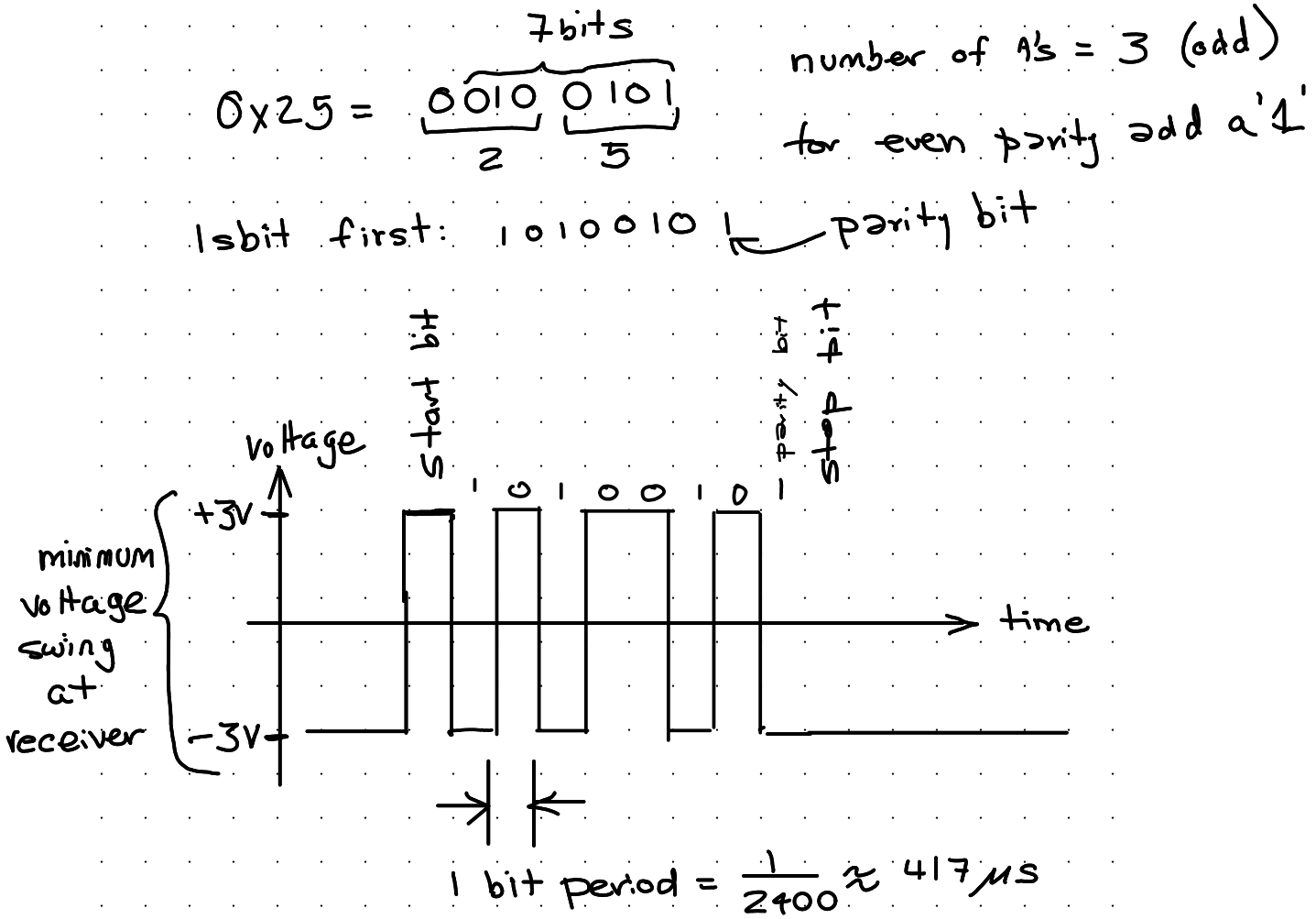
## Question 1 — 6 marks

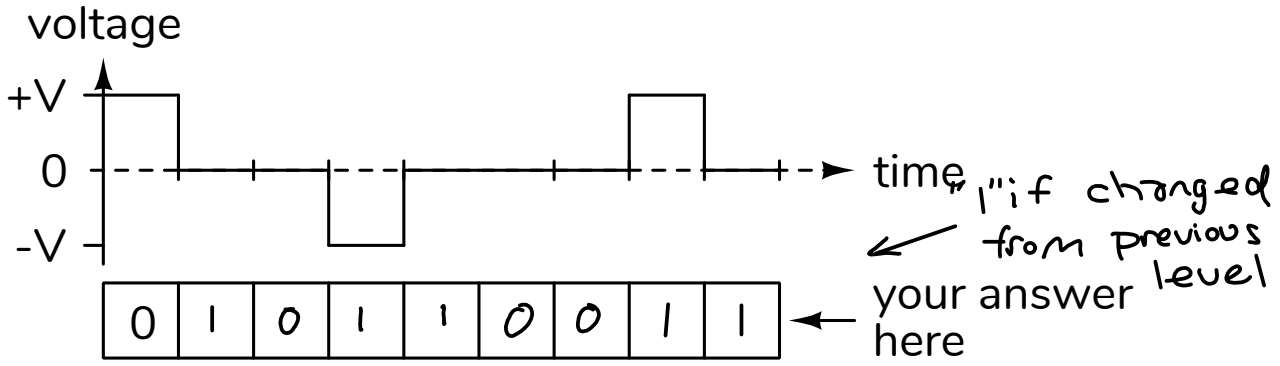
Draw the waveform that would be used by a typical ansynchronous serial ("RS-232") interface to transmit the 7-bit value 0x25 at 2400 bps using 7 bits per character and even parity.

