Second Semester Examination
2020/2021 Academic Session

July/August 2021

EPM 342 – PRODUCTION MANAGEMENT

Duration : 2 hours

Please check that this examination paper consists of <u>FIVE</u> (5) pages pages including appendixes before you begin the examination.

Instructions : Answer ALL **FOUR (4)** questions.

Answer to each question must begin from a new page.

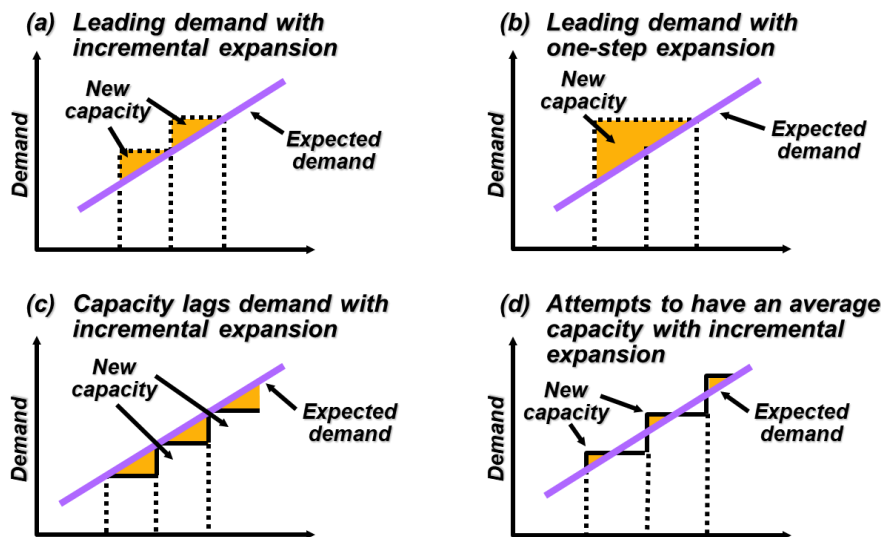1. [a] Figure 1[a] shows the approaches in capacity expansion.

Figure 1[a]

(i) Using an example or a scenario, explain TWO (2) of the approaches in Figure 1[a].

(ii) If you are a manager of a semiconductor company, select the best approach if you want to double up current production output in four years' time with the limit of capital investment. Defend your selection.

(5 marks)

[b] A firm strategy in negotiating with supplier or vendor can vary in three different approaches. Choose a strategy, then give THREE (3) points that can be used to apply the strategy.

(3 marks)

[c] A container of ball-bearings valued at RM25,000, currently located in Penang Port, needs to be delivered to a production plant in Johor Bharu. The standard shipment method takes two days. However, for an additional charge of RM500, the container can be sent overnight. The annual holding cost rate for this type of item has been estimated at 28%. A year has 365 days. Calculate the cost involved and suggest the option that is more economical.

(2 marks)

2. [a] Elaborate the concept of 'decoupling' in the context of inventory management. Give ONE (1) example of product or situation where the concept is important.

(4 marks)

[b] Elaborate THREE (3) reasons for buying in the make-or-buy decision. Discuss ONE (1) example of product or situation for each reason.

(6 marks)

3. [a] Azzahra Audio Sdn. Bhd. would like to develop an aggregate planning for its company. Data related to production, demand, capacity and cost are shown in Table 3 [a].

Table 3[a]

	Sales Period (unit)			
	March	**April**	**May**	**June**
Demand	1200	1260	910	1240
Capacity:				
Regular	850	850	850	850
Overtime	200	200	200	200
Subcontracting	100	100	100	100
Beginning inventory	220			

Cost:	
Regular time	RM100 per speaker
Overtime	RM130 per speaker
Subcontracting	RM180 per speaker
Carrying cost	RM10 per speaker per month

(i) Develop an aggregate planning using transportation method based on the data provided.

(ii) Identify the total cost for the aggregate planning.

(5 marks)

[b] Azzahra Audio Sdn. Bhd. developed a product structure for a speaker shown in Figure 3[b] and data related to the material are given in Table 3 [b]. Develop the net material requirement planning for 50 speakers by week 7. Lot-for-lot method is used.
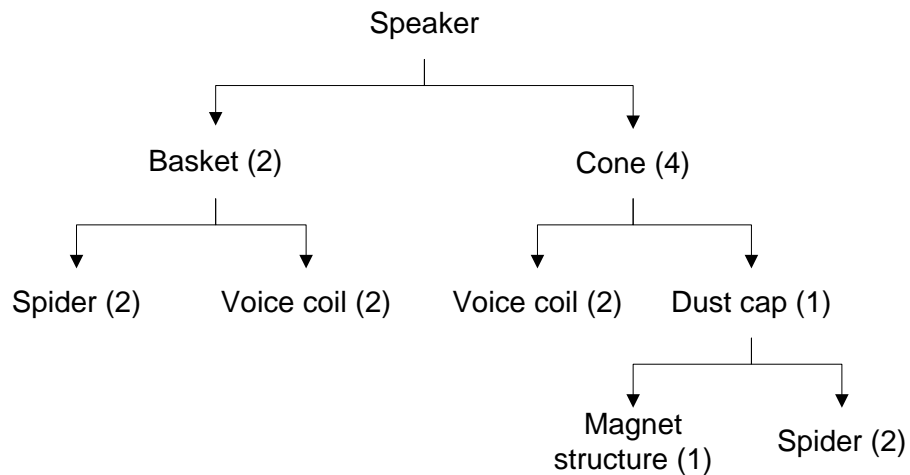

Figure 3 [b]

Table 3 [b]

Material	Lead time (week)	Projected on hand (units per month)
Speaker	1	40
Basket	2	60
Cone	1	80
Spider	2	40
Voice coil	3	40
Dust cap	2	20
Magnet structure	1	0

(5 marks)

4. [a] Analyze the statements in Figure 4 [a] based on the product data in Table 4 [a]. State your opinion (agree/disagree) for both statements.

Statement 1: Longest Processing Time (LPT) has lower average lateness compared to Earliest Due Date (EDD).

Statement 2: First Come First Served (FCFS) has lower job utilization compared to Shortest Processing Time (SPT).

Figure 4 [a]

Table 4 [a]

Product	Processing time (week)	Due Date (days)
A	2	15
B	1	10
C	1	20
D	2	24
E	3	30

(5 marks)

[b] Propose FIVE(5) solutions on how to solve the high inventory level in a production line.

(5 marks)

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