



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : PRODUCT DEVELOPMENT

COURSE CODE : BPC 32403

PROGRAMME CODE : BPB / BPA

EXAMINATION DATE : JULY 2022

EXAMINATION DURATION : 3 HOURS

INSTRUCTIONS :

1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION IS CONDUCTED VIA CLOSED BOOK.
3. STUDENTS ARE PROHIBITED TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION.

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

- Q1** (a) Describe the following new product concept and its current IR 4.0 approach:
- (i) New product concept of smart watch. (2 marks)
 - (ii) New revolutionary product of electric car. (2 marks)
 - (iii) Smart manufacturing concept. (2 marks)
- (b) Elaborate the cause of failures for these newly introduced products:
- (i) New car model of Ford Pinto. (3 marks)
 - (ii) New beverage taste of the “New Coke”. (3 marks)
- (c) Give an example of each insulin syringe users:
- (i) Lead users. (2 marks)
 - (ii) Group users. (2 marks)
 - (iii) Individual users. (2 marks)
 - (iv) Experts. (2 marks)
- Q2** (a) List **FIVE (5)** major steps in the Pugh Concept Scoring Matrix (PCSM) for product concept selection. (5 marks)
- (b) (i) Assess **FOUR (4)** potential smartphones using the PCSM method that you are thinking of buying for your daily usage, as shown in **Table Q2(b)**. (10 marks)

Table Q2(b) : Concept Scoring Template

		Typical Best-Selling Smart Phones in Malaysia							
		(Reference) iPhone 13		Samsung Galaxy A53		Huawei Nova 9		Xiom i 12	
Selection Criteria	Weight (%)	Rating	Weighted Score	Rating	Weighted Score	Rating	Weighted Score	Rating	Weighted Score
Price									
Physical Design									
Processor Speed									
Screen Display									
Camera									
Battery									
Water Resistance									
	Total Score	/		/		/		/	
	Rank								
	Purchase ?								

(ii) Discuss the main reason for choosing the smart phone with its highest rank. (5 marks)

Q3 (a) (i) Illustrate a schematic diagram with chunk blocks for DeskJet printer mechanism. (4 marks)

(ii) Differentiate between product integral architecture and modular architecture. (4 marks)



- (b) Apply the following modular architectures, as shown in **Figure Q3(b)**, in the respective products' application as listed below:

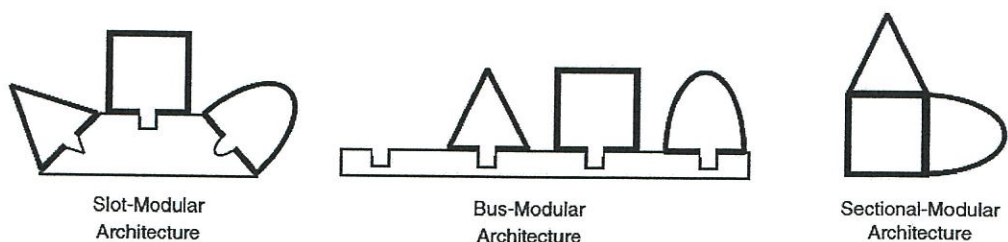


Figure Q3(b): Typical Types on Product Architecture

- (i) Slot-modular architecture product in automobile. (4 marks)
- (ii) Bus-modular architecture product in personal computer. (4 marks)
- (iii) Sectional-modular architecture product in office environment. (4 marks)

Q4 (a) Since the year 2015, Samsung's Electronics business strategy is based the Three Pillars, namely effective market leadership, utilising opportunities in the market, and new product development, as shown in **Figure Q4(a)**. Its strategic direction focuses on rapid growth in the core businesses of smartphones and telecommunications networks. This goal is achieved by Samsung's development of new products and expansion into new market leadership, with highest global sales of 76.6 million sold units in 2021. Currently, Samsung is the clear market leader in the smartphone industry in terms of sales and profitability, and way ahead of giant telecommunications companies like Apple and Xiaomi.

(Source: Samsung Business Strategy, 2021)



Figure Q4(a): New product Samsung 4G/5G best sellers

Analyse **THREE (3)** most important factors of above Samsung's smartphone market success.

(12 marks)



- (b) Compare the perspectives of end customers on how industrial designs of Apple computers and Braun kitchen appliances could establish their corporate identities. (8 marks)

Q5 (a) Define the following;

(i) Patent (2 marks)

(ii) Rapid Prototyping (2 marks)

(iii) Design for Manufacturing (2 marks)

(iv) Design for Environment (2 marks)

- (b) (i) State **THREE (3)** purposes of constructing a technical prototype for new product development project. (3 marks)

(ii) Compare **TWO (2)** robust design types between traditional loss approach and Taguchi loss function. (9 marks)

- END OF QUESTIONS -