1   Locate a sample of a soil from the field. Perform the sieve analysis of soil distribution. Fill out the form below and determine d_{90}, d_{65}, d_{50}, d_g, σ_g.

Class No.	Class Range (mm)	d_i (mm)	i_b

2   Given the following data, determine the armoring layer thickness using the Mavis and Laushey, USBR, and Shield diagram methods for incipient motion.
$Q = 22 \text{ m}^3/\text{s}$; $B = 12 \text{ m}$; $V = 1.2 \text{ m/s}$; $S = 0.002$; $n = 0.04$
$d_{50} = 30 \text{ mm}$; $d_{90} = 45 \text{ mm}$; $y = 1.5 \text{ m}$; $\nu = 1.12 \times 10^{-6} \text{ m}^2/\text{s}$

3   Given the following data,
$y = 1 \text{ m}$; $S_0 = 0.0008$; $B = 5 \text{ m}$; $d_{35} = 0.3 \text{ mm}$
$d_{65} = 0.9 \text{ mm}$; $\upsilon = 10^{-6} \text{ m}^2/\text{s}$; $S_s = 2.65$; $m_s = 2$
Obtain the discharge for the upper flow regime, using the method proposed by Engelund and Hanson.

4.   Write a summary and critical review on the research paper you obtained on bed forms. Your summary should include details of the research project, assumption and findings. Critique the paper as if you were reviewing it for publication. Comment on the engineering applicability of the work presented.