# PRINCE OF SONGKLA UNIVERSITY

### FACULTY OF ENGINEERING

Final Examination: Semester 2 Academic Year: 2009

Subject Number: 241-530 Room: R300

Subject Title: Parallel and Distributed Computing

**Exam Duration**: 3 hours

This paper has 13 pages, 7 questions and 135 marks (30%).

#### **Authorised Materials:**

• Writing instruments (e.g. pens, pencils).

• Textbooks, a notebook, handouts, and dictionaries are permitted.

# **Instructions to Students:**

- Scan all the questions before answering so that you can manage your time better.
- Answers **must** be written in **Thai**.
- Write your name and ID on every page.
- Any unreadable parts will be considered wrong.

When drawing diagrams or coding, use good layout, and short comments; marks will not be deducted for minor syntax errors.

# Cheating in this examination

Lowest punishment: Failed in this subject and courses dropped for next

semester.

Highest punishment: Expelled.

NO	Time (Min)	Marks	Collected	NO	Time (Min)	Marks	Collected
1	40	41		5	15	14	
2	30	28		6	10	5	
3	20	16		7	10	5	
4	20	20		Total	145	135	

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(41 marks; 40 minutes)

1) Compare Static and Dynamic	Load Balancing? (6 marks)	
Static Load Balancing	Dynamic Load Balancing	
2) What are Dynamic Load Bala	ancing factors? (4 marks)	
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	MIN.	
Thillippe of the second of the	7.77	<del></del>
<ol><li>Compare the following appro</li></ol>	eaches of System Information exchange polic	y.
	(10 marks)	
Approach	Policy	
limited approach		

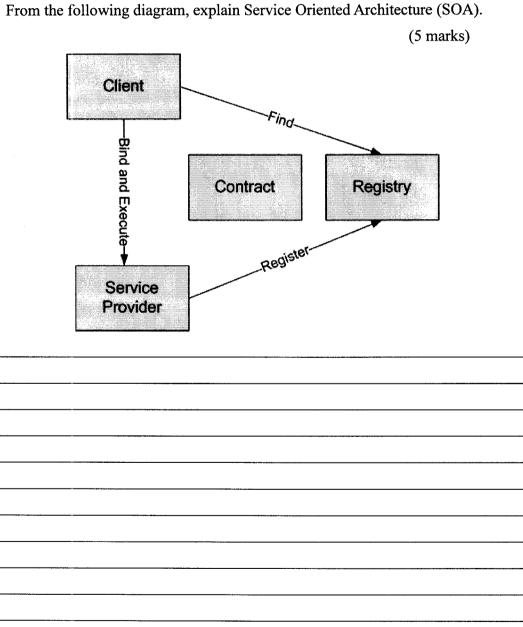
Approach	Policy
paring approach	
load vector approach	
load vector approach	
	·
broadcast approach	
:	
global gygtom lood	
global system load approach	
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4)	What are the migration rules for Dynamic Load Balancing? (5 marks)
5)	Compare Sender-initiated approach and Receiver-initiated approach in choosing transfer location in the transfer policy of Dynamic Load Balancing.
	(4 marks)
0)	What are Dynamic Load Balancing phases? Also give some explanation.  (5 marks)
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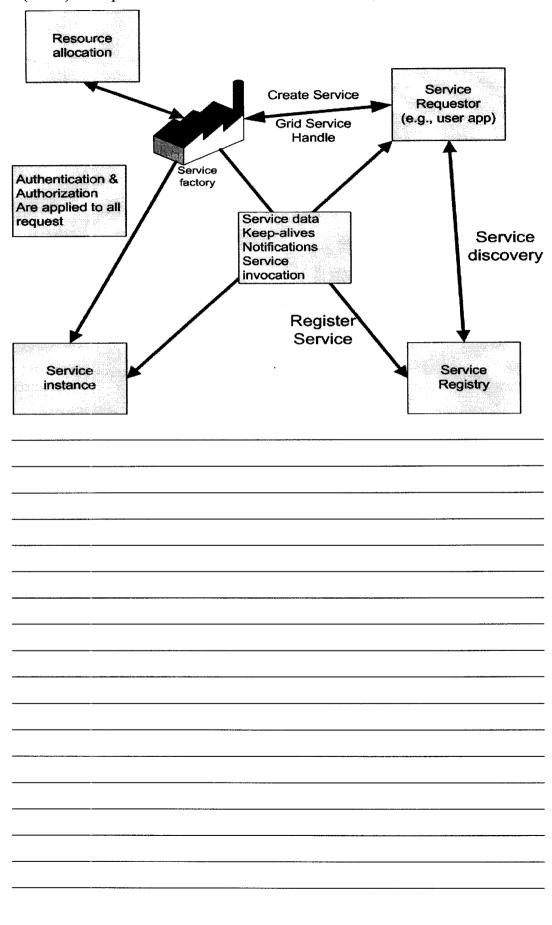
7) What are Load Balancing System properties? Als	o give some explanation.
	(7 marks)
	MARKAN
estion 2	(20
	(28 marks; 30 minutes)
Explain what Grid Computing is, what it does and w	what it is for. (6 marks)
	P. S. J. C. S.
What is Open Grid Service Architecture (OGSA)?	(4 marks)
was a open one service membersiae (OGS/1):	(+ marks)
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Give three forms of Grid Applications.	(3 marks)
	Majoria de la compansión de la compansió
rom the following diagram, explain Service Ories	nted Architecture (SOA)