Label the voltage axis. Draw the waveform using the minimum valid voltages at the *receiver*. Label the duration of one bit in units of microseconds.

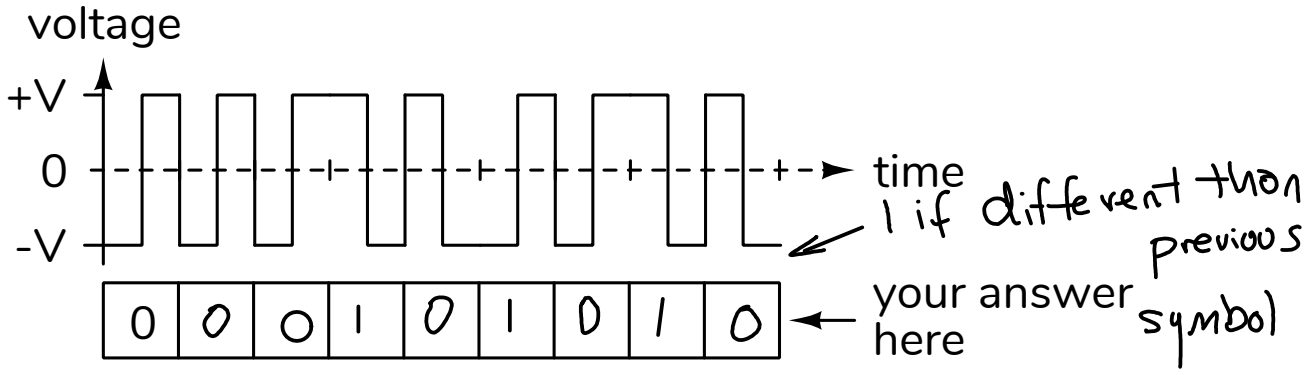


## Question 2 — 8 marks

(a) The diagram below shows a data signal encoded using the MLT-3 line code. Fill in the boxes with the bit values that were being transmitted in each time interval.



