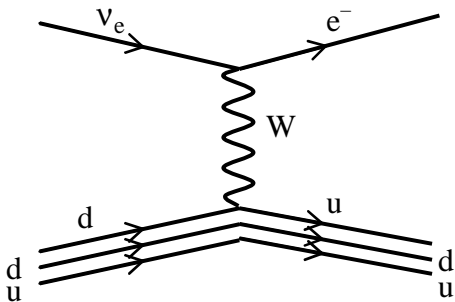


It is not departmental policy to provide complete specimen answers to past examination papers. However, to help you in revision, numerical values and similar information are given below so that you can check your attempts. If you have attempted past questions and wish to discuss the descriptive questions or the details of your calculations, please see me!

Dr Booth

Question 1

- c) Parity is negative.
- d) $K^+ = u\bar{s}$; $K^- = s\bar{u}$.
- e)



- f) Electromagnetic interaction, as photons are involved.
- h) Neutrino energy is 29.8 MeV.

Question 2

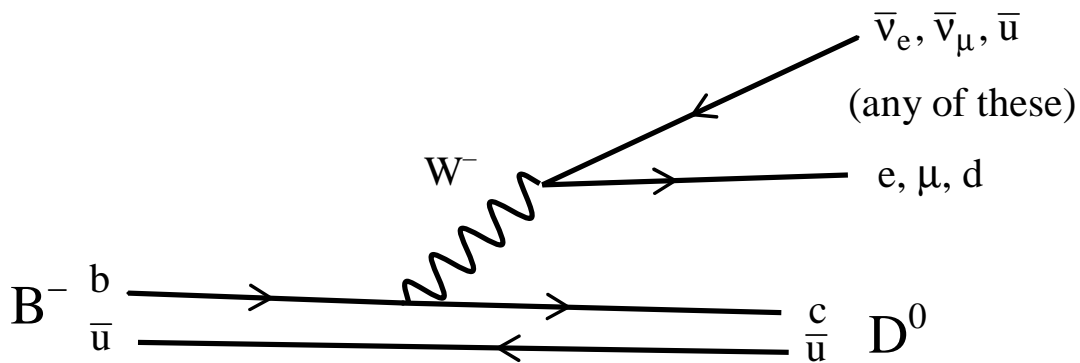
- d) Kaon energy is 585 MeV.

Question 3

- d) Boson mass is greater than $70.7 \text{ GeV}/c^2$.

Question 4

b)



- c)i) Forbidden – violation of tau and muon lepton numbers.
- c)ii) Weak – involvement of neutrinos.
- c)iii) Forbidden – change of strangeness by 2 units.
- c)iv) Weak – change of strangeness by 1 unit.
- c)v) Forbidden – Baryon number not conserved.
- c)vi) Strong – hadrons involved, all QN conserved.
- c)vii) Forbidden – change of strangeness by 2 units.
- c)viii) Electromagnetic (electroweak at high energy) – charged leptons involved.

Question 5

c) Maximum neutrino momentum 2116 MeV/c.