

**OLLSCOIL NA hÉIREANN, GAILLIMH  
NATIONAL UNIVERSITY OF IRELAND, GALWAY.**

**Easter 2000**

**Master of Business Administration  
Higher Diploma in Management**

**Quality Management (IE529)**

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**Instructions: Time allowed: 2 Hours**

**Attempt: Any Three questions [All questions carry equal marks]. Graph paper available**

- Q1 (a)** Define the two major categories of quality cost and how they relate to each other.
- (b) Briefly describe, with the use of examples, the seven tools of quality proposed by Ishikawa.

**Q2 (a)** What is the difference between acceptance sampling and process control?

- (b) A machine at the Pacific Fruit Company fills boxes with raisins. The labelled weight of the boxes is 10 ounces. The company wants to construct an R-chart to monitor the filling process and make sure the box weights are in control. The quality control department for the company sampled five boxes every two hours for three consecutive working days. The sample observations are as follows:

[Note: Control Chart Factors For  $n=5$   $D_3 = 0$  and  $D_4 = 2.11$  ]

Sample	Box Weights ( oz. )				
1	9.06	9.13	8.97	8.85	8.46
2	8.52	8.61	9.09	9.21	8.95
3	9.35	8.95	9.2	9.03	8.42
4	9.17	9.21	9.05	9.01	9.35
5	9.21	8.87	8.71	9.05	9.35
6	8.74	8.35	8.5	9.06	8.89
7	9.00	9.21	9.05	9.23	8.78
8	9.15	9.2	9.23	9.15	9.06
9	8.98	8.9	8.81	9.05	9.13
10	9.03	9.1	9.26	9.46	8.47
11	9.53	9.02	9.11	8.88	8.92
12	8.95	9.1	9	9.06	8.95

- (i) Construct an R-chart from these data with  $3\sigma$  control limits, and plot the sample range values.
- (ii) What does the R-chart suggest about the process variability?

**Q3** Write brief explanatory notes on three of the following:

- EFQM Business Excellence Model(European Foundation for Quality Management)
- TQM ( Total Quality Management )
- Product Liability
- Deming's philosophy on quality.

**Q4 (a)** What are the essential elements of a QMS (including ISO9001, Baldrige Award, etc )?

- (b) Discuss how a quality management program can affect productivity.

**Q5** Answer any two of the following:

- Outline how Quality Function Deployment can be employed in assuring customer satisfaction.
- What are the key elements and the main benefits of the ISO14001: Environmental Management system?
- What are the main elements of the Safety, Health & Welfare at Work Act, 1989?