

- 1a What is a *scalable* distributed system? 10pt
- 1b Give an example of an inherently nonscalable function, and explain what the scalability problem is. 10pt
- 1c What is distribution transparency, and should it be aimed for at all costs? 5pt
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- 2a Explain in your own words what a distributed object is, and what it means for a client to bind to an object. 10pt
- 2b What is the difference between a Remote Procedure Call and a Remote Method Invocation? 5pt
- 2c What would an object-based (asynchronous) message-queuing system look like? 10pt
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- 3a Why is reference counting in a wide-area distributed garbage collector not such a good idea? What would your approach be, and why? 10pt
- 3b To keep track of a mobile object we could let its “home” record the object’s current location. Why is this a bad idea, but why is it applied so much? 5pt
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- 4a Explain what two-phase commit is. 5pt
- 4b What problem does three-phase commit solve? 5pt
- 4c Explain what virtual synchrony accomplishes. 5pt
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- 5a Why do entry consistency and distributed objects fit so well together? 5pt
- 5b What is the basic idea behind client-centric coherence models, such as Bayou’s session guarantees? 5pt
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- 6 **Note: this is an extra bonus question which you are not obliged to answer.** Think of a good question for an exam on distributed systems, and give hints to the answer. Be brief! 5pt

Grading: The final grade is calculated by accumulating the scores per question (maximum: 90 points), and adding 10 bonus points. The maximum total is therefore 100 points. The bonus question is counted separately.