Solution:

O2=2O
E(per mole)=489 kJ/mol
N_A= 6.022*10^{23} mol^{-1}
E(per molecula)=(489kJ/mol):N_A=489000/6.022*10^{23}=8.12*10^{-19}J
h=6.63*10^{34} J·s
Planck relation:
E=h**v**
v=E/h=8.12*10^{-19}/6.63*10^{34}=1.22*10^{15} s^{-1}

Answer:
a) 1.25*10^{15} s^{-1}