Seat No: _____

Enrollment No: ____

PARUL UNIVERSITY FACULTY OF ENGINEERING & TECHNOLOGY M.Tech., Winter 2018 - 19 Examination

Semester: 1 Subject Code: 203209102 Subject Name: Advanced Solid Mechanics

Date: 11-12-2018 Time: 10:00 am to 01:00 pm Total Marks: 60

1. All questions are compulsory. 2. Figures to the right indicate full marks. 3. Make suitable assumptions wherever necessary. 4. Start new question on new page. Q.1 A) Write the application of linear elasticity (05) B) Write difference between linear elasticity and strength of material. (05) C) Write the types of stresses and strain. (05) Q.2 Answer the following questions. (Attempt any three) (Each five mark) (15) A) Write the short note on the linear elasticity (15) A) Write the short note on the linear elasticity (07) B) Prove that stiffness matrix $D_{ij} = D_{ji}$ (07) C) Write the assumptions associated with the elementary approach of bar under torsion. (07) B) Explain the St. Venant's principle. (07) B) Explain the St. Venant's principle. (08) $\sigma_x = 200 \text{ N/mm}^2$, $\sigma_y = 150 \text{ N/mm}^2$, $\sigma_z = 120 \text{ N/mm}^2$. (08) $\sigma_x = 200 \text{ N/mm}^2$, $\sigma_y = 150 \text{ N/mm}^2$, $\sigma_z = 120 \text{ N/mm}^2$. (07) Q.4 A) Explain the Airy's Stress function (07) OR (07) B) When the stress tensor at a point with reference to axes (x, y, z) is given by the array, show that the stress invariants remain unchanged by transformation of the axes by 45^0 about the z-axis. <th>Instructions:</th> <th></th>	Instructions:	
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