UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019

COURSE NAME	:	LOGISTIC MANAGEMENT
COURSE CODE	:	BWB44103
PROGRAMME CODE	:	BWQ
EXAMINATION DATE	:	DECEMBER 2018/JANUARY 2019
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SEVEN** (7) PAGES

PART A : MULTIPLE CHOICE QUESTIONS (20 marks)

Q1.

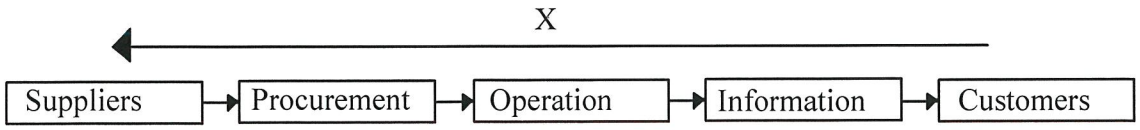
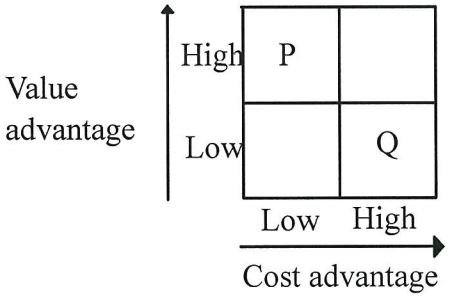


Figure above represents the logistic management process. What is X ?

A Requirement information flow.
B Material flow.
C Cash flow.
D Logistics flow.

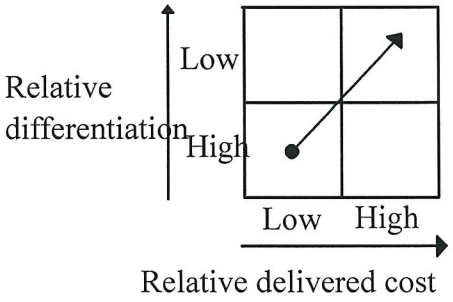
Q2



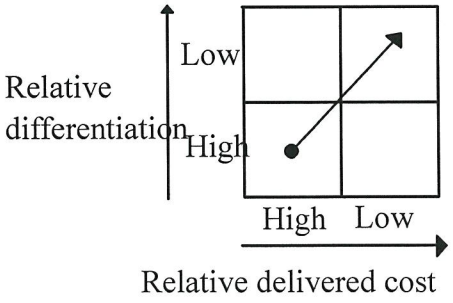
A P is service leader, Q is cost leader.
B P is cost leader, Q is service leader.
C P is cost and service leader , Q is commodity market.
D P is commodity market, Q is cost and service leader.

Q3 Which of the following best describe supply chain excellent?

A



B



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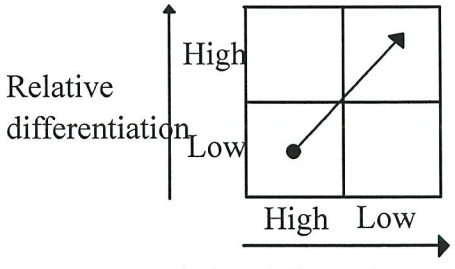
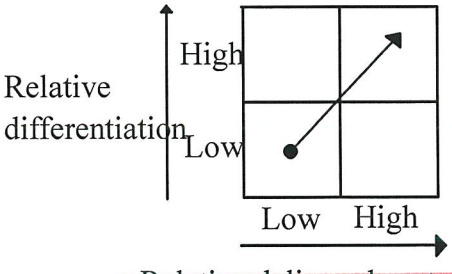
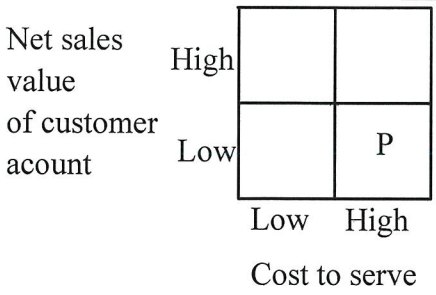


D



Q4 In the following customer profitability matrix, P represents _____ .



A danger zone
B protect zone
C cost engineer zone
D build zone

Q5 The following statement is true regarding Just-In-Time **except**
A it is a Japanese philosophy.
B no activity should take place in a system until there is a need for it.
C it is a 'push' concept.
D no products should be made, no components ordered, until there is a downstream requirement .

