

PRODUCT INNOVATION
22WSC206

Semester 2 2023

In-Person Exam paper

This examination is to take place in-person at a central University venue under exam conditions. The standard length of time for this paper is **2 hours**.

You will not be able to leave the exam hall for the first 30 or final 15 minutes of your exam. Your invigilator will collect your exam paper when you have finished.

Help during the exam

Invigilators are not able to answer queries about the content of your exam paper. Instead, please make a note of your query in your answer script to be considered during the marking process.

If you feel unwell, please raise your hand so that an invigilator can assist you.

You may use a calculator for this exam. It must comply with the University's Calculator Policy for In-Person exams, in particular that it must not be able to transmit or receive information (e.g. mobile devices and smart watches are **not** allowed).

PRODUCT INNOVATION (22WSC206)

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Answer **ALL** questions.

Any University-approved calculator is permitted.

1. The combination of 'Disruptive' and 'Frugal' Innovation has the potential to transform industries and create significant social and economic impact:
 - a) What are the 6 main steps to identify a Disruptive Innovation Pattern? [6 marks]
 - b) According to Harvard Business Review, '*Technology means nothing without a business model*'. In this context, explain in your own words the Southwest Airlines strategy in leveraging technology by using Boeing 737-500 series aircraft with their low cost business model? [8 marks]
 - c) Tata Nano a low-cost car was sold for less than a 1000 pounds in Indian Market, this was possible by developing a Frugal innovation Concept. Explain the Frugal innovation concept in detail? [6 marks]
2. Sustainable innovation is where sustainability goals are the main drivers for change. This may occur separately at a product, business, or system level, or may involve all three with multiple actors working together.
 - a) At a product level, a life cycle approach is used to identify opportunities for product improvements. What is meant by the product lifecycle in this context and how does it differ from the market based product lifecycle as used for portfolio management. Use a diagram to illustrate your answer. [6 marks]
 - b) At the business level, companies can reduce the environmental impacts of their products by taking a Product Service System (PSS) approach. Give three environmental design improvements that could be made to a typical 'make and sell' washing machine if it was redesigned for a PSS. [6 marks]

- c) For system level change, six key steps were identified that needed to take place, the first being to “Experience the need for change” and the last being “Set the rules of the new mainstream”. Name and briefly describe the other four steps. [8 marks]

3. Roadmapping is an agile strategic planning technique that enables the development and communication of strategy and innovation. A Technology RoadMap (TRM) focuses on the technology path required to achieve that strategic goal or innovation using a 3-phase approach.

- a) Phase 1, the preliminary activity, involves 3 steps. What are they and how do they interrelate (order, dependency, hierarchy etc)? [6 marks]
- b) Phase 2, the development of the TRM, has seven steps that are required in order to ‘produce the TRM report’ (final step), starting with ‘identifying the product’ (first step). Name and describe in, running order, the other five steps in this process? [8 marks]
- c) The roadmap has identified the need for a new technology in order to realise the new product. Name and describe three methods the company could use to identify the new technology thus enabling them to get their product to market? [6 marks]

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