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Digital society
Standard level
Paper 1

19 May 2025

Zone A afternoon | **Zone B** afternoon | **Zone C** afternoon

1 hour 30 minutes

Instructions to candidates

Do not open this examination paper until instructed to do so.

Answer two questions.

The maximum mark for this examination paper is **[40 marks]**.

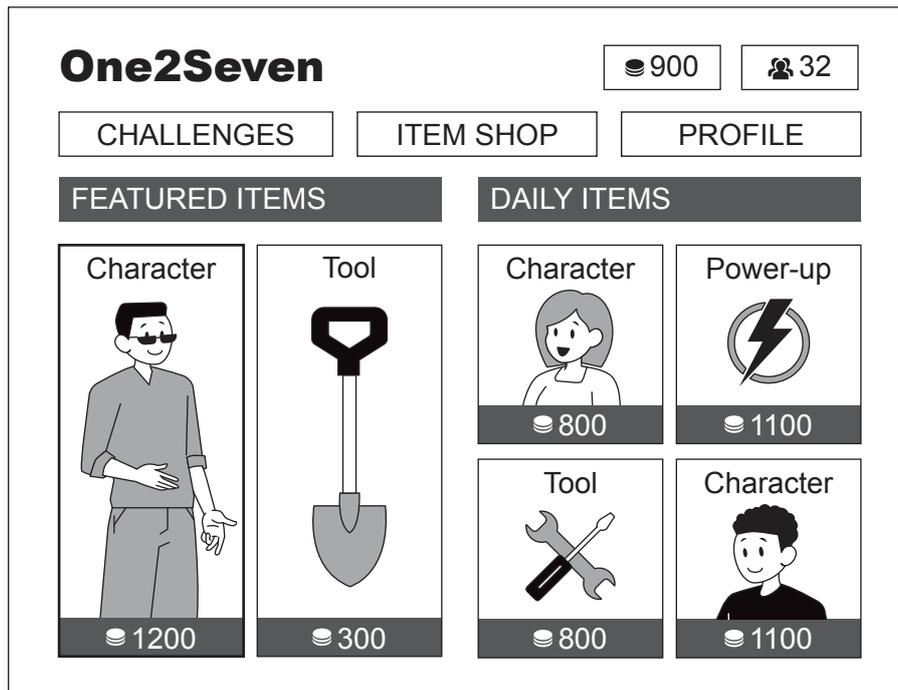
Answer **two** questions. Each question is worth [20 marks].

1. Microtransactions in gaming

Many free-to-play games on mobile phones (cell phones) use microtransactions to generate revenue for the gaming company.

Microtransactions are small payments that allow gamers to buy items, such as new tools, characters and power-ups, to enhance their ability in the game (see **Figure 1**).

Figure 1: Microtransactions in a game



Children often use a parent or guardian's credit card for these microtransactions, but cryptocurrencies can also be used for them.

- (a) (i) Identify **two** benefits to gamers of using microtransactions in games. [2]
- (ii) Identify **two** characteristics of a cryptocurrency. [2]
- (iii) Describe how encryption ensures the security of microtransactions. [2]
- (b) (i) Explain **one** reason why a parent or guardian may not realize a microtransaction has taken place. [2]
- (ii) Explain **two** ways in which parents or guardians can manage their children's in-game spending. [4]
- (c) To what extent is it acceptable for gaming companies to use microtransactions in games aimed at children? [8]

3. Deepfakes used for advertising

An artificial intelligence (AI) company uses synthetic digital media that allows its customers to select an avatar* to deliver advertisements or promote products.

Users choose their avatar for the presentation. The avatar could look like a businessperson in a suit, a social media influencer or a doctor in a white coat (see **Figure 4**).

Figure 4: An example of an avatar



As AI systems have grown in power and sophistication, so have concerns about their ability to create increasingly realistic virtual versions of real people, also known as deepfakes.

The increase in the use of deepfakes has raised concerns about the spread of misinformation. Google has announced it will require any political advertisements that run on its platforms to disclose whether they have been created using AI tools.

* avatar: an image that represents a person online, such as in an online game

- (a) (i) Identify **two** types of synthetic digital media. [2]
- (ii) Identify **two** characteristics of synthetic digital media. [2]
- (iii) Identify **two** reasons why a customer may want to customize their avatar. [2]

Developers have tried to avoid the uncanny valley in the creation of the avatars.

