

*A water heater can generate 32,000 kJ/h. How much water can it heat from 15 degrees Celsius to 50 degrees Celsius per hour?*

*Sol) Heat generated by heater = 32000 kJ/h =  $3.2 \times 10^7$  J/h*

*Specific heat of water =  $S = 4.18$  J/g/°C*

*Let mass of water that can be heated from 15 to 50 deg Cel =  $m$  (in grams)*

*Heat required in 1hr =  $3.2 \times 10^7$  J*

*Using  $Q = m S (T_2 - T_1)$*

*Or  $3.2 \times 10^7 = m * 4.18 * (50 - 15)$*

*Or  $3.2 \times 10^7 = m * 4.18 * 35$*

*Or  $m = 3.2 \times 10^7 / 146.3 = 218728.6$  g*

*Or  $m = 218.728$  kg*