

M. Tech.-III (Mechanical CAD/CAM) (CBCS – 2015 Course) :

WINTER - 2018

SUBJECT : SELF STUDY PAPER – I – ROBUST DESIGN OF PRODUCT / PROCESS

Day : Saturday
Date : 08/12/2018

W-2018-3263

Time : 11.00 AM TO 02.00 PM
Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Assume suitable data, if necessary.

SECTION - I

Q. 1 What are the difference between classical and Taguchi approaches of design of experiments. (10)

OR

Discuss the Taguchi quality system. Explain the various stages of on-line quality control. (10)

Q. 2 Briefly explain column merging method in constructing the orthogonal array. (10)

OR

Explain with an example the steps involved in orthogonal array design of experiments. (10)

Q. 3 Calculate the $SS_B + SS_e$ for the dummy treatment data (10)

Trial No.	1	2	3	4	5	6	7	8
Factor B level	1	2	2	3	1	2	2	3
y data	3	0	1	6	4	1	1	7

OR

Decompose polynomially this experimental data (10)

Trial No.	1	2	3	4	5	6	7	8
Factor C level	1	1	3	2	3	3	4	4
y data	4	5	2	1	6	6	10	9

P. T. O.

SECTION - II

Q. 4 Describe any two common types of dynamic problems with the corresponding signal to noise ratio. (10)

OR

Explain smaller the better type, nominal the better, larger the better type characteristics. (10)

Q. 5 Explain the steps involved in chi square test. (10)

OR

What is ANOVA? List procedure for Hypothesis testing. Discuss briefly the significance of any four steps. (10)

Q. 6 Explain the two types of errors associated with the Hypothesis testing. List the limitations of Hypothesis testing. (10)

OR

Explain any two designing for fitting the first order model and two designing for fitting the second order model. (10)

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