Physics test

date: .... , class: .... , student: ....

- **Exercise 1:** Write the equation for the β decay of $^{14}_{6}\text{C}$ (atomic mass 14.003242u) to $^{14}_{7}\text{N}$ (atomic mass 14.003074u). What type of β decay does this equation represent? Calculate the energy released in the reaction.

- **Exercise 2:** Calculate the binding energy released in the $\alpha-$decay of $^{185}_{79}\text{Au}$ (atomic mass 184.965790u) to $^{181}_{77}\text{Ir}$ (atomic mass 180.957625u).

- **Exercise 3:** Complete the picture below adding the names of the elementary particles that are missing.

- **Exercise 4:** Is the decay $\tau^{-} \longrightarrow e^{-} + \gamma$ possible? Motivate your answer.

- **Exercise 5:** Is a particle formed by the three quarks `uds` a hadron? Motivate your answer.
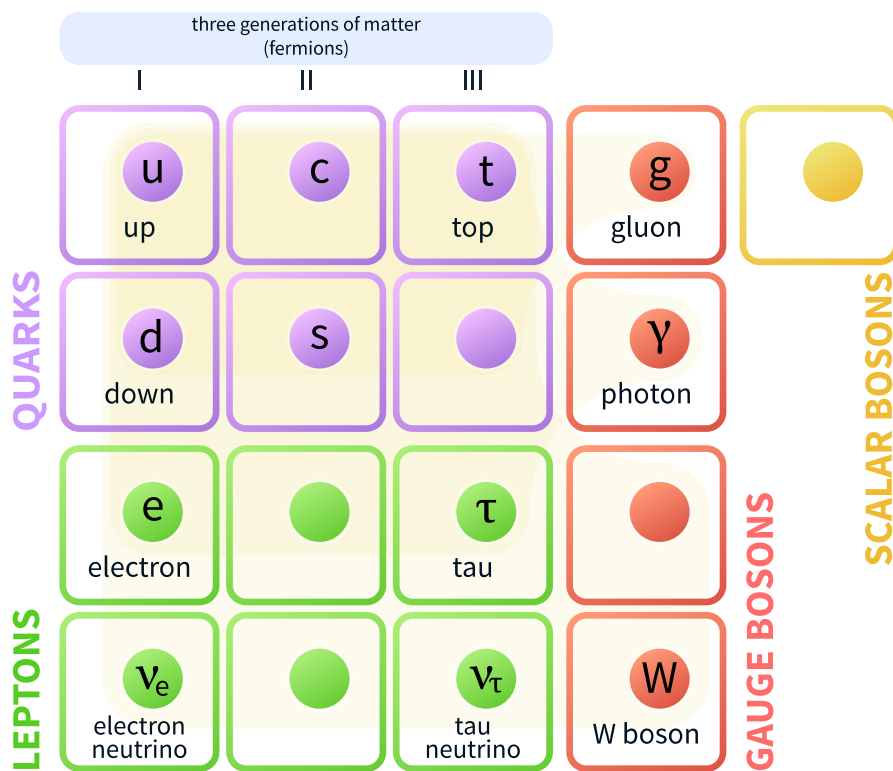
Standard Model of Elementary Particles

Figura 1: picture taken from `https://en.wikipedia.org/wiki/Standard_Model` and edited.