



UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 7 Examination in Engineering: October 2019

Module Number: ME7302

Module Name: Production and Operations
Management

[Three Hours]

[Answer all questions, each question carries twelve marks]

- Q1.**
- a) Describe briefly the importance of implementing Production Planning and Operations Management techniques for an organization.
[3.0 Marks]
 - b) Discuss the role of a “Production and Operations Manager” towards the key production and operations management decisions. Explain your answer by providing an example.
[3.0 Marks]
 - c) Briefly describe the importance of manufacturing strategies of an organization to maintain its competitiveness in the local/global market by providing an example.
[3.0 Marks]
 - d) Define a “Production System” and explain the strategies for managing a selected production system by providing an example.
[3.0 Marks]
- Q2.**
- a) Briefly describe the potential benefits of implementing Lean Quality Management System for a manufacturing sector organization.
[3.0 Marks]
 - b) Describe briefly how “First Time Through yield (FTT)” is useful to measure production efficiency and changes of a manufacturing organization.
[3.0 Marks]
 - c) Explain by giving a suitable example, how the “Quality Gates” are useful in implementing a quality management system in an organization.
[3.0 Marks]
 - d) Explain how FEMA (Failure Mode Effect Analysis) could be used in Quality Management System in an organization.
[3.0Marks]



Q3. a) Explain how concurrent engineering practice could be used to increase the production efficiency of an organization by providing an example.

[3.0 Marks]

b) Explain the significant of “Design for Assembly” practice for an automobile manufacturing sector.

[3.0 Marks]

c) What are the factors that affect the uncertainty of a construction project?

[3.0 Marks]

d) Explain how you could use “Project Management Software” for reducing the uncertainty of a project.

[3.0 Marks]

Q4. a) Describe briefly how you could apply “Method Study” for improving productivity by providing an example.

[3.0 Marks]

b) Explain how you could apply “Work Study” for improving productivity of a production line.

[3.0 Marks]

c) Explain how you could apply “Ergonomics” for improving productivity of a production line.

[3.0 Marks]

d) Explain how an efficient production layout will be benefited for the productivity.

[3.0 Marks]

Q5. a) “The productivity of government organisations in Sri Lanka could be improved by implementing performance based wage incentive scheme”. What is your opinion on this?

[3.0 Marks]

b) Table Q5-1 shows the job list for two parts; X and Y Manufacturing assembly line.

Table Q5-1: X and Y Manufacturing and Assembly

Job	Description	Immediate Predecessors	Time [min]
A	Start		0
B	Get Materials for X	A	10
C	Get Materials for Y	A	20
D	Turn X on Lathe	B,C	30
E	Turn Y on Lathe	B,C	20
F	Polish Y	E	40
G	Assembly X and Y	D,F	20
H	Finish	G	0

I. What is the total minimum duration of the project?

[3.0 Marks]

II. What are the critical activities, which should be completed as scheduled in order to keep the project on time?

[2.0 Marks]

III. How long can the non-critical activities be delayed before they cause a delay in the project completion time?

[2.0 Marks]

c) Explain the importance of “Resource Analysis” for the project management.

[2.0 Marks]