# 1.5 Legal, Moral, Cultural and Ethical Issues: 30-minute Pack

Total Marks

OCR H446 · Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** Nadia Hussain runs a small games studio. She has written a new game engine and is deciding how to license it.

**(a)** Explain the difference between open source and proprietary software licensing. **(3)**

**(b)** Nadia releases her engine under a Creative Commons Attribution-NonCommercial (CC BY-NC) licence. State what each of the two conditions means for someone who wants to use the engine. **(2)**

**(c)** A rival developer, Owen Blackwood, copies Nadia's proprietary source code without permission and sells a near-identical game. State the Act that has been broken, identify the right that has been infringed, and state one civil remedy available to Nadia. **(3)**

**(Total for Question 1 is 8 marks)**


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**2** A data centre in Sheffield runs 2000 servers. Each server draws 300 watts of power continuously (24 hours a day).

**(a)** Calculate the energy used by one server in one day, giving your answer in kWh. **(2)**

**(b)** Calculate the total energy used by all 2000 servers in the data centre in one day, giving your answer in kWh. **(2)**

**(c)** Discuss the environmental impact of large data centres such as this one, and evaluate one way this impact could be reduced. **(5)**

**(Total for Question 2 is 9 marks)**


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**3** BrightPath Learning, a UK education technology company, wants to sell its revision app in Japan, Saudi Arabia and Germany.

**(a)** Identify three cultural or legal factors, other than translating the text, that BrightPath Learning must consider when adapting (localising) its app for these markets. **(3)**

**(b)** Discuss the cultural and ethical challenges of creating 'one size fits all' educational software for a global market, evaluating whether full localisation is always achievable or desirable. **(4)**

**(Total for Question 3 is 7 marks)**

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**4** Oakfield University uses an automated plagiarism-detection system that compares every piece of submitted coursework against a global database of previous student work, journal articles and websites, producing a percentage 'similarity score'. A first-year student, Sophie Chen, is placed under investigation after her essay returns a 42% similarity score.

**(a)** Explain one benefit and one drawback of using automated plagiarism-detection software, from an ethical and cultural perspective, referring to fairness for students. **(3)**

**(b)** Evaluate whether it is ethical for a university to rely primarily on a percentage similarity score, without human review, to decide whether a student has committed academic misconduct. **(4)**

**(Total for Question 4 is 7 marks)**


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# Mark scheme · 1.5 Legal, Moral, Cultural and Ethical Issues: 30-minute Pack

## Question 1

(a) Open source: the source code is made available and users may view, modify and redistribute it (oe) **B1**

(a) Proprietary: the source code is kept private/hidden and copying, modifying or redistributing it is restricted by the owner (oe) **B1**

(a) Valid comparative point, e.g. open source can be cheaper/more customisable, proprietary can offer more guaranteed support/quality control **B1**

**(a) Answer: Open source licences allow access to and reuse of source code; proprietary licences restrict access and reuse to protect the owner's rights.**

(b) Attribution: the user must credit Nadia as the original creator (oe) **B1**

(b) NonCommercial: the user may only use the engine for non-commercial purposes, e.g. not sell a product built with it (oe) **B1**

**(b) Answer: Attribution = must credit the creator; NonCommercial = may not be used to make money.**

(c) Copyright, Designs and Patents Act 1988 **B1**

(c) Infringement of Nadia's copyright / right to reproduce and distribute her own work (oe) **B1**

(c) Valid remedy, e.g. injunction to stop further sales, damages/compensation, account of profits **B1**

**(c) Answer: Copyright, Designs and Patents Act 1988; infringement of copyright; remedy such as an injunction or damages.**

## Question 2

(a) Converts 300 W to 0.3 kW and multiplies by 24 hours (oe method) **M1**

(a) 7.2 kWh, cao **A1**

**(a) Answer: 7.2 kWh**

(b) Multiplies answer to (a) by 2000 (ft from a) **M1**

(b) 14400 kWh (ft from a), cao **A1**

**(b) Answer: 14 400 kWh (14.4 MWh)**

(c) **L1** Basic, undeveloped identification of one or two impacts (e.g. energy use, e-waste) with little or no discussion of reduction methods. **1-2**

