Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020

COURSE NAME	:	PRODUCTION AND OPERATIONS MANAGEMENT
COURSE CODE	:	BPB 31103
PROGRAMME CODE	:	BPA / BPP
EXAMINATION DATE	:	DECEMBER 2019 / JANUARY 2020
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

Q1 (a) Distinguish **FOUR (4)** types of inventory in a manufacturing company.
(8 marks)

(b) Differentiate Material Resource Planning (MRP) and Enterprise Resource Planning (ERP).
(6 marks)

(c) ABC Sdn. Bhd. is a manufacturing company selling its burger pies in batches. The company produces the burger pies at a rate of 1650 cases per day. The daily demand for the burger pies is at a steady rate of 250 cases per day. The set up cost, cleanup, idle time in transition from other products to the burger pies is RM320.00. The annual holding costs are RM11.50 per case. Assume 250 days per year.

(i) Calculate the optimal quantity per production run.

(ii) Calculate the number of production runs per annum.

(iii) Determine the maximum inventory.

(iv) Determine the total inventory-related (setup and carrying) costs per annum.
(10 marks)

Q2 Maintenance can lead to less production interuptions which in turn can minimize costs.

(a) Compare **TWO (2)** types of maintenance in a manufacturing plant.
(6 marks)

(b) Outline **THREE (3)** key issues in maintenance that must be addressed in a manufacturing company.
(6 marks)

(c) The breakdown record of Miko Manufacturing Sdn Bhd stamping machine for the past 24 months is tabulated in **Table Q2(c)**. The company incurred a cost of RM750.00 each time the machine broke down. A scheduled preventive maintenance approach has been proposed to resolve the problem. This new approach would cost RM450.00 per month and the number of breakdown is limited to an average of once per month.

Table Q2(c): Maintenance Record at Miko Manufacturing Sdn. Bhd.

Number of Breakdowns	0	1	2	3	4	5
Frequency of Breakdowns (months)	4	5	5	4	3	3

(i) Decide whether Miko Manufacturing Sdn Bhd should use the preventive maintenance approach.

(18 marks)

(ii) Determine (if any) the expected annual saving from implementing the preventive maintenance approach.

(2 marks)

Q3 (a) Boxmix Furniture Company tries to forecast the value of its production output on money spent on maintenance of it machines and upgrading its facility. The data collected for production output in terms of ringgit generated and the money spent on maintenance and facility is summarized in Table **Q3(d)**.

Table Q3(d): Production output on money spent on maintenance

X	Production Outputs (RM)	42	6	35	1	3	8	4	5	1	2
Y	Maintenance and upgrading expenses (RM)	750	150	701	41	97	167	110	254	51	90
X	Production Outputs (RM)	9	2	6	25	14	2	17	7	13	32
Y	Maintenance and upgrading expenses (RM)	191	92	142	377	197	63	265	92	232	548

(i) Use linear regression analysis to determine the value of production output for next year if the company decides to budget RM150,000 in maintenance of it machines and upgrading its facility.

(6 marks)

(ii) If the company now wants to find out how closely production outputs are related to the money spent on maintenance of its machines and upgrading of its facility.

Calculate the coefficient of correlation for the data given in **Table Q3(d).**

(6 marks)

(iii) Discuss on the degree of the linear relationship.

(2 marks)

(iv) Discuss what it means when the correlation coefficient was the same but negative.

(2 marks)

Q4 (a) (i) Explain how Just In Time (JIT) and quality are related.

(3 marks)

(ii) A JIT partnership exist when a supplier and a purchaser work together. Outline the importance of JIT partnership.

(5 marks)

(iii) Discuss level schedules.

(4 marks)

(iv) Elaborate quality to lean.

(6 marks)

(b) Zee Sdn. Bhd. is moving to Kanban to support its car odometer assembly lines. The data collected for computation of kanban are as follows:

Set-up cost = RM30.00
Annual holding cost = RM120 per subassembly
Daily production = 20 subassemblies
Annual usage =2,500 (50 weeks x 5 days each x daily usage of 10 subassemblies)
Lead time = 16 days
Safety Stock = 4 days' production of subassemblies.

(i) Calculate the size of the kanban for the subassemblies.

(5 marks)

(ii) Calculate the number of kanbans needed.

(5 marks)

-END OF QUESTIONS-