

Solve the problems:

1. The pulse duration is $t_i = 1\mu\text{s}$ and the pulse period is $T = 5\mu\text{s}$. What is the duty cycle?

Answer: 5

2. Apparatus for electrical stimulation provides rectangular pulses with a period of 0,4 s and duty cycle 200. Determine the pulse duration.

Answer: 2ms

3. Pulse duration of 1ms and 4ms were obtained for two rectangular pulses. The corresponding current threshold values that cause muscle contraction are 10 mA and 4 mA. Find the rheobase and the chronaxie.

Answer: 2mA, 4ms

4. In the apparatus for electrical stimulation at a frequency of 25 Hz the pulse duration is 1 ms. Determine the off-duty ratio and the pause after each pulse.

Answer: 40, 39ms

5. Pulsed current with pulse duration of 20 ms and duty cycle of 10 is used in medical tool. What is the current frequency?

Answer: 500 Hz

Literature

1. Chapter 15 in Medical and biological physics for medical students (pages 137-142)