

Student Name: ID No. :

1) Complete The Following (24 Points) :

- a. Tyroide's Solution is used to **provide in vivo environment for the muscle**, And **contains NaCl , CaCl₂ , Glucose, NaHCO₃, and MgCl₂**.
- b. Dose-response Curve is a relationship between Dose and (Response %), And from this curve we can estimate the **Potency, Efficacy, Therapeutic index, and ED₅₀**.
- c. ED 50 is defined as **the amount of drug that produces a therapeutic response in 50% of the people taking it**.
- d. Therapeutic index is **a comparison of the amount of a therapeutic agent that causes the therapeutic effect to the amount that causes drug toxicity**, And can be used as indicator **for the toxicity of the drug**.
- e. Threshold can be defined as **a point at which the drug doesn't give any further effect**.
- f. % Of antagonism means **how much (ml) of the blocker do we need to antagonize the effect of the stimulant**.
- g. Bacl₂ is a **Cholinergic Agonist** and its action is independent on the activation of **M₃ and M₂** receptors.
- h. Oxygen is required during the experiment **to maintain the freshness of the muscle**.
- i. **Frog-ringer solution** is used as solution in frog experiment. The lack of **Mg** result in **preventing the relaxation of the muscle**. The temperature should be maintained at **25 °C**.

2) Give Example (S) For The Following (13 Points) :

1. Neuromuscular Agent (direct acting): **Ach**
2. Neuromuscular Agent (indirect acting): **Ambenonium**
3. Direct Relaxant: **Atropine** and Direct Agonist **Carbachol**.
4. α -Adrenergic Antagonist: **Terazosin**

5. Ganglionic Blockers: **Hexamethonium, Pentamethonium.**
6. Neuromuscular Blockers:
Non-depolarizing: D-tubocurarine
Depolarizing: suxamethonium

7. Cholinergic agonist (direct): **Pilocarpine , Carbachol ,** (indirect): **Neostigmine , Pyridostigmine**

3) Complete The Following (3 Points) :

