ENGINEERING TRIPOS PART IIA 2006

MODULE 3D5: ENVIRONMENTAL ENGINEERING I

NUMERICAL ANSWERS

1. (a) Volume of the runoff = 360 x 10^3 m^3.
   (b) Peak instantaneous outflow = 4.45 m^3/s

2. (a) Flow is super-critical.
   (b) Time = 10.43 hrs.

3. (a) Sediment transport rate = 0.84 kg/s per metre width of channel.
   (b) Albertson Simons and Richardson – Dunes
   Garde and Alberton – Ripple-Dunes.

4. (b) (i) Q = 0.543 m^3/s.
   (ii) Minimum acceptable depth at Y = 2.906m.
   (iii) Water level in reservoir B = 63.486m.

   (c) Flow rate that could be delivered to reservoir A = 0.483m^3/s.