

5.12	Exercise Problems (4 Marks each).....	5 - 52
5.13	MSBTE Questions and Answers	5 - 53

UNIT VI
Chapter 6 : Columns **6-1 to 6-24**
Syllabus :

Concept of compression member, short column, long column, effective length, radius of gyration, slenderness ratio, type of end conditions for columns, buckling of axially loaded columns .

Euler's theory, assumptions made in Euler's theory and its limitations. Application of Euler's equation to calculate buckling load.

Rankine's formula and its application to calculate crippling load.

Concept of working load/safe load, design load and factor of safety.

6.1	Concept of Compression Member	6 - 1
6.2	Classification of Columns.....	6 - 3
6.2.1	Difference Between Short Column and Long Column.....	6 - 3
6.3	Euler's Theory for Long Columns	6 - 4

6.3.1	Application of Euler's Equation to Calculate Buckling Load.....	6 - 4
6.3.2	Limitations of Euler's Formula	6 - 4
6.4	Factor of Safety (F.O.S.)	6 - 5
6.5	Safe Load.....	6 - 5
6.6	Working Load.....	6 - 5
6.7	Design Load.....	6 - 5
6.8	Strength of Column OR Load Carrying Capacity of the Column	6 - 5
6.9	Solved Examples Based on Euler's Formula.....	6 - 5
6.10	Numericals Based on to Find Diameter of Section (Design of Section).....	6 - 10
6.11	Numericals Based on Finding λ = Slenderness Ratio.....	6 - 13
6.12	Rankine's Formula for Column	6 - 14
6.13	Theory Questions (2 Marks each)	6 - 23
6.14	Exercise Problems (4 Marks each).....	6 - 23
6.15	MSBTE Questions and Answers	6 - 24

- **Appendix - A : Solved University Question
Paper of Winter 2019****A-1 to A-10**

