GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY
Faculty of Engineering
Department of Electrical, Electronic and Telecommunication Engineering

B.Sc. Engineering Degree
Semester 8 Examination – November 2025
(Intake 39 – EE and ET)

ME 3212 - ENTREPRENEURSHIP FOR ENGINEERS

Time allowed: 2 Hours 28 November 2025

ADDITIONAL MATERIAL PROVIDED

None

INSTRUCTIONS TO CANDIDATES

This paper contains 4 questions on 3 pages

Answer ALL questions

This is a closed-book examination

Use a separate answer book

This examination accounts for 70% of the module assessment. The marks assigned for each question and parts thereof are indicated in square brackets

If you have any doubt as to the interpretation of the wordings of a question, make your own decision, but clearly state it on the script

Assume reasonable values for any data not given in or provided with the question paper, clearly make such assumptions made in the script

All examinations are conducted under the rules and regulations of the KDU

DETAILS OF ASSESSMENT

Learning Outcome (LO)	Questions that assess LO	Marks allocated (Total 70%)
LO1	Q1	17.5
LO2	Q2	17.5
LO3	Q3	17.5
LO4	Q4	17.5

Question 01

James Dyson – Dyson Ltd

Sir James Dyson, a British engineer, is renowned for transforming everyday household appliances through innovative engineering. After developing more than 5,000 prototypes, Dyson created the world's first bagless cyclonic vacuum cleaner, which revolutionised the global vacuum industry. His frustration with poor suction performance led him to apply industrial cyclone technology to consumer appliances, a breakthrough that competitors initially overlooked.

Dyson later expanded into bladeless fans (Air Multiplier technology), Dyson Supersonic hairdryers, advanced air-purifying systems, and robotic cleaners, all built on engineering principles such as fluid dynamics, aerodynamics, and motor efficiency. He invested heavily in in-house R&D, owning hundreds of patents and recruiting thousands of engineers worldwide. Dyson's company culture fosters rapid prototyping, tolerance for failure, and engineering creativity.

Despite many early rejections from established manufacturers, Dyson built his own company, proving the commercial value of engineering-led product innovation. Today, Dyson Ltd. is a global technology brand with a strong focus on sustainability, energy-efficient designs, and next-generation engineering solutions, including research into solid-state batteries.

(Source: Dyson Ltd)

Considering the facts given in the case study:

a) Discuss how James Dyson's entrepreneurial journey reflects the key characteristics of a successful technopreneur. Identify five (05) characteristics and support each with relevant examples from the case. (10 Marks)

b) Assume that Dyson plans to establish a Product Engineering & Innovation Lab in Sri Lanka, focusing on energy-efficient household technologies (e.g., air purification, low-energy cooling systems). Propose a suitable innovation opportunity for Sri Lanka and conduct a Feasibility Study to evaluate and justify the selected product idea. (15 Marks)

(Total Marks = 25)

Question 02

a) Explain the difference between invention, innovation, and entrepreneurship. Provide two examples to support your answer. (10 Marks)

b) The statement, "*The person who wants peace must prepare for war.*" implies that firms must build competitive strength before entering a market. Explain this statement with specific reference to:

i. Competitive Intelligence
ii. Technological preparedness
iii. Marketing Research

(15 Marks)

(Total Marks = 25)

Question 03

a) Explain the importance of managing human resources in a tech start-up company. (10 Marks)

b) Describe the New Product Development (NPD) process and apply it to an example of an electronic Agritech solution, such as a drone-based crop monitoring system powered by embedded electronics or an IoT-enabled soil-sensor device that measures moisture, pH, and nutrient levels using electronic sensing technologies. (15 Marks)

(Total Marks = 25)

Question 04

a) Differentiate between equity financing and debt financing. Provide two examples for each. (10 Marks)

b) Describe the Product Marketing Mix (4Ps) in the context of a technology product or the product you developed for your final-year project. (15 Marks)

(Total Marks = 25)

End of the question paper