

FINAL
Examination Paper

(COVER PAGE)

Session : January 2020

Programme : Diploma in Business (DIB)

Course : **MGT2100: Operations Management**

Date of Examination : March 18, 2020 (Wednesday)

Time : 2:00pm – 4:00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

Answer all **FOUR (4)** questions in the answer booklet provided.

Materials permitted : Non-programmable Calculator

Materials provided : Nil

Examiner(s) : **Vasudevan Arumugam**, Christina Rathy Anthony Samy, Kathleen Bagah, and Gun Nee Chin

Moderator : Dr Rajendran Muthuveloo

This paper consists of 3 printed pages, including the cover page

DIPLOMA IN BUSINESS PROGRAMME (DIB)
MGT2100: OPERATIONS MANAGEMENT
FINAL EXAMINATION: JANUARY 2020 SESSION

Instructions: This paper consists of **FOUR (4)** questions. Answer **ALL** questions in the answer booklet provided. All question carry equal marks.

Question 1.

A company has introduced a process improvement that reduces processing time for each unit; output is increased by 25 percent with less material, but one additional worker is required.

Under the old process, five workers could produce 60 units per hour.
Labour costs are RM 12/hour; Material input was previously RM 16/unit.

For the new process, material is now RM 10/unit.
Overhead is charged at 1.6 times direct labour cost.
Finished units sell for RM 31 each.

Required:

- (a) Calculate the increase in productivity is associated with the process improvement. (20 marks)
- (b) Elaborate the concept of bottleneck. Provide an example of a bottleneck to support your answer. (5 marks)
- (Total 25 marks)**

Question 2

- (a) Elaborate the concept of economy of scales in operations management. (10 marks)
- (b) There are **THREE (3)** types of cost of quality. Identify and explain each along with relevant example. (15 marks)
- (Total 25 marks)**

Question 3

You are managing a group of 10 Electricians.

These individuals undertake in-home servicing of electrical systems and are called by telephone for either emergency or pre- arranged visits. The workers usually are available for 8 hours a day but with 2 coffee breaks of 15 minutes each and a half hour lunch break, they actually work 7 hours per day. Taking time off and illness into account reduces the electricians' available time by 20%. This means the 7 hours per day is reduced to 5 hour and 36 minutes per day (5.6 hours)

There are 5 working day in a week.

Actual work is only 200 hours billed in the week.

Required:

- (a) Calculate the design capacity of the team. (5 marks)
- (b) Calculate the effective capacity of the team. (5 marks)
- (c) Calculate the capacity utilisation. (5 marks)
- (d) Calculate the capacity efficiency. (5 marks)
- (e) Propose **TWO (2)** ideas to improve the efficiency of the company above. (5 marks)

(Total 25 marks)

Question 4:

The One More Draft Root-beer Corporation purchases 16,000 bottles of concentrated syrup each year. The syrup is used to make the final root-beer products. The unit cost of each bottle of syrup is RM 5.00, and the cost of carrying one bottle of syrup for a year is RM 6.00. Ordering cost is RM 15.00 per order. Assume the company operates on a 200-day working year.

Required:

- (a) Determine the optimal order quantity for the syrup. (4 marks)
- (b) Calculate the number of orders placed each year. (3 marks)
- (c) Calculate the expected time between orders. (3 marks)
- (d) Describe **FIVE (5)** the assumptions in developing an Economic Order Quantity model. (15 marks)

(Total 25 marks)

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DATE	14/3/2020

PRINTING APPROVAL

I have checked the following 3 pages
of this paper and is now ready for printing.

Approved by: *[Signature]*
Date: 12/3/2020