Question 1
Basic EM concepts and principles
cf. construal comprehension exercise

Some relevant topics for revision:
- Construal, referent, context, understanding
- Observables, dependencies, agency
- Definitive scripts + definitive notations (EDEN)
- The Nim construal as embedded in the EMPE as an example of construal comprehension

Resources for Question 1

- The fundamental diagram
- CS405 online resources: Sessions 2.1, 2.3, 3.1
- The Burapha workshop
  http://www2.warwick.ac.uk/fac/sci/dcs/research/em/thailandworkshop/
- The construal comprehension exercise
  http://www2.warwick.ac.uk/fac/sci/dcs/research/em/teaching/cs405-1112/usingempe
... with particular reference to Nim as at:
 /dcs/emp/empublic/teaching/cs405-2012/UsingEMPE/presnimBurapha2013

Question 2
Construals vs programs: states and behaviours

Some relevant topics for revision:
- Broader view of computing (SBR)
- EM and modelling state
  – Turing "mind following rules"
  – Gooding: construals for science e.g. Faraday
  – Situation, ignorance and nonsense
- EM and the explanation of behaviour
  e.g. Ant Navigation, the lift adventure, Ficts

Reading material for Question 2

- EM as a broader view of computing
  Session 10.3 and CS405 2012/13 Session 2
- WMB's commentary on Turing: EM paper #115
- Gooding related references: EM paper #114 p29-33
- The SIN principle: EM paper #072 – section 3.1
- Ant navigation: EM paper #110
- Adventures in a lift: EM paper #078 – section 1.2
- The *Ficts* fiction: EM paper #037 *Agent-oriented modelling and the explanation of behaviour* – section 4

Question 3
Constructivism & Constructionism: making construals

Some relevant topics for revision:
- Latour constructivism
- Papert constructionism
- Construals as enabling a constructivist outlook
  – Ben Ari: computer as accessible ontological reality
  – Bret Victor's support for Papert constructionism
  – Online teaching together with active learning
- EM for constructionism, and for construction

Resources for Question 3

- Constructivism – Latour: EM paper #100 Section 6
  CS405 2012/13 Session 14 – JS-EDEN emile + presentation
- Papert constructionism: CS405 Session 7.3
  – EM papers #111, #083, #074
  – Nottingham LSRI talk
  – Ben-Ari: EM paper #108 as illustrated by the vimodes model at:
    http://www.dcs.warwick.ac.uk/~wmb/webeden/vimodes.html
- Bret Victor: EM paper #124
- *The Manifesto for Teaching Online*: EM paper #124
Illustrative examples for educational applications EM paper #107

Question 4

Software development from an EM perspective

Some relevant topics for revision:

- Realising sw development as a lived experience
- Dave West on hermeneutic and formalist approaches: in "Object Thinking"
- EM in its relation to topical issues, such as:
  - programming paradigms
  - database theory / formal vs informal
  - conceptual integrity

  cf. Date, Darwen, Ridley, Jackson, Harel, Brooks

Resources for Question 4

- Dave West *Object Thinking*
- Onward! 2012 essay: EM paper #121
- Session 4.3 on programming paradigms
- Session 5.1: sqleddiWard2003
- heapsort – Michael Jackson: EM paper #051
- digital watch – David Harel: EM paper #052
- railway animation - Fred Brooks: Session 10.1

Question 5

The ADM: overview and applications

Some relevant topics for revision:

- ADM characteristics
- ADM and the semantics of EDEN models
- LSD concepts & accounts of concurrent systems
- Machine- and human-oriented perspectives
- Analogy between EM systems development and the emergence of modern railways

Resources for Question 5

- Sessions on concurrency: 8.3
- Back to the future: Session 9.3
- Railway accidents cf. EM papers #053, #084