12/5/240

M.E (Comp) Sem I CBS
Parallel Computing

QP Code : 14133

(3 Hours) **[Total Marks : 80**

Note: Question No 1 is compulsory. Attempt any three from remaining questions.

Que 1 a. What is Parallel Computing? Explain classification of Parallel Computers. 10

b. Explain various sources of overhead in Parallel Programs. 10

Que 2 a. Explain UMA and NUMA architecture. 10

b. Explain Cache coherency in multiprocessor systems. 10

Que 3 a. Explain design process of Parallel Algorithms. 10

b. Explain Task Mapping Techniques for load balancing in Parallel Algorithms. 10

Que 4 a. Explain Cannon's Algorithm for Matrix multiplication with 3x3 matrix example. 10

b.Explain Parallel Odd-Even Transposition algorithm with example. 10

Que 5 a. Discuss Shared Memory Programming. 10

b. Explain various Parallel Programming Models. 10

Que 6 Write short notes on any four 20

a. High Performance FORTRAN
b. Open MP
c. Multicore Systems
d. Binary Exchange Algorithm for FFT
e. Scope of Parallel Computing

BB-Con. 9130-16.

M.E. Comp. Sem I CBSGS ND&M 16-5-16

QP Code : 14136

(Time: 3 hours) (Marks: 80)

1. Question No 1 is compulsory.
2. Attempt any three out of the remaining five questions.

Q1. a) A Campus Network Design for a college. There are 100 users in the college, 30 users in the mainbuilding, 30 users in Building 1, and 40 users in Building 2. Every building has a lobby which is 200 Sq. Ft open space, where wireless access to the network is required. Only authorized personal should have access to the wireless network. The distance between building 1 and the main building is 300 m. The distance between building 2 and the main building is 90 m. The distance between building 1 and building 2 is 70m. A high speed cableinternet connection is available in the main building which needs tobe shared among the users. Define necessary equipment's and appropriate topology required for the campus network design along with the IP address schema, IP address management, secure wireless access, internet sharing, features and services should be worked out. **15**

b) What are the benefits of having hierarchy in addressing and routing models? **05**

Q2. a. What is a backbone network? Discuss the important factors while selecting a backbone network? **10**

b. Which networking equipment is usually found in the core of a campus network? List the different criteria for selecting the network media. Which media is the best choice in a campus network? **10**

Q3. a. Write a note on security services and authentication methods used in SNMP. **10**

b. What is remote monitoring? Explain the RMON MIB framework. **10**

Q4. a. What is the necessity of TMN. Discuss the functional model of TMN along with its applications and limitations. **10**

b. List and contrast the tools available to discover network components **10**

Q5. a. What are the features of SNMP version 2 which are different from version 1. Give the architecture of SNMP v 2. **10**

b. Discuss Information model of SNMP. What are managed objects? How are they defined? **10**

Q6. a. What is the relevance of queuing theory in network design? Explain M/M/1 queuing model. **10**

b. Write short notes on (any two) **10**

i) Network problems and Challenges faced by IT manager

ii) Main phases of network design PDIOO approach

iii) ASN.1 notation

Adv. Database Design

ME Comp
Sem-I
CBGS 18/5/16

QP Code : 14148

(3 HOURS) **[Total Marks: 80]**

N.B.: (1) Question no. 1 is compulsory.
(2) Attempt any three questions from remaining.
(3) Assume suitable data wherever necessary.

Q1. (a) What is KDD? Explain different steps in KDD. (05)

(b) Explain difference between OODBMS and ORDBMS. (05)

(c) Explain 3-tier Client-server architecture. (05)

(d) Explain OLAP operations in brief. (05)

Q2. (a) What is parallel database? Explain architecture of parallel database. (10)

(b) Explain different types of fragmentation in distributed database with example. (10)

Q3. (a) Design star and snowflake schema for railway reservation system. (10)

(b) What is the purpose of normalization in database systems? Describe normalization up to 3NF with example. (10)

Q4. (a) Explain two phase commit protocol in distributed database. (10)

(b) For the database of an insurance company,

(i) Customer= (Cust-ID, Cust-name, Cust-addr, Cust-age)
(ii) PolicyType = (Policy-ID, P-name, Premium-amt, Type, No.-of-Years)
(iii) Agent = (Agent-Id, Agent-name, Agent-zone)
(iv) Policy = (Cust-ID, Policy-ID, Agent-ID, Dependent-Name)

Draw an EER diagram. Map this EER to relational model. (10)

Q.5 (a) Describe ODL schema for employee database management system. (10)

(b) What is deadlock? Explain distributed deadlock handling. (10)

Q6. Write short notes on (any two) (20)

(i) Multimedia databases
(ii) Web databases
(iii) Database security
(iv) Data warehouse architecture
