

**VPM's**  
**DR VN BRIMS, Thane**  
**Program: MMS (2017-19)**  
**First Semester Examination December 2017**

<b>Subject</b>	<b>Operations Management</b>		
<b>Roll No.</b>		<b>Marks</b>	<b>60 Marks</b>
<b>Total No. of Questions</b>	<b>7</b>	<b>Duration</b>	<b>3 Hours</b>
<b>Total No. of printed pages</b>		<b>Date</b>	<b>13.12.2017</b>

**Note: Q1 is compulsory and solve any FOUR from the remaining SIX questions.**

**Q1) 20 Marks (Compulsory):**

Construct Mean (X) chart from following information and state whether the process is in control. For each of the following, X has been computed from a sample of 5 units drawn at an interval one hour from an ongoing manufacturing process.

Comment whether the process is accurate/Precise.

[Upper control limit (UCL) is 10.1 and Lower Control Limit (LCL) is 9.85] (10 Marks)

Sr No	X1 ( 8 am)	X2 (9 am)	X3 (10 am)	X4 (11 am)	X5 (12 noon)
1	10.01	10.01	10.05	10.15	9.96
2	9.98	9.91	9.96	10.03	9.5
3	10.1	10.02	10.08	10.09	9.95
4	10.06	10.03	9.92	10.09	9.96
5	10.05	9.94	9.97	10.05	9.89

**Case: (10 Marks)**

**Indian Express, 21<sup>st</sup> August 2017**

**News: Air passenger traffic sees 12.43 per cent increase in July but capacity utilisation in flights declined.**

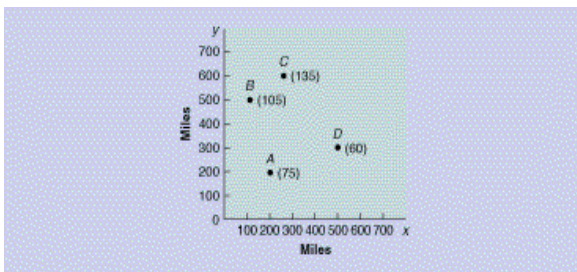
NEW DELHI: There was a significant growth in domestic air traffic in July as compared to the air traffic in the same period last year, the civil aviation ministry claimed on Monday. Domestic air passenger traffic rose by 12.43 percent in July to 95.65 lakh from 85.08 lakh reported for the corresponding month of last year. However, there was a decline in capacity utilisation of flights due to end of the tourist season, the ministry admitted. Releasing government data on domestic air traffic, the country's aviation regulator Directorate General of Civil Aviation (DGCA) also said that during the January-July period passenger air traffic in the domestic sector grew by over 17 percent. In its domestic air traffic report for July, the DGCA stated, "Passengers carried by domestic airlines during January-July 2017 were 657.21 lakh as against 560.87 lakh during the corresponding period of previous year thereby registering a growth of 17.18 percent." The statistics also provided insight into punctuality, seats utilisation and cancellations of flights in the domestic sector.

**What do you understand from this news? Analyze the news with respect to probable causes of this situation.**

**Attempt Any FOUR from the Remaining SIX Questions**

**Q2) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) The Burger Doodle restaurant chain purchases ingredients from four different food suppliers. The company wants to construct a new central distribution center to process and package the ingredients before shipping them to their various restaurants. The locations of the four suppliers, A, B, C, and D, and the annual number of trailer loads that will be transported to the distribution center are shown in the following figure:



A	B	C	D
$x_A = 200$	$x_B = 100$	$x_C = 250$	$x_D = 500$
$y_A = 200$	$y_B = 500$	$y_C = 600$	$y_D = 300$
$w_A = 75$	$w_B = 105$	$w_C = 135$	$w_D = 60$

Using the center-of-gravity method, determine a possible location for the distribution center.

b) Potential locations A, B & C have the cost structures shown below for producing a product expected to sell at Rs.100/-per unit. Find the most economical location for an expected volume of 2000 units per year.

Location	Fixed Cost per year in INR	Variable cost per unit in INR
<b>A</b>	<b>30000</b>	<b>50</b>
<b>B</b>	<b>55000</b>	<b>25</b>
<b>C</b>	<b>85000</b>	<b>15</b>

c) Explain the different types of costs associated with Inventory

**Q3) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) The A Corp. desires to classify its entire inventory. The annual usage and unit cost of each item is shown below:

Items	Unit INR Value in thousand	Annual Usage in Units
1	15	100
2	8	50
3	10	120
4	20	150
5	7	70
6	2	10
7	5	60
8	4	20
9	3	10
10	8	80

Classify the inventory by using ABC Analysis

b) What is Value. AR Dairies is a mumbai based milk and dairy product company. They used to supply milk ( cow and buffalo) in 500 ml glass bottles. Recently they have introduced Masala Milk in 200ml bottles, Which become instant success. While masala milk is supplied throughout the day, other type of milk is supplied only in the morning. While going through the audit reports, AR Dairies found that there is a transit loss of 5% due to break-age of bottles. To overcome that they introduced polyethylene bags in place of 500 ml bottles. However Masala milk continued to be sold in glass bottles. Why did AR Dairies not introduce polyethylene bags for masala milk?

c) Explain Application of Pokayoke concept with respect to Lift and Car.

**Q4) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) Define Mass, Batch, Job form of production

b) ABC Ltd. is engaged in sale of footballs. Its cost per order is \$400 and its carrying cost unit is \$10 per unit per annum. The company has a demand for 20,000 units per year. Calculate EOQ

c) Explain different approaches to capacity management.

**Q5) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) What is process? Explain the characteristics of process.

b) “ Reduce cost by working with a single supplier” – Dr Deming, Explain.

c) Write a short note on MRP & MRP II

**Q6) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

- a) Write a note on Process Layout. Advantages and Disadvantages
- b) Write a note on Supply Chain Management.
- c) Company A has a target to produce 500 units per day within an 8 hour shift. Calculate the takt time (Time available for producing each unit)

**Q7) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

- a) What is bill of Material? Explain the necessity of the same.
- b) Write a note on Quality and its dimensions.
- c) Explain the stages in work study.