JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

FOURTH TRIMESTER (Batch 2016-18)

Re - END TERM EXAMINATIONS, SEPTEMBER 2017

SET - 2

Course Name	Operations Management – II	Course Code	OP-401
Max. Time	2 hours	Max. Marks	60

INSTRUCTIONS: Attempt all questions. Students are allowed to use calculator.

Q.No.1 Answer the questions mentioned at the end of case study.

WHEN THINGS GO WRONG: EYES OFF THE BALL AT MERCEDES-BENZ?

Luxury German car maker Mercedes Benz has been having a bad time of it recently. For many years the company's cars were considered to be a byword for quality and reliability but in the last few years Mercedes' famous three pointed star has become a little tarnished in the eyes of many buyers. These days Mercedes lags behind arch-rival BMW in terms of sales and profits and, some argue, image. Its problems seem to stem from the tie-up between Mercedes' parent company, Daimler-Benz and America's Chrysler in 1998. The merger created the world's fifth biggest car manufacturer, employing 385,000 workers worldwide. At that stage Chrysler was the struggling third placed volume manufacturer in the US behind General Motors and Ford. By 2005, however, efforts to turn around Chrysler's fortunes seemed to be paying dividends as the company reported a 5 per cent annual increase in unit sales and a 10 per cent increase in revenues in its results for 2004. Meanwhile Mercedes Benz's operating profits fell in 2004 on the back of poor sales of the luxury brand and restructuring costs at its Smart car division; the ultra-small 'citycar' division had failed to perform as expected since its launch in 1998. Mercedes itself has been struggling with quality control problems on many of its vehicles and increasing numbers of its previously loyal customers have been moving to competitors such as Audi or BMW.

In 2005, the company even had the embarrassment of having to issue the biggest product recall in its history. Problems with batteries, alternators and brakes on a number of models made since 2001 necessitated 1.3 million cars having to be returned to dealers to be fixed. The move is likely to cost many millions of euros, hampering efforts to improve its product image, and hitting profits. Many analysts believe that the many initiatives being undertaken at DaimlerChrysler have distracted from the management of its previously highly profitable Mercedes business. Some accuse the company's managers of 'taking their eye off the Ball' as far as Mercedes operations are concerned. Some question whether the highly technologically sophisticated gadgetry on its latest top of the range S-class cars can be trusted to perform. They fear that any electronic gremlins could further damage the entire marque's image and further alienate its customers. In an effort to improve performance and financial results, Mercedes is cutting more than 8,500 jobs at its Sindelfingen plant in Germany. DaimlerChrysler's newly appointed Chief Executive, Dieter Zetsche said the firm is determined to retain Mercedes' position as the world's most successful luxury brand. He said efforts to improve productivity, which is well behind rivals such as BMW and Toyota's Lexus, would not be allowed to compromise efforts to tackle Mercedes' recent quality problems.

Questions

1a What has been the source of Mercedes' competitive advantage? (5 Marks)

1b What seems to be the cause of its recent problems in operations? (7.5 Marks)

1c Is it possible for the firm to simultaneously improve its performance in both productivity and quality? (7.5 Marks)

Q.No.2 Two types of cars (Deluxe and Limited) were produced by a car manufacturer last year. Quantities sold, price per unit, and labor hours follow. What is the labor productivity for each car? Explain the problem(s) associated with the labor productivity.   **(5 Marks)**

	QUANTITY	$/UNIT
Deluxe car	4,000 units sold	$8,000/car
Limited car	6,000 units sold	$9,500/car
Labor, Deluxe	20,000 hours	$12/hour
Labor, Limited	30,000 hours	$14/hour

Q. No.3 DAT, Inc., needs to develop an aggregate plan for its product line. Relevant data are;

Production Time	1 hour per unit	Beginning Inventory	500 Units
Average labour cost	$10 per Hour	Safety Stock	one-half month
Workweek	5 Days, 8 Hours each day	Shortage Cost	$20 per unit per month
Days per Month	Assume 20 workdays per month	Carrying Cost	$5 per unit per month

The forecast for next year is

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2500	3000	4000	3500	3500	3000	3000	4000	4000	4000	3000	3000

Management Prefer to keep a constant work force and production level, absorbing variation in demand through inventory excesses and shortages. Demand not met is carried over to the following month. Develop an aggregate plan that will meet the demand and other conditions of the problem. Find a suitable solution (may not be optimum) and state the procedure you might use to test (compare at least two strategies) for a better solution. Make any necessary assumptions. **(15 Marks)**

Q. No. 4 One unit of A is made of three units of B, one unit of C and two units of D. B is composed of two units of E and one unit of D. C is made of one unit of B and two units of E. E is made of one unit of F. Item B, C, E and F have one week lead times; A and D have lead times of two weeks. Assume that lot-for-lot (L4L) lot sizing is used for items A, B and F; lots of size 50, 50 and 200 are used for item C, D and E, respectively. Item C, E and F have on hand (beginning) inventories of 10, 50 and 150 respectively; all other items have zero beginning inventories. We are scheduled to receive 10 units of A in week 2, 50 units of E in week 1 and also 50 units of F in week 1. There are no other scheduled receipts. If 30 units of A are required in week 8, use the low level coded bill-of-materials to find the necessary planned order releases for all components.   **(10 Marks)**

Q. No. 5 5a) Seven jobs must be processed in two operations: A and B. All seven jobs must go through A and B in that sequence-A first, then B. Determine optimal order in which the jobs should be sequenced through the process using these times: **(5 Marks)**

Jobs	1	2	3	4	5	6	7
Process A Time	9	8	7	6	1	2	4
Process B Time	6	5	7	3	2	6	7

5b) The application of control charts is straightforward in manufacturing processes where you have tangible goods with physical characteristics you can easily measure on a numerical scale. Quality control is also important in service businesses, but you are generally not going to want to measure the physical characteristics of your customers! Do you think control charts have a place in service businesses? Discuss how you might apply them to specific examples.   **(5 Marks)**