Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2021/2022

COURSE NAME	:	INDUSTRIAL DATA SYSTEM
COURSE CODE	:	MPE 10403
PROGRAMME CODE	:	MPE
EXAMINATION DATE	:	JANUARY 2022
DURATION	:	3 HOURS
INSTRUCTION	:	1. ANSWER **ALL QUESTIONS** 2. THIS FINAL EXAMINATION IS AN **ONLINE** ASSESSMENT AND CONDUCTED VIA **CLOSED BOOK**

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1 **(a)** Discuss **TWO (2)** information system platforms to facilitate employees in workgroups to make decisions more effective in business organisations.

(6 marks)

(b) Below are the given codes to you, as a Phyton programmer.

```
m=[1,3,5,7,4,9]
print(m)
p=list(m)
print(p)
m[4]=8
print(m)
p=list(m)
print(p)
```

Generate the output resulting from executing the above Phyton codes via Colab.

(6 marks)

(c) PG Edible Oils (M) Sdn. Bhd. is a leading company in supplying methyl ester for downstream cooking and cosmetic products. PGEO has hired your IT company to be the appointed Business System Analyst advisor to upgrade its legacy computer system into a modern enterprise networked computing system.

Discuss **FOUR (4)** steps you would do to determine the best enterprise systems application to be adopted by this client.

(8 marks)

Q2 (a) Shi-imano is a bike company based in Yokohama, Japan founded in a place where all the good ideas take shape in a home garage. It manufactures bikes for families, kids, and senior people. Shi-imano's supply and distribution chains span the globe, and the bike firm must coordinate manufacturing, assembly, sales, and distribution sites in many different countries. Shi-imano produces more than 100 different bicycle models each year; 60 percent of these are newly introduced to meet ever-changing customer preferences. Shi-imano offers both make-to-stock and make-to-order models. A typical bicycle requires a 150-day lead time and a four-week manufacturing time frame, and some models have bills of materials with over 150 parts. Shi-imano must manage more than 1 million of these bills of materials and more than 200,000 individual parts. Some of these parts come from specialty vendors with even longer lead times and limited production capacity. Obviously, managing parts availability in a constantly changing product line impacted by volatile customer demand requires a great deal of manufacturing flexibility. Until recently, that flexibility was missing. Shi-imano had an antiquated legacy material requirement planning system for planning production, controlling inventory, and managing manufacturing processes that could only produce reports on a weekly basis. The firm was forced to substitute parts to meet demand, and sometimes it lost sales. Shi-imano needed a solution that could track the

flow of parts more accurately, support its need for flexibility, and work with its existing business systems, all within a restricted budget. Shi-imano needs system that could give accurate and detailed supply chain information via an easy-to-use spreadsheet interface, using data supplied automatically from Shi-imano's existing manufacturing systems. Data from operations at multiple sites are assembled in a single place for analysis and decision making. The system should also be able to model manufacturing and inventory data in "what-if" scenarios to see the impact of alternative actions across the entire supply chain. Old forecasts can be compared to new ones, and the system can evaluate the constraints of a new plan.

(Source: Laudon & Laudon 2012)

Based on above case study;

(i) Explain **TWO (2)** main challenges faced by Shi-imano's management.

(6 marks)

Suggest the most suitable enterprise application that should be used by Shi-imano to overcome the challenges, as discussed in **Q2a(i)**.

(5 marks)

(ii) Discuss **THREE (3)** potential benefits Shi-imano will get once they implement enterprise applications as discussed in **Q2a(ii)**.

(9 marks)

Q3 **(a)** Three major concerns of computer systems and network builders and users are disaster, human error and security. Natural disasters, such as floods, may severely pose a great threat to the infrastructure. Human errors from the internal computer network users also may create major headaches for any chief information officer. Lastly, cyber security has never been so challenging, even with the most expensive protection programme, any reputable consultant won't guarantee it from any breach.

(i) Propose **ONE (1)** course of action to at least mitigate each listed threat below from happening, towards more sustainable computer security and system operation;

a. Sudden flooding

(3 marks)

b. Internal sabotage

(3 marks)

c. External hacking

(3 marks)

(b) Analyze the vulnerabilities of security challenges faced by a wireless network.
(6 marks)

(c) Explain the importance of software quality towards computer network security.
(5 marks)

Q4 **(a)** Explain **FOUR (4)** ethical principles for managing ethics in information society.
(8 marks)

(b) ProTech (M) Sdn. Bhd., an IT-based maintenance service provider, has decided to equip their site/field engineers and managers with wearable-technology devices, namely Samsung smartwatches and latest folded smartphones, to facilitate computing mobility and working flexibly. Hence, these techno-gadgets are to be used during customer site servicing, online meetings, business travel and even leisure entertainment at home. Sometimes, kids play around with their parent's devices, such as toying around and playing games. Executives at homes also send personal messages to friends and make home purchases, via social media and e-Commerce platforms, such as Facebook and Shopee, via the authorised company devices.

Propose your opinion in terms of information and computer ethics while these employees working at ProTech on below designated posts:

(i) As the site technical engineer.
(4 marks)

(ii) As the customer service manager.
(4 marks)

(iii) As the chief executing officer of the company.
(4 marks)

Q5 Backbones of the Internet global system architecture are telecommunication, networking, the Web and search engines. In telecommunication, packet switching technology for data transfer over the Internet was invented by Paul Baran in the 1960's. Packet switching is the primary basis for data communications in computer networks worldwide. The next upcoming web category is Web 3.0, which is the third generation of internet services for websites and applications. This new Web will focus on using a machine-based understanding of data to provide a data-driven and Semantic Web. The ultimate goal of Web 3.0 is to create more intelligent, connected and open websites. One most important driver of the Internet is Google Chrome web browser, which is a cross-platform web browser developed by Google Inc. Google stands for "Global Organization of Oriented

Group Language of Earth". It was first released in 2008 for Microsoft Windows. It is so dominant in cyberspace browsing until later it caters for all other operating systems, worldwide.

(a) Discuss the mechanism of packet switching technology for digital data transfer.
(5 marks)

(b) Elaborate the concept of Web 3.0 in which its development could significantly impact businesses, particularly from a marketing perspective.
(8 marks)

(c) Justify the success of Google search engine as the dominant internet browser.
(7 marks)

-END OF QUESTIONS-