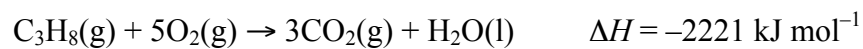


- What quantity of heat is released when 15.2 g of propane ( $C_3H_8$ ) is burnt according to the following equation?



**The molar mass of  $C_3H_8$  is  $(3 \times 12.01 \text{ (C)} + 8 \times 1.008 \text{ (H)}) \text{ g mol}^{-1} = 44.094 \text{ g mol}^{-1}$ . Hence, a mass of 15.2 g corresponds to:**

$$\text{number of moles} = \frac{\text{mass}}{\text{molar mass}} = \frac{15.2 \text{ g}}{44.094 \text{ g mol}^{-1}} = 0.345 \text{ mol}$$

**As 2221 kJ of heat are generated by burning one mole, this quantity generates:**

$$\text{heat} = (0.345 \text{ mol}) \times (2221 \text{ kJ mol}^{-1}) = 766 \text{ kJ}$$