

MASTER OF PRODUCTION ENGINEERING EXAMINATION, 2017

(1st Semester)

PRODUCTIVITY & QUALITY MANAGEMENT

Time : Three hours

Full Marks : 100

Use separate answer script for each Group

(The figures in the margin indicate full marks)

GROUP - A (60 Marks)Answer *any three* questions

1. a) What are the benefits and expectations of various state holders from productivity ?
Explain. 14
- b) Differentiate between partial productivity measure and total productivity measure through a suitable example. 6
2. a) Outline the steps in relation to theory of constraints (TOC). 2
- b) Discuss through an example, how TOC can be used as an effective decision making technique for productivity improvement. 18
3. Several different aluminium alloys are under consideration for use in heavy duty circuit wiring application. Among the desired properties is low electric resistance and a number of specimens of each wire are tested by applying a fixed voltage to a given length of wire and measuring the current passing through the wire. Given the following results, would you conclude that these alloys differ in resistance ?

(Use the 0.01 level of significance) 20

Alloy	Current (Amperes)			
1	1.085	1.016	1.009	1.034
2	1.051	0.993	1.022	
3	0.985	1.001	0.990	0.998
4	1.101	1.015		

[Turn over

4. Determine the optimal process parametric setting and the corresponding optimal value of predicted material removal rate (MRR) for machining process based on signal to noise ratio analysis.

The experimental observed results are given below. Also construct ANOVA table. Determine the percentage contribution of process parameters & rank them for influencing MRR.

20

Experiment No.	Process Parameters			S/N Ratio (dB)
	A	B	C	
1	A ₁	B ₁	C ₁	- 14.58
2	A ₁	B ₂	C ₂	- 11.19
3	A ₁	B ₃	C ₃	- 6.87
4	A ₂	B ₁	C ₂	- 9.09
5	A ₂	B ₂	C ₃	- 8.20
6	A ₂	B ₃	C ₁	- 2.90
7	A ₃	B ₁	C ₃	- 2.75
8	A ₃	B ₂	C ₁	- 4.02
9	A ₃	B ₃	C ₂	- 7.55

5. Write short notes on any *two* :

10×2=20

- Latin Square
- Linear Graph
- Deming's Theory
- Problem Solving tool
- Vision and Mission Statements

MASTER OF PRODUCTION ENGINEERING 1st SEMESTER EXAMINATION 2017**Subject: Productivity & Quality Management****Time : Three Hours****Use Separate Answer Script for Each Part****Full Marks: 100****PART II****(40 for Part II)**

Answer Any Two Questions		
1(a)	What do you understand by Total Quality Management (TQM)? Justify the need of Quality Management in Manufacturing Industries.	(6)
(b)	Discuss how "Continuous Improvement" could lead to the achievement of Total Quality. Enlist the different tools used for Continuous Improvement and explain any three of them. Explain the 'Zero Defect' concept.	(14)
2(a)	Explain with suitable examples how productivity is measured. State the causes of low Productivity. Explain how service productivity is evaluated.	(12)
(b)	Discuss the major steps of productivity improvement.	(8)
3(a)	Make a comparative assessment of TQM and the Traditional approach of management.	(8)
(b)	Discuss the need for "Failure Mode and Effect Analysis (FMEA)". What is Risk Priority Number? How it is evaluated? Briefly explain the FMEA procedure.	(12)