

Name:..... Student number:.....

Exam Energy Flow Models in Exercise and Sport, October 26, 2016, 12.00-14.15 pm

- 1) In the three projects of this course you used energy flow models for skating, running and cycling. In principle these models can be made for all endurance sports. Give the complete power equation for a rower (scull rowing: one rower in the boat). Describe each component of the power equation.
- 2) In Project 1 you have tried to define the optimal altitude to organize a speed skating race. Assume two skaters: one with a personal best at the 1500m of 1:42.00 and one with a personal best of 2:12.00 at this distance. Is the optimal altitude (the altitude with the best possible performance) equal for both skaters? Explain your answer.
- 3) In Project 2 you made an energy flow model for running to simulate the 200m running race of Marlou van Rhijn. Marlou van Rhijn wants to explore her possibilities on longer distances and is asking you for advice. She wants to run the 800m as fast as possible. What kind of pacing profile would you advise her for best performance on this distance?
- 4) Tom Dumoulin (the cyclist you modeled in project 3) decides to be the 'buddy' of a Paralympic cyclist with visual impairment to participate on a time trial. He will be the front rider on a tandem cycle and the Paralympic cyclist will be the rear rider. How do you need to modify the power equation for cycling to make it valid for this combination?