Name…….

Student ID……..

BE/OM201, 1/2020

Quiz on Inventory Management

(28 October 2020, 2:00 – 2:30 PM)

Instructions:

- **Individual quiz.**
- **Open book.**
- **Use of calculator is permitted.**
- **Show your calculation in detail.**

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1) Your company has compiled the following data on the small set of products that comprise the specialty repair parts division. Perform ABC analysis on the data. Which products do you suggest the firm keep classified as A items, B items, and C items. Show your analysis and identify the inventory classifications for these 9 items. (5 points)

Inventory Code	Annual Demand	Unit Cost
A11	250	$250
B22	100	$40
C33	75	$90
D44	90	$100
E55	200	$6
F66	300	$3
G77	200	$150
H88	500	$9
I99	100	$75

Inventory Code	Annual Demand	Unit Cost	Annual Dollar Volume	Percentage	Classification
A11	250	$250	$62,500	49.47%	A
G77	200	$150	$30,000	23.74%	A
D44	90	$100	$9,000	7.12%	B
I99	100	$75	$7,500	5.94%	B
C33	75	$90	$6,750	5.34%	B
H88	500	$9	$4,500	3.56%	C
B22	100	$40	$4,000	3.17%	C
E55	200	$6	$1,200	0.95%	C
F66	300	$3	$900	0.71%	C
			$126,350		

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2) The daily use of a product is 20 units. Ordering cost is $24, and holding cost is $0.5 per unit per month. This company calendar shows 250 working days. This product is usually delivered 5 days after placing a purchase order.

2.1) How many units per order should be made to minimize total annual cost? (1 point)

$$Q^* = \sqrt{\frac{2DCo}{Ch}}$$

$$= \sqrt{\frac{2x20x250x24}{0.5x12}}$$

= 200 units per order

2.2) What is the appropriate reorder point? (1 point)

ROP = d x L = 20 x 5 = 100 units

2.3) How many purchase orders should be made during a year? (1 point)

$$N = \frac{D}{Q} = \frac{20\ x\ 250}{200} = 25 \text{ orders}$$

2.4) What is the average inventory for this problem? (1 point)

$$\text{Average inventory} = \frac{Q}{2} = \frac{200}{2} = 100 \text{ units}$$

2.5) What is the minimum total annual cost? (1 point)

$$TC = (\frac{D}{Q})(Co) + (\frac{Q}{2})(Ch)$$

$$= (\frac{5000}{200})(\$24) + (\frac{200}{2})(\$0.5x12)$$

= $600 + $600 = $1,200 per year