

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.TECH
BRANCH: CIVIL

SEMESTER : II
SESSION : SP/19

SUBJECT: CE507 THEORY OF PLATES AND SHELLS

TIME: 3.00 Hrs.

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1 Derive the differential equation of equilibrium of a laterally loaded rectangular plate. [10]
- Q.2. Obtain the expression for the strain energy in pure bending of thin plates. [10]
- Q.3 Prove the sum of curvatures in two perpendicular directions such as n & t is independent of the angle α where α is the angle subtended by n with horizontal direction. [10]
- Q.4 Derive the expression for deflection of circular plate uniformly loaded (q/m^2) and simply supported at ends. [10]
- Q.5 Determine N_θ and N_r for sphere of radius a subjected to Axi symmetric loading R . [10]

::::26/04/2019 M::::