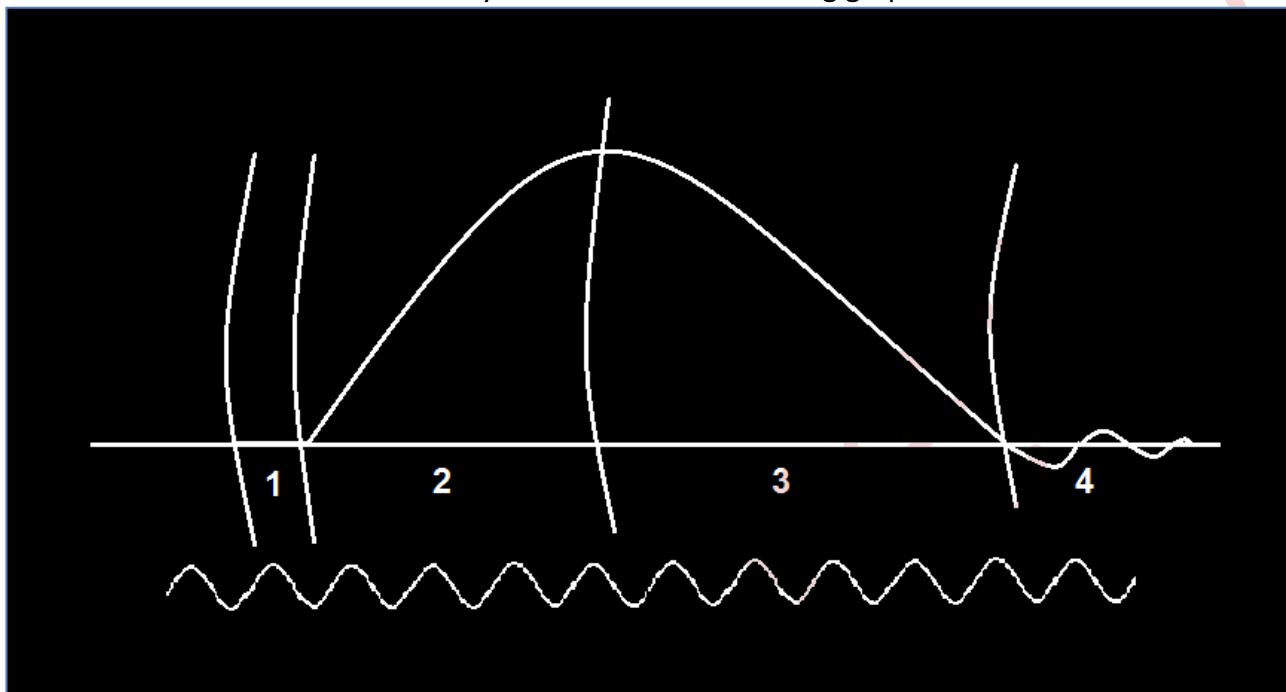


1 = Latent period

2 = contraction period

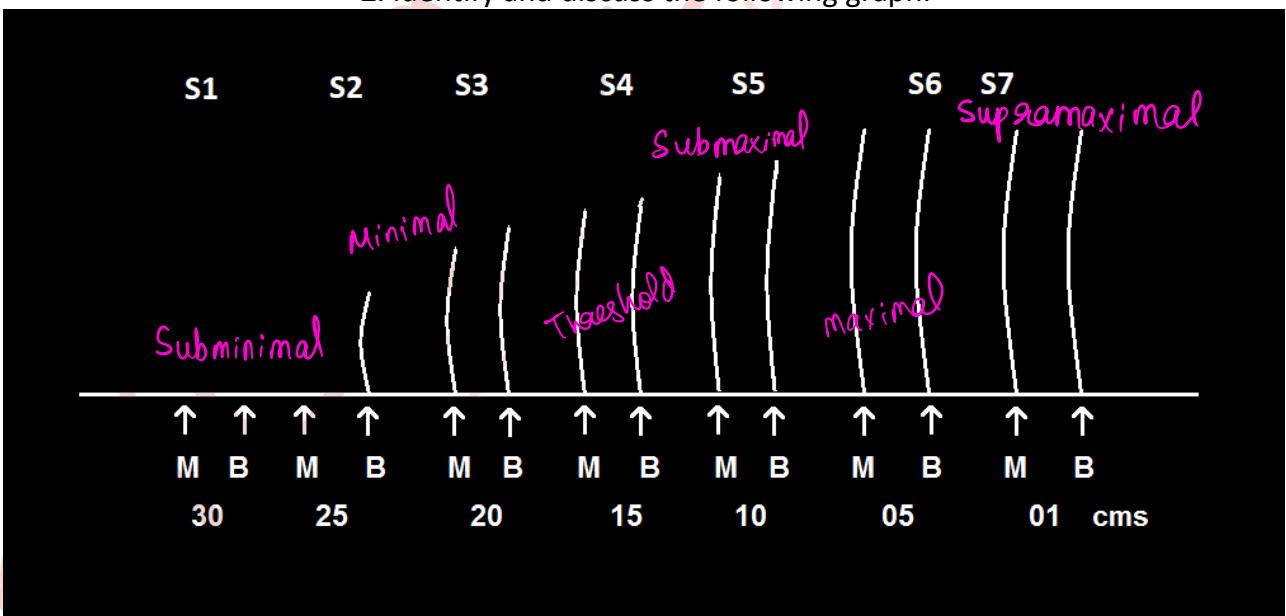
3 = relaxation period

1. Identify and discuss the following graph.



SIMPLE MUSCLE TWITCH (application of adequate stimulus)

2. Identify and discuss the following graph.



Effect of increasing stimulus strength

M = make shock

B = break shock

