

EGT2
ENGINEERING TRIPOS PART IIA

Friday 8 May 2026 14.00 to 15.40

Module 3E11

ENVIRONMENTAL SUSTAINABILITY AND BUSINESS

*Answer not more than **two** questions.*

All questions carry the same number of marks.

*The **approximate** percentage of marks allocated to each part of a question is indicated in the right margin.*

*Write your candidate number **not** your name on the cover sheet.*

STATIONERY REQUIREMENTS

Single-sided script paper

SPECIAL REQUIREMENTS TO BE SUPPLIED FOR THIS EXAM

None

10 minutes reading time is allowed for this paper at the start of the exam.

You may not start to read the questions printed on the subsequent pages of this question paper until instructed to do so.

You may not remove any stationery from the Examination Room.

1 Scientific evidence indicates that Earth has crossed multiple planetary boundaries and that we are living in an environmental poly-crisis encompassing climate change, biodiversity loss, land use issues and more.

(a) Describe the concepts of planetary boundaries, doughnut economics, planetary health (check) and tipping points. Summarise which types of boundaries have been exceeded, whether tipping points have been reached, and explain why this matters for firms involved in global supply chains. [40%]

(b) Define and differentiate between ecological footprint, carbon footprint, and carbon inequality. Discuss the advantages and limitations of footprint concepts in general. Consider the implications of these opportunities and limits of footprint concepts. For a typical engineering firm (choose a real or fictive example), explore how these indicators can help map environmental impacts across Scopes 1–3 and identify critical areas for action (“hotspots”). [40%]

(c) Select one sector (e.g., aviation, construction, digital services, or agriculture) and critically evaluate how the planetary boundaries framework could guide long-term strategy for companies within that sector. [20%]

2 Sustainable investing is reshaping capital allocation and altering how investors view sustainability-related risks and opportunities.

(a) Describe how institutional investors and asset managers use ESG information in portfolio development and stewardship. Distinguish between risk-based ESG integration, exclusionary screening, and impact-focused investing. [30%]

(b) Consider the four example companies covered in class. Each has a different combination of financial performance and ESG traits (e.g., strong “E” but weak “S”, strong “S” but high carbon intensity, excellent disclosure but mediocre actual performance, etc.). Explain how various sustainable investors might rank these companies from most to least investable. Discuss the value trade-offs and ethical dilemmas involved. Relate your response to the pre-class “Would You Invest In...?” sustainability dilemma exercise.

Focus on explaining the mechanisms and key drivers that influence how investors rank companies based on ESG criteria. Your answer should detail the underlying factors and processes that shape these rankings. You are not asked to rank the companies.

As a reminder: The four companies listed in the pre-assignment are as follows:

SolarTech Inc. (Designs and sells affordable solar panels, manufactures in a country with poor labour rights enforcement, recently accused of worker health violations at one supplier factory).

GreenBanc (Finances low-carbon infrastructure, holds equity in fossil fuel companies to influence them from within, has no board diversity policy or public gender data).

AgroGrow (Uses regenerative farming techniques and pays fair wages, operates in monoculture regions with high water usage, has poor carbon disclosure ratings).

MetaFit Corp (Popular fitness app company with a carbon-neutral data centre policy, uses AI that collects sensitive user data without clear consent, is a major investor in youth mental health charities. [40%]

(c) Critically assess the potential and limitations of sustainable investing as a catalyst for decarbonising the real economy and fostering social change. Under what circumstances can ESG-oriented capital markets speed up the sustainability transition, and when might they merely rebrand existing practices or shift risks without reducing them? Support your argument with examples. [30%]

3 Businesses are increasingly applying behavioural insights to create more environmentally friendly products, processes, and workplaces.

(a) Define nudging and choice architecture as used in behavioural economics. Explain how “behaviourally informed interventions” differ from traditional tools such as information campaigns, pricing, or regulation. Refer to relevant literature and the UNEP “Little Book of Green Nudges” where appropriate. [30%]

(b) Propose and briefly outline five specific “green nudges” that a large organisation (e.g., a university, hospital, or engineering firm) could implement to promote more sustainable behaviour among employees or customers. For each nudge, identify the targeted behaviour, the behavioural mechanism involved (e.g., default effects, social norms, salience, loss aversion, habit disruption), and the expected environmental impact. [40%]

(c) Choose one of your proposed nudges and critically assess its effectiveness, risks, and ethical considerations. Address issues such as transparency, autonomy, distributional effects, and the potential for nudges to replace more structural changes (“nudging instead of regulating”). Under what circumstances would you regard this intervention as “nudging for good”? [30%]

END OF PAPER