UNIVERSITI TEKNOLOGI MARA

MINIMIZING THE TOTAL COST OF INVENTORY BY USING ARTIFICIAL BEE COLONY ALGORITHM

NURUL SYAKIRA BINTI MOHD ZIN

Report submitted in fulfilment of the requirements
for
Bachelor of Science (Hons.) Management
Mathematics
Faculty of Computer and Mathematical Sciences

JANUARY 2021

STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

……..

NURUL SYAKIRA BINTI MOHD ZIN

2019728187

JANUARY 27, 2021

ABSTRACT

Inventory denotes the assets and important resources utilised in an organisation or industry in which it offers various benefits for firm cash flow and persistent viability. If the production inventory of a company faces shortage or other problems such as greater operating cost due to interest payments on loan cash, the management will be in a critical situation, thereby leading to loss of customers and profits. This encourages organisations to implement inventory control, which aims for the minimize the total cost of inventory, among others. Therefore, this study employed the Artificial Bee Colony (ABC) algorithm to ascertain the minimum total cost of inventory. The algorithm characterised a swarm-based meta-heuristic algorithm comprised of three divisions of bee troops in the ABC model, namely employed, onlooker, and scout bees. The resulting outcomes revealed a minimum total cost of inventory obtainable of RM45.38, with an optimal order quantity of 37 units.

Keyword: Inventory, Inventory Control, Artificial Bee Colony (ABC) algorithm, Minimum Total Cost, Optimal Order Quantity

TABLE OF CONTENTS