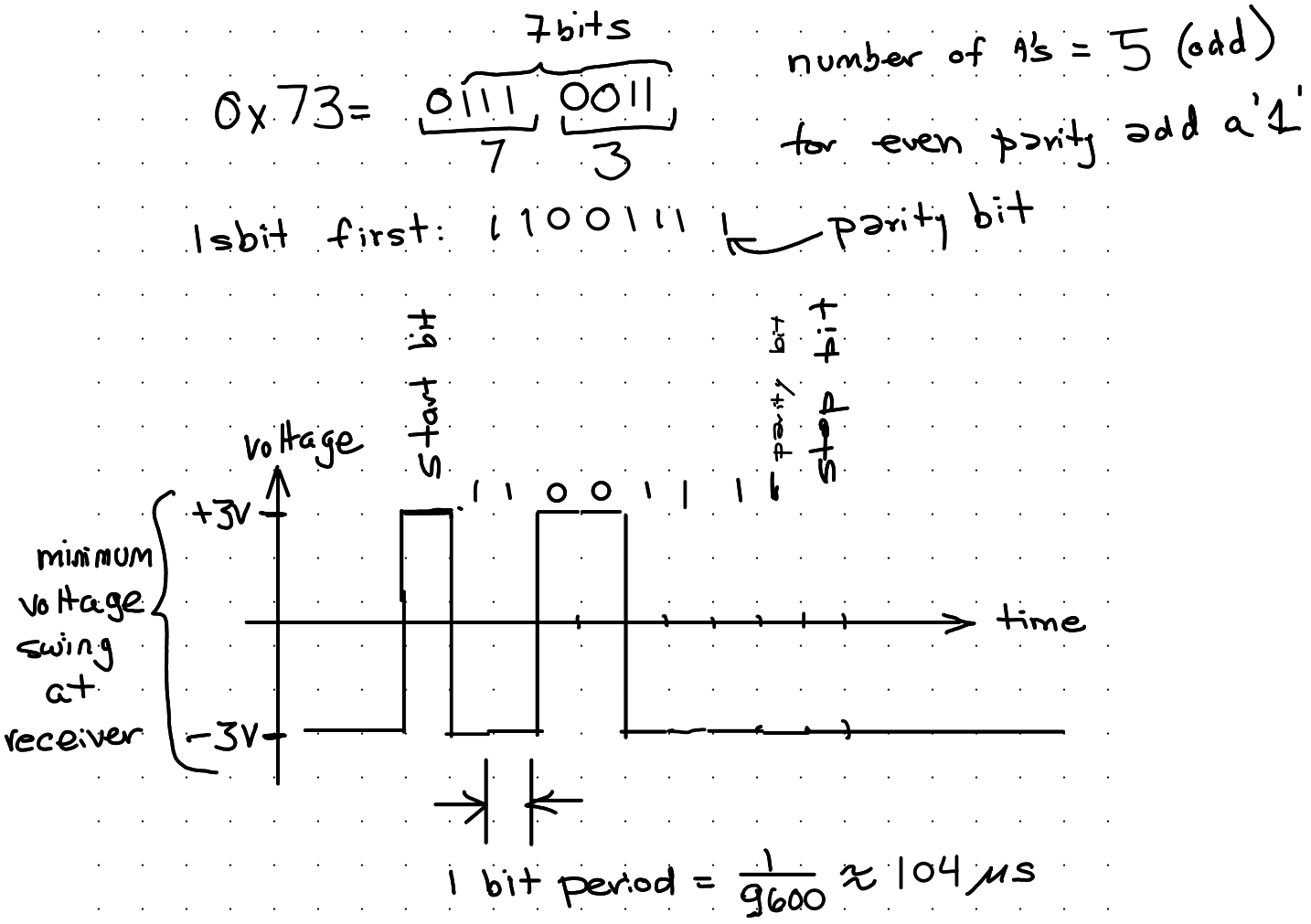

(b) The diagram below shows a data signal encoded using a *differential* Manchester line code following the conventions in the lecture notes. Fill in the boxes with the bit values that were being transmitted in each time interval.



## Question 1 — 6 marks

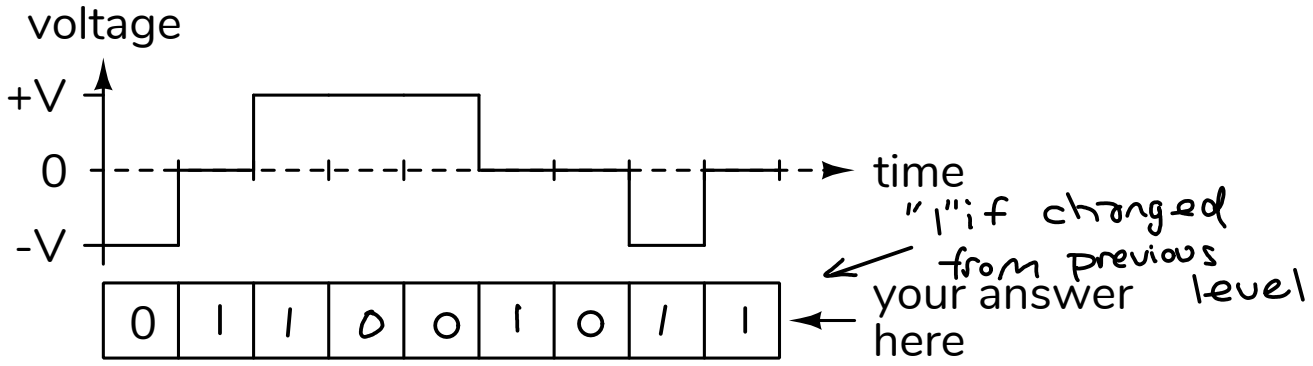
Draw the waveform that would be used by a typical ansynchronous serial ("RS-232") interface to transmit the 7-bit value 0x73 at 9600 bps using 7 bits per character and even parity.

Label the voltage axis. Draw the waveform using the minimum valid voltages at the *receiver*. Label the duration of one bit in units of microseconds.



## Question 2 — 8 marks

(a) The diagram below shows a data signal encoded using the MLT-3 line code. Fill in the boxes with the bit values that were being transmitted in each time interval.




(b) The diagram below shows a data signal encoded using a *differential* Manchester line code following the conventions in the lecture notes. Fill in the boxes with the bit values that were being transmitted in each time interval.