Q6 Which of the following is **NOT** necessary in 'Quick Response' logistics ?
A Bar Coding.
B Electronic point-of-sale (EPOS) systems.
C Touch screen monitor .
D Third party distribution center .

Q7 Which of the following is **NOT** be able to reduce lead time ?
A Increase safety stock.
B Reduces forecasting error.
C Increase using Quick Response logistics.
D Reduce inventory requirement .

Q8 Long lead time will cause
A reducing in customer service penalty.
B service enhancement.
C short order cycle.
D incurs an inventory holding.

Q9 _____ refers to increasing swings in inventory in response to shifts in customer demand as one moves further up the supply chain.
A 'Quick Response' logistics.
B Forrest effect.
C Bullwhip effect.
D Demand chain logistics.

Q10 Which of the following is **NOT** the disadvantages of reduced supplier base ?
A Over dependency on a single supplier.
B Reduce supplier complexity.
C Danger of supply disruption due to strikes, production breakdowns, floods or natural disaster, disruption of supplier's suppliers.
D Reduced competition.

Q11 The growth in world trade because of
A driven by expanding supply in new markets.
B new rule of international trade through World Trade Organization (WTO).
C the increase of trade barriers and the development of a global transportation infrastructure.
D technological change and production efficiencies mean that most companies in most industries are capable of producing in greater quantity at less cost.

Q12 Which of the following is **NOT** the advantages of the strategy of postponement ?
A Inventory can be held at a generic level so that there will be fewer stock keeping variants and hence less inventory in total.
B The inventory is less flexible, meaning that the same components, modules or platforms cannot be embodied in a variety of end products.
C Forecasting is easier at the generic level than at the level of the finished item. This is particularly relevant in global markets where local forecasts will be less accurate than a forecast for worldwide volume.
D The ability to customise products locally means that a higher level of variety may be offered at lower total cost – this is the principle of 'mass customisation'.

Q13 Which of the following is **NOT** the sources of supply chain complexity?
A Network complexity.
B Postponement complexity.
C Organization complexity.
D Product complexity.

Q14 Which of the following is **NOT** be able to be identified through Pareto Law analysis ?
A Range complexity.
B Process complexity.
C Supplier complexity.
D Customer complexity.

Q15 For a supply chain map, horizontal time refer to the time spent
A when nothing is happening and hence the material or product is standing still as inventory.
B when no value is being added during vertical time, only cost.
C or could also be a part of the information flow such as order processing.
D which could be in-transit time, manufacturing or assembly time, time spent in production planning or processing.

Q16 The goal of Drum-Buffer-Rope is to
A minimize input and increase lead time while the minimizing the inventory needed.
B maximize output and shorten lead time while the minimizing the inventory needed.
C maximize output and shorten lead time while the maximizing the inventory needed.
D maximize output and increase lead time while the minimizing the inventory needed.

Q17 Which of the following is **NOT** an example of primary activity in value chain activity?
A Inbound logistics.
B Outbound logistics.
C marketing and sales.
D Procurement.

Q18 Fourth-party logistics is
A lead logistics providers and consultants.
B carriers.
C logistic service providers.
D cargo owners.

Q19 Which of the following is **NOT** the major of business transformation?
A From supplier centric to customer centric.
B From inventory to information.
C From transaction to relationship.
D From process to function

Q20 Which of the following is **NOT** the causing supply chain more vulnerable?
A The globalisation of supply chain.
B Focused factories and centralised distribution.
C Increasing of the supplier base.
D The trend to outsourcing.

PART B SUBJECTIVE QUESTIONS (80 marks)

Q1 (a) There are two generic supply chains strategies which depend on variety and volume per variant as represented in the **Figure Q1(a)(i)**.

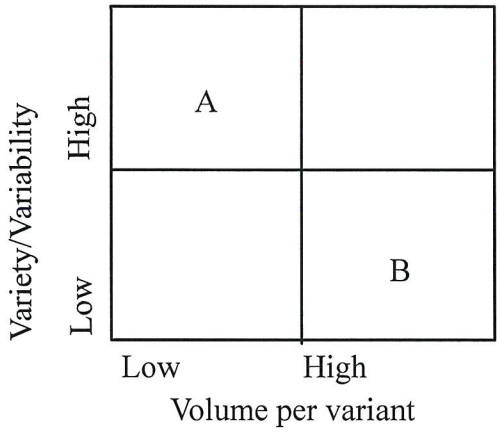


FIGURE Q1 (a)(i)

What is represented by A and B? Briefly explain with example the supply chain strategies in A and B.

