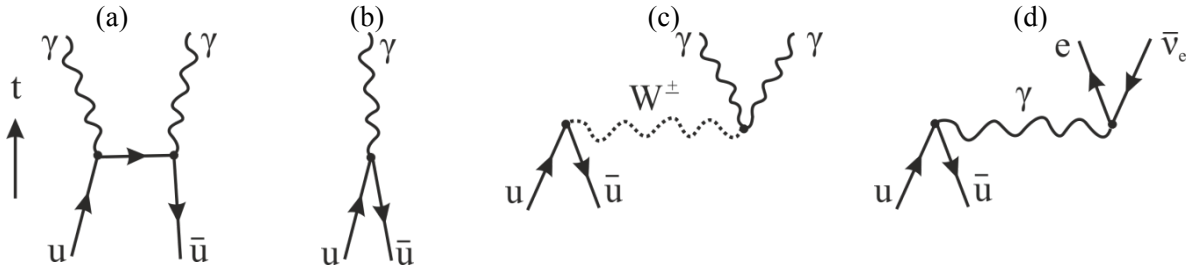
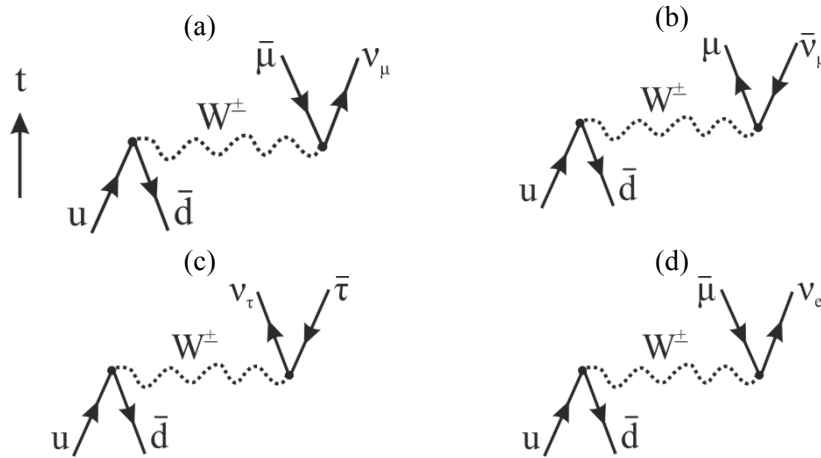


ΕΡΩΤΗΣΕΙΣ & ΑΣΚΗΣΕΙΣ ΚΕΦΑΛΑΙΟΥ 7

1. Which one of the following Feynman diagrams describes correctly the decay of π^0 at rest? Explain your choice.



2. Which one of the following Feynman diagrams describes correctly the decay of π^+ at rest? Explain your choice.



3. Which quarks make up the following baryons: $p, n, \Lambda^0, \Sigma^0, \Sigma^+, \Omega^-$?

4. What combination of quark/antiquark make up the following mesons:

$\pi^-, K^0, K^-, J/\psi, B^-$?

5. Which ones of the following reactions are taking place and which are not?

1. $K^- + p \rightarrow \Sigma^- + \pi^+$,

3. $K^- + p \rightarrow \Lambda^0 + \pi^0$,

5. $K^- + p \rightarrow \Lambda^0 + K^0$

7. $\mu^- \rightarrow e + \gamma$

9. $\gamma + p \rightarrow n + \pi^0$

2. $K^+ + p \rightarrow K^+ + p + n$,

4. $\Lambda^0 \rightarrow \pi^- + p$,

6. $\pi^0 \rightarrow \mu^- + e^+ + \nu_e$

8. $p + p \rightarrow p + p + n$

6. Draw the Feynman diagrams describing one of the main decay processes of the following baryons: $\Sigma^0, \Delta^{++}, \Xi^0$. Could you estimate their lifetime?

7. Draw the Feynman diagrams describing one of the main decay processes of the following mesons: $K^+, J/\psi, K^0, \bar{K}^0$. Could you estimate their lifetime?