



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2021/2022**

COURSE NAME : PRODUCT DESIGN AND
DEVELOPMENT

COURSE CODE : MPA 11403

PROGRAMME CODE : MPA

EXAMINATION DATE : JANUARY / FEBRUARY 2022

DURATION : 3 HOURS

INSTRUCTION :
1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION
IS AN **ONLINE** ASSESSMENT
AND CONDUCTED VIA **OPEN
BOOK**

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** One of the biggest product failures in recent years was that of the Samsung Galaxy Note 7. Reports of explosions, batteries overheating, and burns were common for the phone. It launched on August 19, 2016, and by early September, Samsung stopped selling it. The brand issued a voluntary recall of the devices, during which they recalled 2.5 million units, according to Time magazine.

Samsung then replaced the Notes with new devices, but the problem persisted. Various airlines around the globe started to ban the devices on flights, and Samsung ended up losing \$14.3 billion in investments. Although Samsung has since stopped the production of the Note 7, the product had a lasting impact on the brand's image.

(Source: 'Worst Product Launch Failures Case Study': Shane Barker, 2020)

- (a) Elaborate **THREE (3)** crucial actions during new product design and development, which would prevent similar new product introduction failure. (15 marks)
- (b) Recommend **TWO (2)** appropriate damage control actions, which should be taken by the Product Manager. (10 marks)

- Q2** After 25 years working in Australia as an Engineer, Mr Shukri decided to retire and come back to his hometown in Parit Raja, Johor. When he stayed in Melbourne Australia he liked to buy tree trimmer and other gardening tools from Ozzie Hardware shop. Since he has a lot of free time after retirement and there is no hardware shop in Parit Raja that sells similar products, Mr Shukri decided to open a hardware shop and become a distributor for Ozzie Hardware in Malaysia. He has high confidence that his business will flourish and grow successfully. However, after two years, his business is still running at loss and he is contemplating whether to continue or shut down his business.

- (a) Construct **TWO (2)** factors that potentially contributed to the new business venture failures. (10 marks)
- (b) Propose **THREE (3)** actions that he should do differently with relevant examples during new business start-up, if Mr Shukri can start all over again, (15 marks)

- Q3** MotorCo wants to update its understanding of the competitive landscape in three of its main business segments, on-highway, off-highway and marine, with the focus on the critical product factors of the competitors.

All three segments are driven by the electrification trend caused by emissions regulations and a strong demand for energy efficiency. In addition to mergers and acquisitions,

financials and social media of the competitors should be analysed. Understanding how the competitors are complementing their product offerings, growing or branding their products or position in the market.

MotorCo is focused on light and compact solutions whereas some competitors offer solutions with wider applications and power ranges. Electrification is, however, an emerging trend in all application markets and regions. The initial applications were found to be more common in the light vehicles and vessels.

(Source: StrategyCo.Global 2021)

- (a) Analyse **THREE (3)** consequences of deprioritizing competitive benchmarking steps in the new product development process. (15 marks)
- (b) Outline **TWO (2)** elements that influenced final product specification. (10 marks)

Q4 Clayton Associates contracted Flexcraft early in the design stage of their project to provide critical design for manufacturing (DFM) assistance. Flexcraft worked directly with Clayton Associates to help them optimize the parts for the molding process. This collaboration was critical in order to eliminate potential problems before the process of building the molds even began.

In an effort to design quality components at a lower cost, the Flexcraft team worked seamlessly with Clayton Associates to conceptualize their new vacuum system until the product was ready and approved to be manufactured. The solution required various components including a thick-walled polycarbonate vacuum canister, multiple injection molded components and secondary operations including ultrasonic welding for assembly.

(Source: Flexcraft Co., 2020)

- (a) Elaborate **TWO (2)** business benefits of new product design that complied to design for manufacturing (DFM) guidelines. (10 marks)
- (b) Analyse **THREE (3)** business impacts of product design and specification changes occurred after a new product is launched to market. (15 marks)

-END OF QUESTIONS-