1. (8 pts) When a certain metal surface is bombarded with ultraviolet light of wavelength \(2000\ \AA\), the stopping potential is found to be 3.6 volts. Without any potential difference applied, the longest wavelength which can be used to eject photoelectrons from this surface is therefore

(A) 4770 \(\AA\)  \quad (B) 3445 \(\AA\)  \quad (C) 5220 \(\AA\)  \quad (D) 1355 \(\AA\)  \quad (E) 2710 \(\AA\)

\textit{Ans: ( )}

4. (8 pts) The time-independent wave function describing a beam of particles travelling in the positive \(x\) direction is \(\psi(x) = 50e^{i(4x)}\) where \(x\) is in nm. In units of eV/c, the momentum of these particles must be about

(A) 790 \quad (B) 13,400 \quad (C) 46.5 \quad (D) 142 \quad (E) 18,500 \quad (F) 5100

\textit{Go to answer table}

1. (8 pts) A particle is trapped in a one-dimensional infinite square well with walls at \(x = 0\) and \(x = L\). When it occupies the second \((n = 2)\) energy level, the position where it is least likely to be found is at

(A) \(x = L/8\)  \quad (B) \(x = L/4\)  \quad (C) \(x = L/3\)

(D) \(x = L/2\)  \quad (E) \(x = 3L/4\)

\textit{Go to answer table}