

## Question 1 (8 marks)

- *Disintegration of rock due to stresses arising from expansion or contraction with temperature changes.*
- *Weathering and decomposition from chemical changes that occur when water, oxygen and carbon dioxide gradually combine with minerals within the rock formation, thus breaking it down to sand and clay.*
- *Transportation of soil materials by wind, water and ice to form different soil formations such as those found in river deltas, sand dunes and glacial deposits.*
- *Temperature, rainfall and drainage play important roles in the formation of soils as in the different climatic regions. Under different drainage regimes, different soils will be formed from the same original rock formation.*

## Question 2 (8 marks)

Sample Sample 1	Gravel	Sand Fraction	Silt Fraction	Clay fraction	Sample identification
A1	0	35	45	20	LOAM
B1	0	55	20	25	SANDY CLAY LOAM
C1	0	15	70	15	SILT LOAM
D1	12 (0)	32 (36)	25 (28)	33 (38)	CLAY LOAM

Soil D reportioned

Gravel =0; Sand = $32/0.88=36$ ; Silt = $25/0.88=28$ ; Clay = $33/0.88=37$

[NOTE THAT GRAVEL PORTION IS < 25% SO NO GRAVELLY TERM USED]

## Question 3 (4 marks)

- **To examine the stresses and strains placed upon soil when firm to light loading is applied, such as below shallow foundations.**
- **For transferring building loads to underlying ground onto mostly weak soils with heavy loads and deciding whether piling should be considered.**
- **For retaining soils from spreading laterally and leading to collapse**
- **Earth dams are also investigating when the core has to resist leakage and collapse under pressure**

Any other valid aspects from the notes

## Question 4 (6 marks)