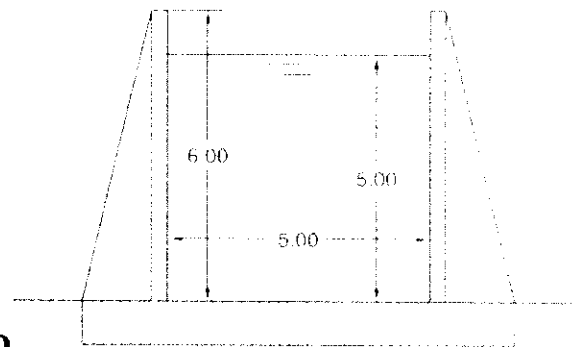


Question (3) [50 Marks]

- (1) It is required to construct a channel rested on soil to pass water. The proposed channel layout is as shown. Design all elements of the channel and check it's stability. $\gamma_{soil} = 1.70 \text{ t/m}^3$, $\phi = 30^\circ$, Soil bearing capacity $= 1.25 \text{ kg/cm}^2$

It is required to:-

- Design all elements of the structure.
- Draw all possible details.



With my best wishes D

This exam measures the following ILOs										
Question Number	Q1-1	Q1-2	Q1-3		Q1-6	Q1-4,5	Q2	Q3	Q3	
Skills	a-2-1	a5-2	a-2-4		b-2-2	b-2-2	c-1-1	b-2-2	c-1	
	Knowledge & Understanding Skills				Intellectual Skills			Professional Skills		