

ENGINEERING TRIPOS PART IIA 2014/2015
MODULE 3D2: GEOTECHNICAL ENGINEERING II

1. (a) $v = 2.724$
(b) $q = 154.5$ kPa, $v = 2.462$, yielding $p' = 107$ kPa and $q = 21.2$ kPa
(c) (i) –, (ii) $q = 26.8$ kPa, $u = 100$ kPa, (iii) $q = 56.3$ kPa, $u = 144.8$ kPa, (iv) –

2. (a) –
(b) –
(c) –
(d) –

3. (a) 16.7 mm
(b) $\sigma_c = 450$ kPa, $u = 350$ kPa
(c) –

4. (a) (i) $\sigma_v = 660$ kPa, $\sigma'_v = 330$ kPa, $\sigma_h = 505$ kPa, $\sigma'_h = 175$ kPa
(ii) $\sigma_v = 160$ kPa, $\sigma'_v = 90$ kPa, $\sigma_h = 160$ kPa, $\sigma'_h = 90$ kPa, OCR = 3.7
(b) 30 kPa
(c) 26 kPa