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1.   (a) the transport layer

       (b) the network layer

       (c) the link layer

2. $\quad d_{prop} = \dfrac{5 \times 10^6 m}{2 \times 10^8 m/s} = 25\,ms$

$\quad d_{trans} = 15 \times 50\,\mu s = 0.75\,ms \ll 25\,ms$

So the switching time would not be a major factor.

3.   #: $n = \dfrac{x}{P}$ $d_{trans} = \dfrac{P}{b}$

(i) Circuit-Switched: $T_1 = S + \dfrac{P}{b} \times n + k \cdot d = S + \dfrac{x}{b} + k \cdot d$

(ii) Packet-Switched: $T_2 = \dfrac{P}{b} \times n + (k-1) \cdot \dfrac{P}{b} + k \cdot d$

For $\quad T_2 < T_1$

$\Rightarrow \quad b \cdot S > (k-1) \cdot P \quad (*)$

Under the $(*)$ inequality, packet-switched have lower delay.