23-S1-Q4

(a) 不考

(b) $\frac{\partial I}{\partial x}$: the change in image intensity along the x-axis

$\frac{\partial I}{\partial y}$: the change in image intensity along the y-axis

$\frac{\partial I}{\partial t}$ the change in image intensity over time

$\frac{\partial x}{\partial t}$: the horizontal velocity

$\frac{\partial y}{dt}$: the vertical velocity

(c) 不考

(d) (i) $D(G(z)) \to 0$

because the generated images are of poor quality and easily identified as fake by the discriminator

(ii) No, when the GAN is successfully traind $D(G(z))$ is ideally around 0.5 for generated images

indicating the discriminator cannot confidently distinguish between real and generated images. This implies that the generated images resemble real apples closely