(Break stimulus is stronger than make stimulus)

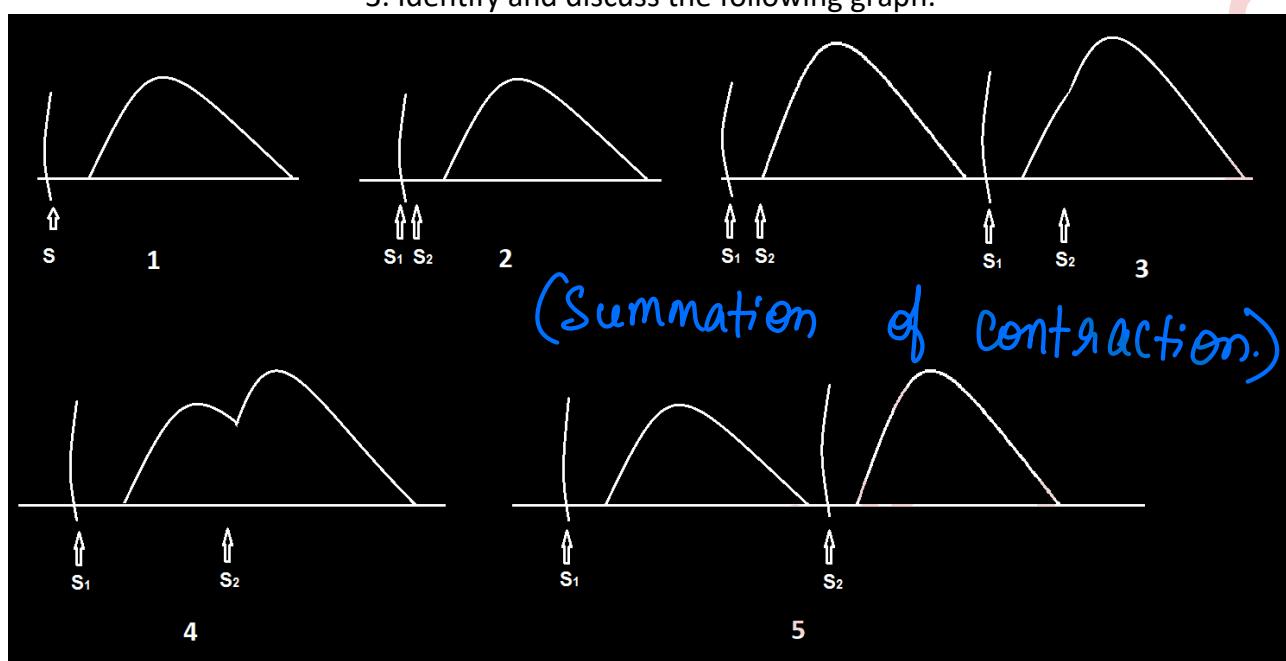
→ Increase in intensity of contraction due to excitation of more motor units.

Causes of latent period:

- neuromuscular transmission
- excitation-contraction coupling
- inertia of lever

Beneficial effect  $\Rightarrow$  since  $\text{Ca}^{2+}$  from first contraction has not been pumped back yet into cisterns.

