(7.1) For the Lagrangian $\mathcal{L}$ given by

$$\mathcal{L} = \frac{1}{2}\partial^\mu\partial_\mu\phi - \frac{1}{2}m^2\phi^2 - \sum_{n=1}^{\infty}\lambda_n\phi^{2n+2} \tag{7.20}$$

show that the equation of motion is given by

$$(\partial^2 + m^2)\phi + \sum_{n=1}^{\infty}\lambda_n(2n+2)\phi^{2n+1} = 0 \tag{7.21}$$

Note that

$$\frac{\partial}{\partial\phi}\left(\frac{1}{2}\partial^\mu\partial_\mu\phi\right) = 0$$

Hence for the Lagrangian given in (7.20) we have

$$\frac{\partial\mathcal{L}}{\partial\phi} = -m^2\phi - \sum_{n=1}^{\infty}\lambda_n(2n+2)\phi^{2n+1} \tag{1}$$

and

$$\frac{\partial\mathcal{L}}{\partial(\partial_\mu\phi)} = \frac{\partial}{\partial(\partial_\mu\phi)}\left(\frac{1}{2}\partial^\mu\partial_\mu\phi\right) = \partial^\mu\phi \tag{2}$$

This is the Euler-Lagrange equation.

$$\partial_\mu\left(\frac{\partial\mathcal{L}}{\partial(\partial_\mu\phi)}\right) - \frac{\partial\mathcal{L}}{\partial\phi} = 0 \tag{3}$$

Substitute (1) and (2) into (3) to obtain

$$\partial_\mu\partial^\mu\phi + m^2\phi + \sum_{n=1}^{\infty}\lambda_n(2n+2)\phi^{2n+1} = 0$$

which is equivalent to (7.21).

Note: Recall that

$$\partial^2\phi = \partial_\mu\partial^\mu\phi = \partial^\mu\partial_\mu\phi = (\partial_0^2 + \partial_1^2 + \partial_2^2 + \partial_3^2)\phi$$