Engineering Tripos Part IIB 2009

Module 4C16 Advanced Machine Design

Answers

1. b) ii) $\dfrac{u}{U} = -0.355\dfrac{z}{h_0}\left(\dfrac{z}{h_0}-1\right)+1-\dfrac{z}{h_0}$

2. b) $\phi = \pi - \cos^{-1}\left(\sqrt{2}-1\right) \approx 2.00\,\mathrm{rad}$

   c) angular velocity = 0

   angular acceleration = ω^2 anticlockwise

3. c) ii) $E_{start} = \dfrac{1}{2}mU^2 + rUT\left(\dfrac{1+w}{2+w}-\dfrac{1}{2}\right)$