3. Identify and discuss the following graph.

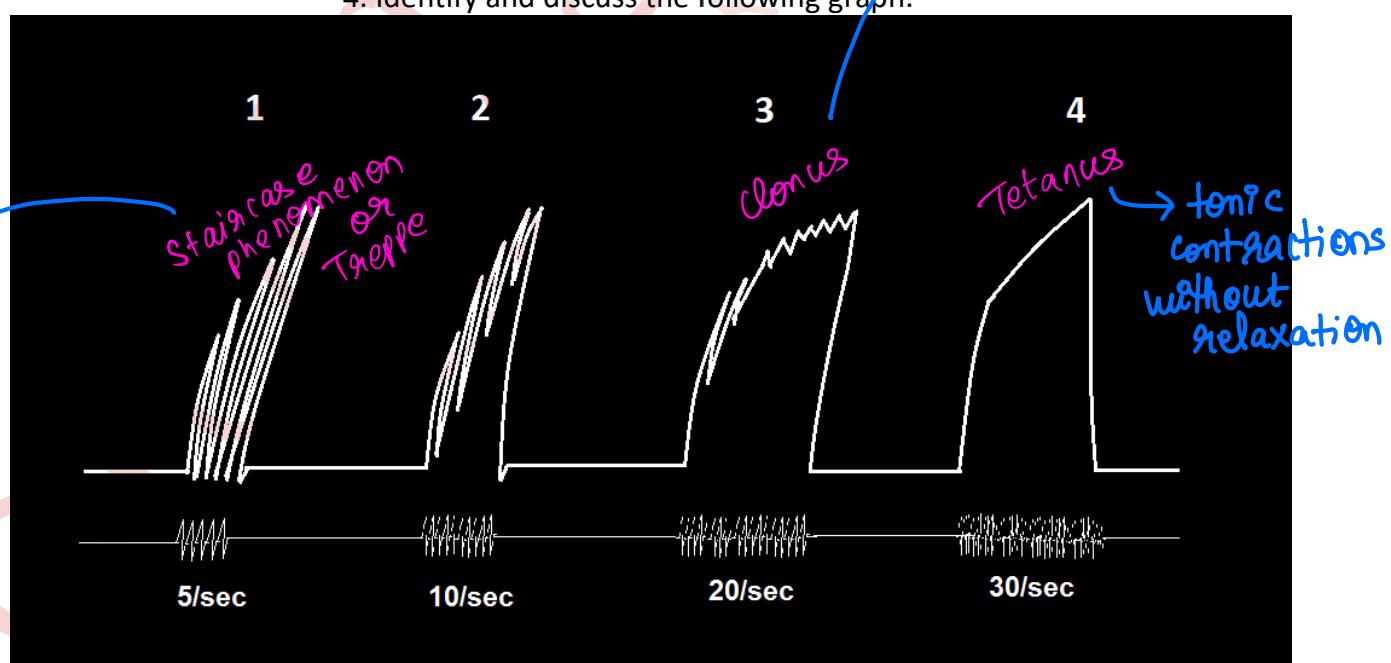


Successive stimuli on skeletal muscle contraction

$$\text{MTF (minimum tetanisable frequency)} = \frac{1}{\text{contraction period}}$$

partial tetanus (incomplete relaxations)

