

Short solutions for Sample Exam 4

“Optimization in Systems and Control” (SC4091)

This document concisely lists the solutions for Sample Exam 4. Note that other solutions might also be correct to some degree, and that

you should extensively motivate your answers in the “real” exam!

(cf. the worked solutions for Sample Exams 1 and 2).

QUESTION 1: Optimization methods I

Short answers for Question 1

- P1. multi-start M7 (nonlinear/non-convex, with equality constraint, gradient and Hessian are easily computable)
- P2. multi-start M4 (nonlinear/non-convex, gradient and Hessian are easily computable)
- P3. multi-start M10 (nonlinear/non-convex, with inequality constraint, gradient and Hessian are easily computable)
- P4. M11 (convex optimization)
- P5. M1 (linear programming)
- P6. M2 (quadratic programming)
- P7. M11 (convex optimization)
- P8. M1 (linear programming)
- P9. M11 (convex optimization)
- P10. multi-start M8 (nonlinear/non-convex, gradient and Hessian are very time-consuming to compute)