# MASTER OF ENGINEERING IN PRODUCTION ENGINEERING EXAMINATION, 2018

( 1st Year, 1st Semester )

## PRODUCTIVITY AND QUALITY MANAGEMENT

Time : Three hours Full Marks : 100

Use a separate Answer-Script for each part

## PART - I (60 Marks)

Answer ***any three*** questions

1. a) Elucidate productivity as viewed by different people. 5

   b) Explain dynamics of productivity change with example. 5

   c) Can we use productivity as a measure of health in an organization ? Explain. 10

2. a) What is synergistic productivity triangle ? 5

   b) Discuss principles of productivity growth with suitable examples. 15

3. a) What is productivity paradox ? 4

   b) Explain LP based productivity analysis through an example known to you. 16

4. Johnson and Leone described an experiment to investigate warping of Copper Plates. The two factors studied were the temperature and the copper contents of the plates. The response variable was a measure of the amount of warping. The data were as follows :

| | Copper Content ( % ) | | | |
|---|---|---|---|---|
| Temperature (°C) | 40 | 60 | 80 | 100 |
| 50 | 17 | 16 | 24 | 28 |
| 75 | 12 | 18 | 17 | 27 |
| 100 | 16 | 21 | 25 | 23 |
| 125 | 21 | 23 | 22 | 29 |

Perform an appropriate analysis of variance (ANOVA) and interpret the results. 20

5. Write short notes on ***any four*** :

a) QFD

b) KAIZEN

c) PDCA Cycle

d) Learning Curve

e) Full factorial Design

f) Sin-Sigma

g) Pareto analysis 5×4=20



## PART - II (40 Marks)

Answer ***any two*** questions

6. a) Justify the need of Quality Management in Service sector. Discuss how "Continuous Improvement" could lead to the achievement of Total Quality. 8

b) Enlist the different tools used for Continuous Improvement and briefly explain any two of them. Explain the 'Six Sigma' concept. How it can be achieved in manufacturing industries ? 12

7. a) Explain the different methods (at least three) of modifying jobs to accomplish higher productivity. 10

b) State Maslow's hierarchy of needs and explain the connectivity in between motivation and productivity. 10

8. a) Discuss the major steps of productivity improment. 8

b) Explain the 'Six Sigma' concept. How it can be achieved in manufacturing industries ? 12

9. a) Briefly explain the FMEA procedure. What is Risk Priority Number ? How it is evaluated ? 10

b) What is a House of Quality ? Explain how it is formed ? 10