(c) **L2** Clear explanation of two or more impacts (e.g. energy use/carbon emissions, cooling water use, e-waste from hardware replacement) with at least one reasonably developed method of reduction. **3-4**

(c) **L3** Sustained, well-developed discussion covering multiple impacts and a clearly evaluated method of reduction, reaching a reasoned judgement about its effectiveness or limitations. **5**

**(c) Indicative content:**

- High continuous electricity demand contributes to carbon emissions, especially where power is not from renewable sources.
- Cooling systems for servers use large amounts of energy and, in some designs, large amounts of water.
- Frequent hardware replacement/upgrade cycles generate electronic waste (e-waste), some of which contains hazardous materials and is difficult to recycle safely.
- Reduction methods: server virtualisation to reduce the number of physical servers needed; sourcing renewable electricity; locating data centres in cooler climates to reduce cooling energy; reusing waste heat to warm nearby buildings.
- Evaluation: reduction methods often involve upfront cost or practical limitations (e.g. renewable supply is not always available, virtualisation still requires hardware refresh), so impact reduction is a trade-off rather than a complete solution.

**(c) Answer: N/A - levels-marked extended response.**


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## Question 3

(a) Valid factor 1, e.g. reading direction/layout (right-to-left text for Arabic) **B1**

(a) Valid factor 2, e.g. colours, symbols or imagery that have different cultural or religious meanings in different countries **B1**

(a) Valid factor 3, e.g. date/number/currency formats, local data protection laws that may differ from UK GDPR, or local content/censorship rules **B1**

**(a) Answer: Any three of: reading direction/layout; culturally sensitive colours/symbols/imagery; date, number or currency formats; local data protection or censorship laws.**

(b) **L1** Identifies a benefit or challenge of a global platform with limited explanation or evaluation. **1-2**

(b) **L2** Clear discussion of both benefits (e.g. shared access to quality resources, cost-effectiveness) and challenges (e.g. cultural imperialism, censorship conflicts, cost/time of localisation), with a reasoned evaluative judgement about achievability or desirability. **3-4**

**(b) Indicative content:**

- Benefit: a shared global platform can be cheaper to build and maintain, and can widen access to good-quality educational resources, potentially reducing the digital divide.
- Challenge: exporting content designed around one culture's norms and values risks 'cultural imperialism', imposing assumptions that do not fit other cultures.
- Challenge: content acceptable in the UK (e.g. discussion of certain scientific, religious or social topics) may conflict with local censorship rules or cultural sensitivities elsewhere.
- Challenge: full localisation is costly and time-consuming for a small company, so genuine adaptation for every market may not be commercially achievable.
- Evaluation: a balance is often struck through partial localisation (adapting the most sensitive elements) rather than either a single global version or full bespoke versions for every market.

**(b) Answer: N/A - levels-marked extended response.**

## Question 4

(a) Benefit: consistent, fast detection across a whole cohort supports fairness and deters deliberate academic dishonesty **B1**

(a) Drawback: false positives are possible, e.g. common technical phrases, properly cited quotations, or writing conventions from a student's first language/culture may be flagged unfairly **B1**

(a) Developed point linking to Sophie's case, e.g. a similarity score alone does not distinguish plagiarism from legitimate quotation/paraphrase, so context and human review are needed before judging her **B1**

**(a) Answer: Benefit: consistent, scalable, fair detection across all students. Drawback: risk of false positives, especially for legitimately cited or common technical language, which can unfairly disadvantage individual students such as Sophie.**

(b) Point that a raw score lacks context/nuance, e.g. it cannot reliably distinguish properly referenced quotation from genuine plagiarism **B1**

(b) Point about due process/fairness, e.g. a student should have the right to explain flagged sections before a judgement is made **B1**

(b) Point recognising the institution's argument, e.g. efficiency/consistency at scale across thousands of submissions **B1**

(b) Evaluative concluding statement, e.g. the score should trigger further human review, not act as an automatic verdict, to be considered ethical **B1**

**(b) Answer: It is not fully ethical to rely on the score alone; it should be used as a trigger for human review rather than a final verdict, balancing efficiency with fairness and due process.**


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