

Supervision material for Part IB

Economics, Law and Ethics

2025-26

Please write your answers as short essays. You will be marked for style as well as substance. You should be making coherent arguments, explaining your reasoning and demonstrating your understanding of the material.

Supervision 1

1. There are a number of competing video conferencing applications on the market.
 - (a) Explain how this market may develop in the future, defining relevant concepts.
 - (b) Let's assume at present there are three leading video conferencing applications, A, B, and C. Application A is available as part of a suite of services, including a search engine, email, and calendaring, at no cost to users. Application B provides higher quality video conferencing, but the length of meetings and number of participants allowed is limited unless you pay a subscription. Application C is made available open source, so users can install and run the application on their own servers, and modify it however they like. Explain the economic rationales that may have been considered by the providers of applications A, B, and C when deciding on their business models.
2.
 - (a) Explain information asymmetry, and how it can lead to a lemon market.
 - (b) What solutions can help prevent a lemon market?
3.
 - (a) Provide examples to illustrate (i) adverse selection and (ii) moral hazard, defining relevant terms.
 - (b) Ouchbridge hospital handles sensitive medical data from patients. If there is any data breach, Ouchbridge hospital may face large fines. Ouchbridge hospital is considering buying antivirus software. How does adverse selection affect the process of selecting which software to buy?

- (c) Painbridge hospital has cybersecurity insurance. How does this affect moral hazard?

Supervision 2

1. The new Master of (fictional) Porterhouse would like to modernise the college website, using generative AI to create both the html and content. They bring the proposal to the College Council, of which you are a member.
 - (a) Discuss the challenges presented by intellectual property and generative AI.
 - (b) Use either consequentialist or deontological reasoning to argue in favour of or against the proposal. Additionally, please define the ethical philosophy you will be employing in your argumentation.
 - (c) One of the Fellows is concerned about the existential risk of generative AI. Discuss this risk and explain other risks from AI.
2. As AI continues to attract widespread attention, it has become a key legal and policy concern. Drawing on concepts and principles outlined in this course, and using examples where appropriate, respond to the following:
 - (a) There is ongoing debate about the role of law and regulation for digital technologies. Briefly explain different perspectives on this issue and discuss the relationship between the law and technology's development and use.
 - (b) Automated decision-making (ADM) is a purported feature of some AI applications.
 - i. Discuss two risks that ADM presents.
 - ii. Explain a regulatory challenge for governing ADM systems.
 - (c) Data used to train models can raise data protection concerns.
 - i. Explain when the General Data Protection Regulation (GDPR) applies to training data.
 - ii. Describe two rights given to individuals by the GDPR, discussing how an organisation might implement them in relation to training datasets.
 - (d) The EU AI Act classifies AI systems based on risk, imposing stricter rules on higher-risk uses of AI. Briefly describe two advantages and two concerns of an application-specific, risk-based approach to AI regulation.

3. Consider the context in the following ‘trolley problem’:

- Company A produces a lifesaving wireless implantable medical device. It is the only device of its type ever invented. When a patient receives this device, it will (on average) extend their lifespan by ten years.
- Company A goes bankrupt and closes due to poor financial practices, including a failure to calculate the market size and the costly manufacture of hundreds of thousands of devices before they were needed.
- At the time of Company A’s bankruptcy, approximately 100 000 people globally use Company A’s device.
- Doctors continue to implant the surplus of (now unsupported) device in new patients.
- Shortly after Company A closes, you discover a software vulnerability in the device. If exploited, the vulnerability could cause significant harm to the patients. Since Company A no longer exists, the software cannot be updated to address this vulnerability.
- You know that there is zero probability that the vulnerability will ever be exploited even if the vulnerability is disclosed to the public.
- The computer security research field and the healthcare industry have already internalised the importance of computer security for wireless implantable medical devices; there are no field- or industry-wide gains to be made by disclosing the vulnerabilities to the public.

You have the following choices:

- Not disclose the vulnerability to anyone: Patients will have no awareness that their device is vulnerable; patients will keep and / or proceed with obtaining the device and receive significant health benefits.
- Disclose the vulnerability to the healthcare industry, patients, and the public: Patients will have the choice to remove or not receive the device; there is a risk of health harm to patients if patients remove and / or do not receive the device; there is a risk of psychological harm to patients and loved ones if patients know that they have a vulnerable device in their bodies (even if they also are told that the likelihood of compromise is zero); given the psychological harms, most patients would have preferred not to have learned about the vulnerability.

Which choice do you make? Justify your decision using a consequentialist or deontological approach.