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CHAPTER 3

SOLUTION (3.1)

(a) We obtain

Thus, $\nabla^4\Phi = -12pxy + 2(6pxy) = 0$

and the given stress field represents a possible solution.

(b) $= pxy^3 - 2px^3y$

Integrating twice

$\Phi = \ldots + f_1(y)x + f_2(y)$

The above is substituted into $\nabla^4\Phi = 0$ to obtain

This is possible only if

We find then

$f_1 = c_4y^3 + c_5y^2 + c_6y + c_7$

$f_2 = c_8y^3 + c_9y^2 + c_{10}y + c_{11}$

Therefore,

(c) Edge y=0:

Edge y=b:

SOLUTION (3.2)

Edge $x = \pm a$:

Adding, $(-3pa^2 + 2c_1)y^2 + pa^4 + 2c_3 = 0$

(CONT.)