4. Identify and discuss the following graph.



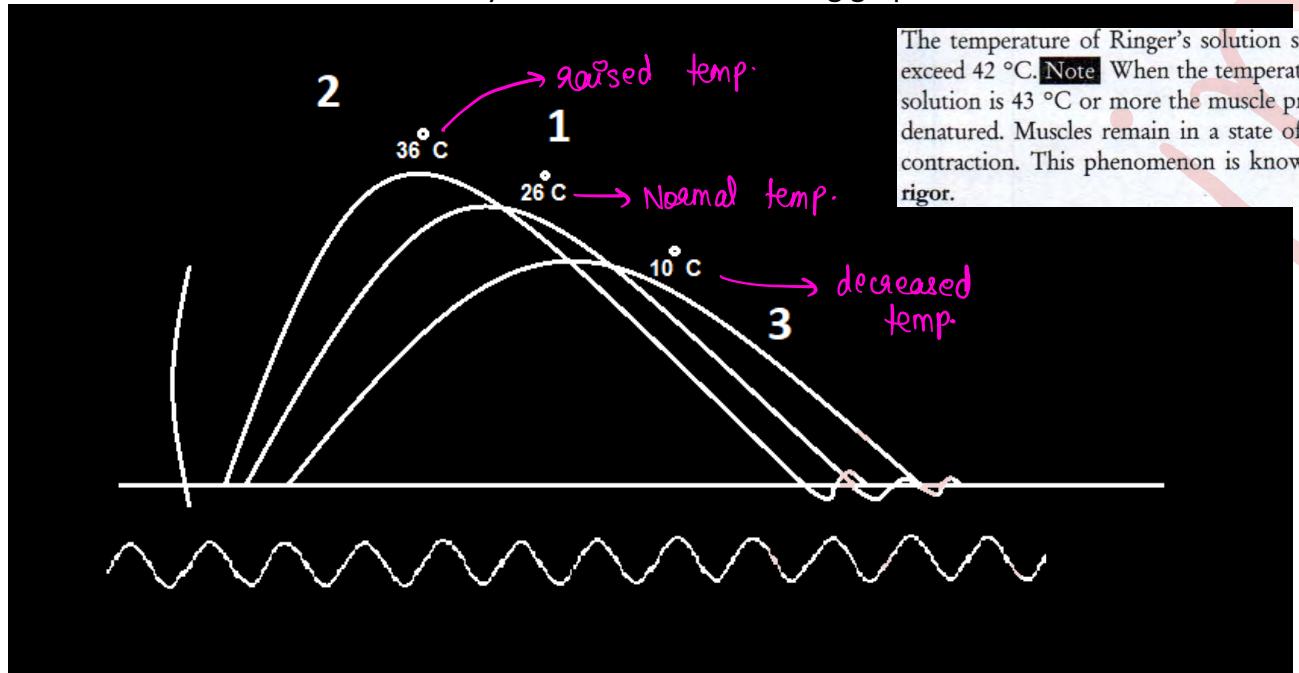
Effect of increasing frequency of stimuli on muscle contraction

Tetanus helps in maintaining posture.

At raised temp.

- latent period decreases  $\Rightarrow$  due to increased neuromuscular transmission
- contraction period " }  $\Rightarrow$  due to decreased muscle viscosity.
- relaxation " " }  $\Rightarrow$  due to increased enzyme activity & catalysis
- height of contraction increases (due to increased enzyme activity & catalysis)

5. Identify and discuss the following graph.



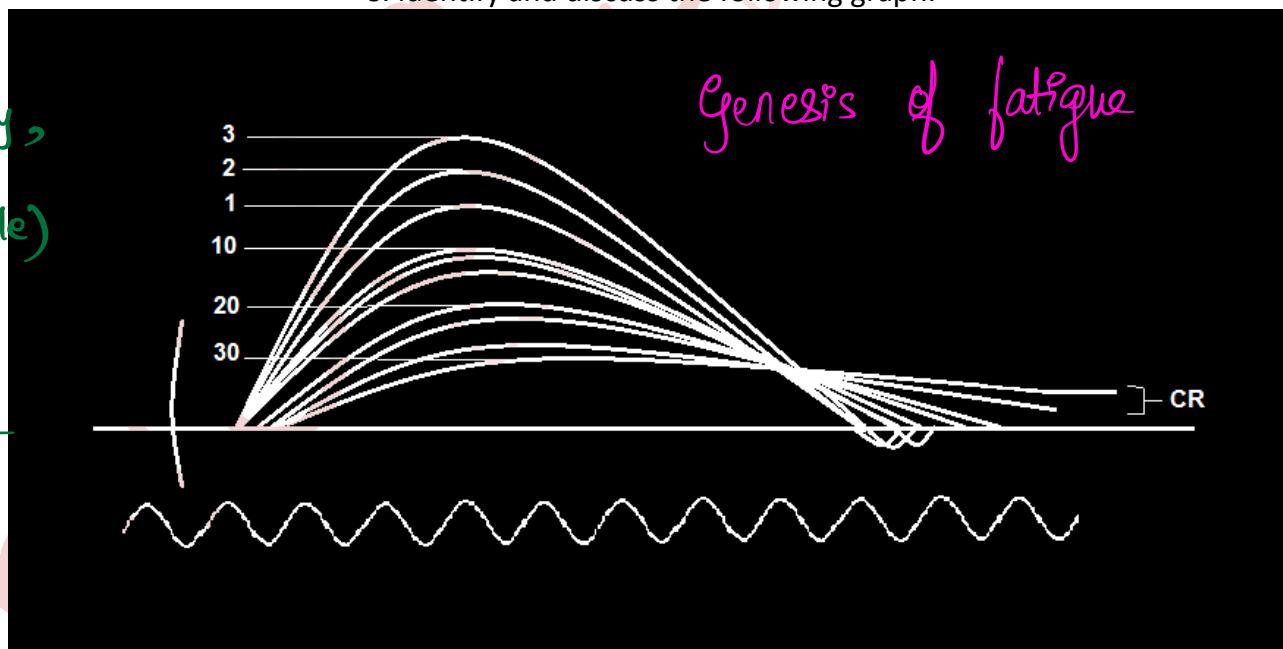
Effect of Temperature on muscle contraction.