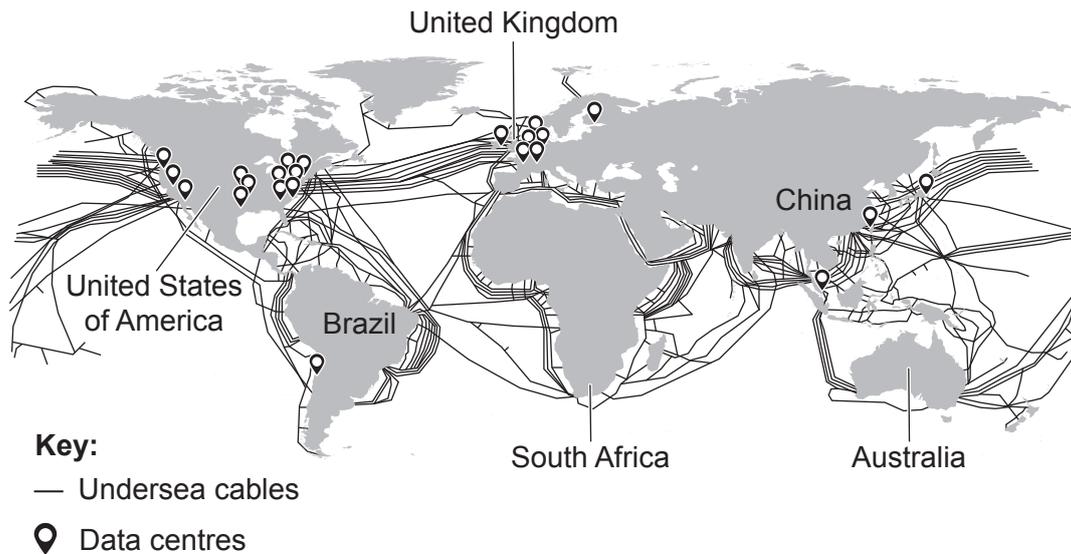
- (b) (i) Explain **one** reason why developers need to avoid the uncanny valley. [2]
- (ii) Explain **one** advantage of using a social media influencer to promote a product. [2]
- (iii) Explain **one** disadvantage of using a social media influencer to promote a product. [2]
- (c) To what extent is it acceptable for a company to use synthetic digital media? [8]

4. Undersea cables and the digital divide

In September 2022, 98% of internet traffic was transferred by undersea cables, most of which are owned by Amazon, Google, Meta and Microsoft.

Concerns have been raised about the digital divide that exists between countries in the Northern Hemisphere, which are usually well-connected by undersea internet cables, and those in the Southern Hemisphere, which are usually less well connected (see **Figure 5**).

Figure 5: Distribution of undersea internet cables



Over half of all internet traffic is between data centres. These data centres contain the hardware and infrastructure required for the delivery of cloud computing.

Companies such as Amazon, Google, Meta and Microsoft are aware of the environmental impact of their data centres, which they have tried to minimize in recent years.

- (a) (i) Identify **two** devices that enable users to access the internet. [2]
 - (ii) Identify **two** services accessible via the internet. [2]
 - (iii) Identify **two** characteristics of cloud computing. [2]
 - (b) (i) Explain **one** environmental impact of cloud computing. [2]
 - (ii) Explain **two** ways in which the data centres that contain the hardware and infrastructure for cloud computing can minimize their harm to the environment by using green computing principles. [4]
 - (c) Discuss whether it is the responsibility of cloud computing providers or individual governments to ensure all countries have equal access to the internet. [8]
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References:

- Figure 2** Diy13, 2023. *An industrial drone on green field and sprays useful pesticides to increase productivity and destroy harmful insects. increase productivity. Modern technologies in agriculture - stock photo.* [online] Available at: <https://www.gettyimages.co.uk/detail/photo/an-industrial-drone-on-green-field-and-sprays-royalty-free-image/1823399078?phrase=drones+spraying+crops> [Accessed 22 April 2024]. Source adapted.
- Figure 4** Sethi, D., 2023. *Cheerful female doctor in white uniform holding clipboard stock photo – stock photo.* [online] Available at: <https://www.gettyimages.co.uk/detail/photo/cheerful-female-doctor-in-white-uniform-holding-royalty-free-image/1473337843?phrase=asian+doctor+with+stethoscope+white+background> [Accessed 28 March 2024]. Source adapted.
- Figure 5** Data by TeleGeography. <https://www.submarinecablemap.com/>. Licensed under CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0/>.