Code: 9A05703

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B. Tech IV Year II Semester (R09) Regular Examinations, March/April 2013
GRID & CLUSTER COMPUTING
(Computer Science & Systems Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   Describe different forms of computing.
      (b)   Give a brief note on remote procedure call.

2   (a)   What is parallel computing? Why should we use parallel computing?
      (b)   Describe various parallel programming models.

3   (a)   Describe cluster components in detail.
      (b)   Mention the applications of clusters.

4   (a)   What is grid computing? Describe the need for grid technology.
      (b)   Discuss how grid architecture maps to internet protocol architecture.

5   What are the service message description mechanisms available? Explain.

6   (a)   Describe the architecture of OGSA.
      (b)   Explain briefly about commercial data center.

7   (a)   Explain briefly about service programming model.
      (b)   With a neat diagram explain the architecture of globus GT3.

8   Discuss in detail OGSI.NET middleware solutions.

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Answer any FIVE questions
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*****

1   (a)   Why distributed computing? What are the reasons for the popularity of distributed computing?
      (b)   Explain peer-to-peer distributed computing paradigm.

2   (a)   Give the Flynn's classification of multi processors and explain.
      (b)   Discuss the following parallelization paradigms:
              (i) Single-program multiple-data (SPMD)
              (ii) Divide and conquer

3   (a)   What is a cluster? Mention some typical clusters. What is so different about clusters?
      (b)   Discuss some applications of clusters.

4   (a)   How do you map Grid architecture to IP architecture?
      (b)   Discuss any two commercial applications of grids.

5   Explain web service architecture in detail.

6   (a)   Define grid service instance and grid services reference.
      (b)   Describe in detail about service data concepts.

7   (a)   Describe the service programming model in GT3.
      (b)   Write notes on grid service life cycle model.

8   Write about the following services supported by GT3:
              (i) Data management
              (ii) Information services

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1 (a) Differentiate between centralized and distributed computing.
   (b) Give the classification of the paradigms for distributed applications and explain.

2 (a) Describe the paradigms popularly used in parallel programming.
   (b) List the advantages of parallel computing.

3 (a) Give the typical cluster computer architecture and explain.
   (b) Describe few applications of clusters.

4 (a) Write about the scope of grid computing in business areas.
   (b) Discuss the architecture of grid computing systems.

5   Write in detail about WSDL and SOAP.

6 (a) Describe in detail about the inheritance interface diagram.
   (b) What are the OGSA platform components? Write notes on each of them.

7 (a) Describe about the programming models available in GT3.
   (b) Mention some of the expression evaluators supported by GT3.

8   Describe the following services offered by GT3:
            (i) Data management
            (ii) Resource information provides service

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Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) List the advantages and disadvantages of distributed computing.
   (b) Give a note on distributed objects paradigms.

2 (a) List the user's expectations from parallel programming environments.
   (b) Discuss the following parallel programming models:
          (i) Message passing model
          (ii) Object and service oriented models

3 (a) Give the cluster architecture and describe the components of cluster.
   (b) List the grand challenging applications of clusters.

4 (a) What is a Grid? Discuss an example grid.
   (b) Describe the grid relationships with other technologies.

5 Discuss in detail about web service and grid service.

6 (a) What are the OGSA basic services? Explain each of them with necessary diagrams.
   (b) Mention the layers in the OGSA architectural organization.

7 (a) Explain the architecture of globus GT3 toolkit with a neat diagram.
   (b) "The GT3 software is providing OGSI functionalities based on web service and the java programming model." Explain.

8 Describe the following services offered by GT3:
          (i) Resource allocation
          (ii) Index services

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