(8 marks)

(b) Explain briefly (with example(s)), how the following incident effecting the logistic and supply chain.

(i) A previously dormant volcano in Iceland erupted in April 2010, sending a plume of ash into the upper atmosphere.

(ii) In March 2000, a lightning strike on a semi-conductor factory in New Mexico, USA.

(6 marks)

(c) Explain briefly (with example(s)), **THREE** of the ways in which businesses have sought to implement their global logistics strategies.

(6 marks)

Q2 (a) Choose any **THREE (3)** of the following concepts, and explain how to apply each of the concept in supply chain management. (Please explain using simple diagram)

(i) Milk run concept
(ii) cycle time vs lead time
(iii) The Six Sigma Way
(iv) Reducing inventory (as reducing water level)

(12 marks)

(b) Choose any **TWO (2)** of the following concepts, and explain how to apply each of the concept in supply chain management.

(i) Vendor managed inventory, VMI
(ii) Single minute exchange of die, SMED
(iii) *Muda*

(8 marks)

Q3 (a) The simplest Economic Order Quantity, EOQ model involves constant rate demand with instantaneous order replenishment and no shortage. Let
K = setup cost associated with the placement of an order , h = holding cost
D = demand rate (units per unit time), y = order quantity (number of units)
c= purchasing cost/production cost, t_0 = ordering cycle length
Given that the average inventory level is $y/2$, and the total cost per unit time (TCU) is computed as

TCU(y) = Setup cost per unit time + purchasing cost
+ holding cost per unit time.

(i) Prove that the optimum value of the order quantity y is given by

$$y^* = \sqrt{\frac{2KD}{h}}.$$

Explain why this value is said to be optimum.

(ii) Based on EOQ model, as a purchasing manager, how much and when you need to order if the daily demand for an inventory is 600 units per day, the daily holding cost is RM0.03 per unit and the cost to place an order is RM100. Knowing that the lead time for order until delivery is 2 days.

(iii) From **Q3(a)(ii)** , if the unit purchasing price is RM 10 and the cost is reduced to RM 9 per item if the purchasing is more than 3000 units. Determine the optimal inventory policy.

(10 marks)

(b) Find the optimal inventory policy for the following three-period model. The demand occurs in discrete units, and starting inventory is $x_1 = 1$. The unit production cost is RM20 for each of the first 3 units and RM15 for each additional unit.

Period, i	Demand D_i (units)	Setup cost K_i (RM)	Holding cost h_i (RM)
1	3	5	8
2	4	10	5
3	2	2	1

(10 marks)

Q4 (a) A music store sells a best-selling compact disc. The daily demand for the disc is approximately normally distributed with mean 200 disc and standard deviation 20 discs. The cost of keeping the discs in the store is RM0.04 per disc per day. It costs the store RM100 to place a new order. There is a 3 days lead time for delivery. Assuming that the store wants to limit probability of running out of discs during lead time to no more than 0.02 (i.e. $K_{0.02} = 0.842$) . Determine the store's optimal inventory policy.

(8 marks)

(b) From **Q4(a)**, if additionally, we know that the shortage cost per unit is RM3 and historical data show that the demand during the lead time is uniform over the range (0,100) units. Determine the optimal ordering policy for y and R. (The policy calls for ordering the quantity y whenever inventory drops to level R) .

Hint : The solution of optimal y^* and R^* are determined from

$$\frac{\partial \text{TCU}(y,R)}{\partial y} = -\left(\frac{DK}{y^2}\right) + \frac{h}{2} - \frac{pDS}{y^2}$$

$$\frac{\partial \text{TCU}(y,R)}{\partial R} = h - \left(\frac{pD}{y}\right)\int_R^\infty f(x)dx$$

where $S = \int_R^\infty (x-R)f(x)dx$, and p is penalty and S is shortage.

(12 marks)

- END OF QUESTIONS -