Roll No. .....

23422

M.Tech. 2nd Semester Civil Engg. (Speclisation in Structural Design) Examination–May, 2014

STABILITY OF STRUCTURES

Paper MTSD-202

Time : 3 hours ***Max. Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt any **five** questions. Each question carries equal marks.

1. Explain about warping displacement under pure torsion and list out warping constant for rolled steel section.

2. What is the Rayleigh-Ritz method and also write down its application with suitable example.

3. Drive an expression for calculation of critical load for bar structure by energy method.

4. (i) Explain strain energy in torsion.

(ii) An I-section having dimensions of the web as 100mm × 3 mm and of the two flanges as 60mm × 4mm is subjected to a torque T. if the limited shear stress in the section is to be 30 MPa and the wise and the twist per meter length 6.5°, determine the maximum value of the torque T.G = 80 GPa.

5. Write down the application of trigonometric series.

6. Write down the effects of shearing force on the critical load.

7. Write down Wagner's Effect for torsional buckling.

8. Write down about bending of thin plates and buckling of thin rectangular plate in bending.