- Fatigue  $\rightarrow$  reversible phenomenon
- Site of fatigue = In humans  $\rightarrow$  CNS ; in isolated preparation  $\rightarrow$  NMJ

6. Identify and discuss the following graph.

(theoretically,  
nerve is  
unfatiguable)

Cause of  
fatigue  
 $\downarrow$   
depletion  
of Ach



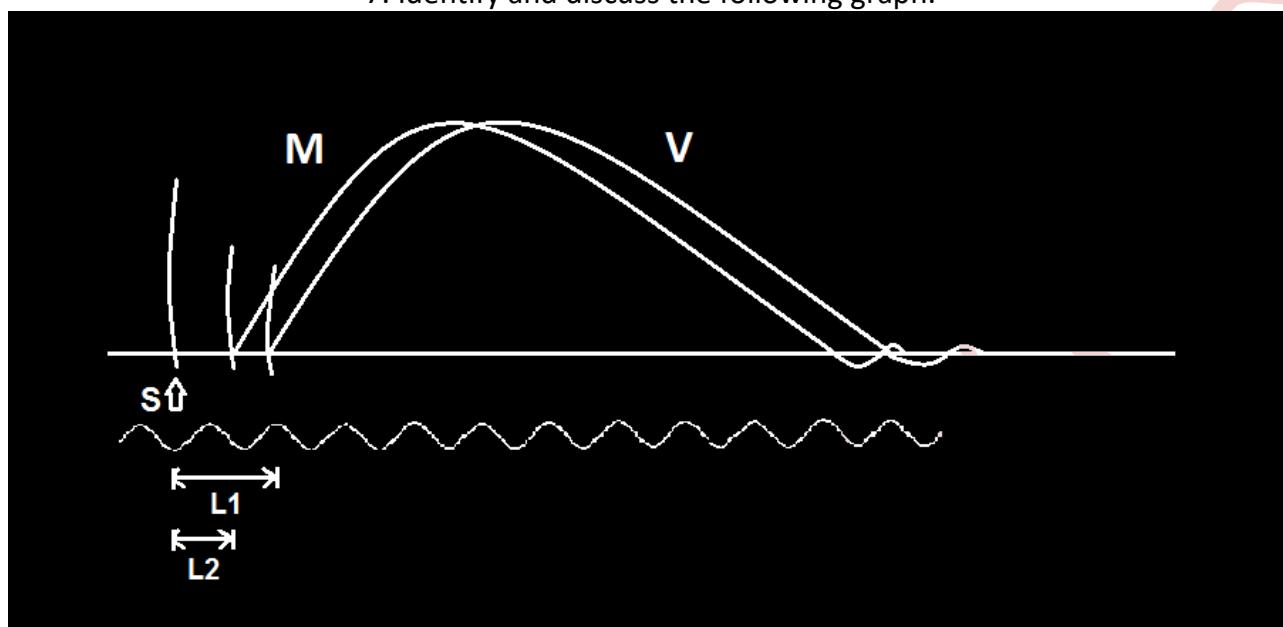
early sign of fatigue  $\Rightarrow$  elongation of relaxation period.

CR = contraction remainder due to incomplete relaxation following depletion of ATP.

