JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2018

M. Tech.-II/B. Tech.-VIII Semester

COURSE CODE: 12M1WCE214   MAX. MARKS: 35

COURSE NAME: THEORY OF PLATES AND SHELLS

COURSE CREDITS: 03   MAX. TIME: 2:00 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume any missing data suitably.

1. (a) Differentiate between plates and shells.
   (b) Write the different uses of shells in structural engineering.   [3]   CO-1
   (c) Define meridian and meridian plane.   CO-2

2. Explain the various terminologies used in analysis of shell structures and thus explain the membrane theory.   [6]   CO-3

3. Derive the relation in N_ϕ and N_θ for shells in the form of a surface of revolution and loaded symmetrically. Apply the relations and find N_ϕ; N_θ for spherical dome.   [10]   CO-3

4. Derive the equations for membrane stresses in cylindrical shells.   [8]   CO-4

5. Derive the general theory of cylindrical shells for a circular cylindrical shell loaded symmetrically with respect to its axis.   [8]   CO-4