

Deepak kr

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION-2016

M.Tech 2nd Semester

COURSE CODE:11M1WCE211

MAX. MARKS: 15

COURSE NAME: Solid Mechanics in Structural Engineering

COURSE CREDITS: 3

MAX. TIME: 1 HR

Note: All questions are compulsory. Carrying mobile phone during examinations will be treated as case of unfair means. Preferably, write the answers in sequential order.

- Q.1 Write the relationship between modulus of elasticity and modulus of rigidity. [1]
- Q.2 What is meant by stress tensor? [2]
- Q.3 Define plane strain and plane stress. [2]
- Q.4 Write down the compatibility equation in terms of Airy's stress function. [2]
- Q.5 The thin cantilever shown in the Fig. 1 is subjected to uniform shearing stress τ_o along its upper surface ($y = +h$) while surface ($y = -h$) and ($x = L$) are free of stress.

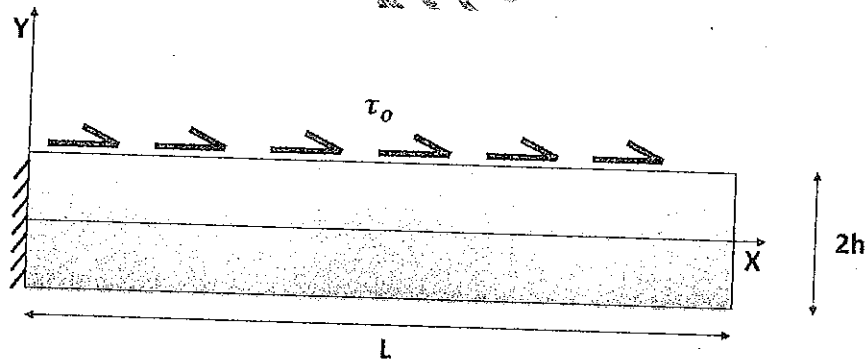


Fig.1

Determine whether the Airy stress function $\phi = \frac{1}{4} \tau_o \left(xy - \frac{xy^2}{h} - \frac{xy^3}{h^2} + \frac{Ly^2}{h} + \frac{Ly^3}{h^2} \right)$ satisfies the required conditions for this problem.

[8]