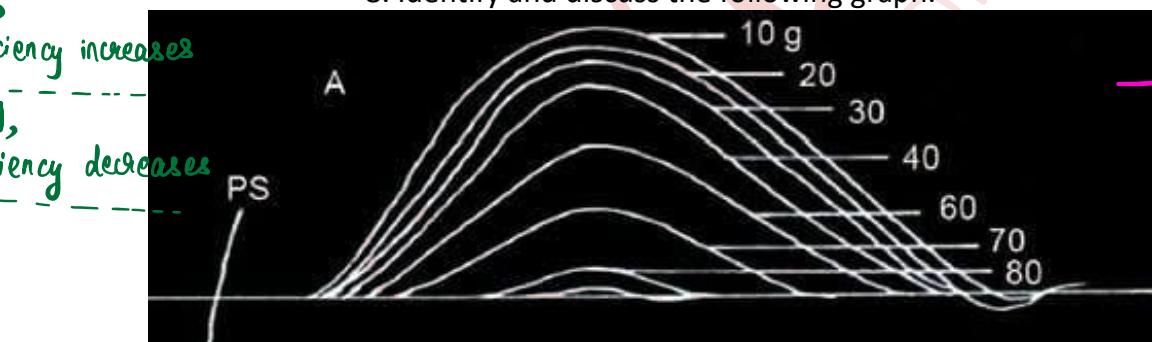
M: Simple muscle twitch following stimulation of nerve close to muscle  
V: simple " " " " " " close to vertebra.

normal velocity of conduction of sciatic nerve of frog = 40-60 m/s

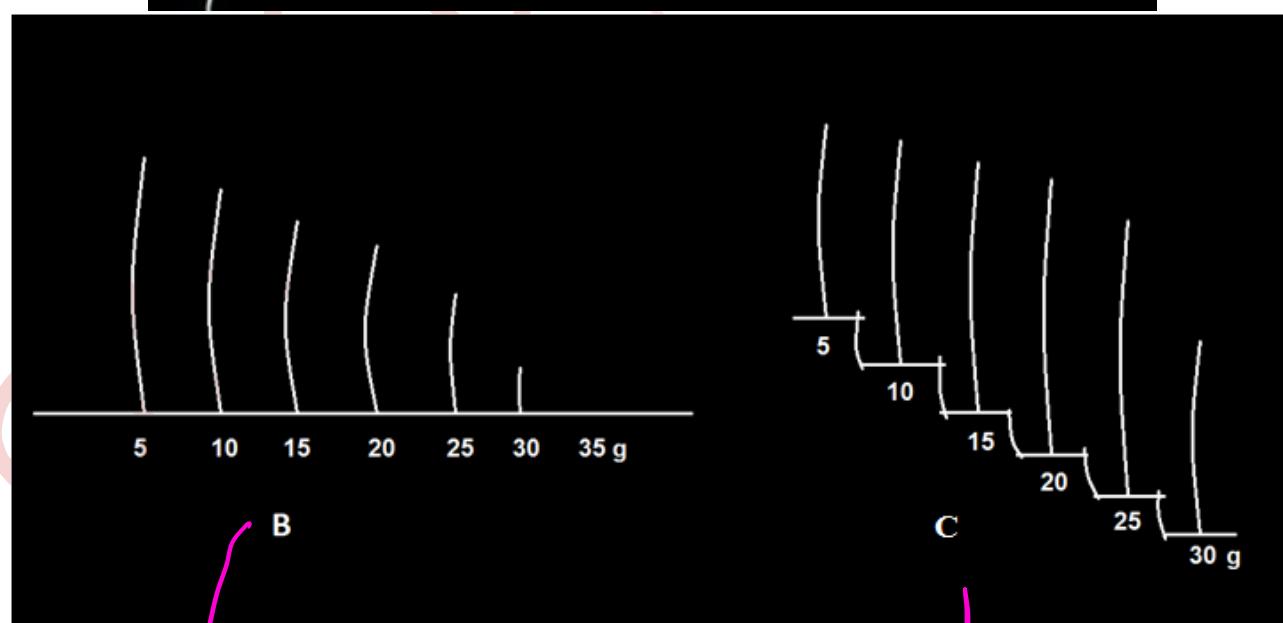
7. Identify and discuss the following graph.



8. Identify and discuss the following graph.



recording effect  
of afterload  
on a  
moving drum



recording effect of afterload on  
a stationary drum

effect of free load/pre-load.

$\eta$  of free load is more.

$\therefore$  The load is present before contraction  
 $\Rightarrow$  Initial length of  $\bar{m}$   $\uparrow$   
 $\Rightarrow$  as per Starling's law,  
force of contract  $\uparrow$   
 $\& \eta$  too.