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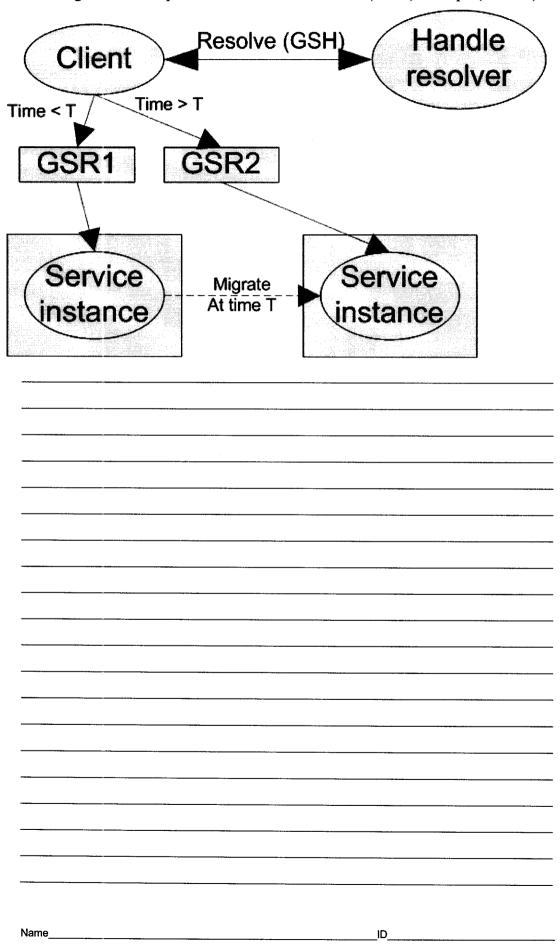
5) From the following diagram, explain the Open Grid Service Infrastructure (OGSI) concept. (5 marks)



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6) From the following diagram, explain the service migration concept and the naming scheme of Open Grid Service Infrastructure (OGSI) concept. (5 marks)



From the following load balancing techniques, explain them and tell which is a nitable for which kind of load. Draw figures to help with the explanation, too.		
n Packing	(4 marks)	
***************************************		
andomization	(4 marks)	
essure Model	(4 marks)	

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(20 marks; 20 minutes) (4 marks)
(20 marks; 20 minutes) (4 marks)
(4 marks)
grade
ee important parameters?
(4 marks)
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3)	What is the limitation of Amdahl Law?	(2 marks)
4)	Treats problem size as a constant, draw a graph to decreases as number of processors increases.	to show how execution time (5 marks)
5)	Plot and explain a graph of a scalable system that the fixed by increasing both the size of problem and nu	ne speedup and efficiency are mber of processor.
		(5 marks)

uestion 5			(14 marks; 15 minutes)	
1)	Explain the limitation of the Athe Amdahl's law	Amdahl's law and the	e effects of each parameter in (4 marks)	
2)	What is granularity?		(2 marks)	
3)	Compare fine grain and coarse grain parallelism.		(8 marks)	
	Fine grain		Coarse grain	

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Question 6	(5 marks; 10 minutes)
Explain Virtualization in Grid C	Computing in details.
100 000	
Question 7	(5 marks; 10 minutes)
	terms of architecture, methods, usage and tradeoffs.
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}	End of Examination
	<b>-</b>
	Pichaya Tandayya Lecture
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