

1 Advanced Graphics (RKM)

- (a) The rendering equation is often formulated as:

$$L_r(\omega_r) = \int_{\Omega} \rho(\omega_i, \omega_r) L_i(\omega_i) \cos \theta_i d\omega_i \quad (1)$$

Briefly explain each term in this equation, including integration domain. Support your answer with a drawing. [7 marks]

- (b) Explain why the rendering equation is computationally expensive to solve for complex scenes. [7 marks]
- (c) Sometimes in mornings and evenings when the sun is low above the horizon and there is a thin layer of water on the road, the road surface reflects large quantities of light, introducing a strong source of glare that makes the road difficult to see. Explain what reflection properties of the road surface are responsible for this effect. Why can we not observe such reflection when the sun is high above the horizon? [6 marks]