

- N. B:** 1. Question 1 is compulsory.
2. Attempt any three out of remaining.
3. Assume suitable data if required.

Qu-1 Attempt any four questions

- a) Consider a suitable relation schema and perform nested query and query using group by clause. **5**
- b) Explain ECA Model. **5**
- c) What is view? Discuss the difference between a view and base relation. **5**
- d) Define a lock and describe the types of locks used in concurrency control. **5**
- e) List differentiation between OLTP and OLAP **5**
- Qu-2** a) What is SQLJ used for? Describe the two types of iterators available in SQLJ. **10**
- Qu-2** b) Differentiate between static and dynamic SQL? Which one is more efficient? **10**
- Qu-3** a) Describe ARIES recovery algorithm with example. **10**
- b) Explain Indexing Technique in the database. **10**
- Qu-4** a) Find the cost of data transfer over the network for following details. Employee table is at site 1 with 10,000 rows. Each row size is 100 bytes. Department table is at site 2 with 100 rows. Each row size is 35 bytes. Find optimum solution for data transfer if following query is executed from site 3.
Query: For each employee retrieve the emp_name and dept_name where employee works.
Size of result tuple is 40 bytes. **10**
- b) Explain different ways of concurrency control in DDBMS **10**
- Qu-5** Consider a data ware house for a hospital where there are three dimensions: **20**
1) Doctor 2) Patient and 3) Time
And two measures count and charge.
Using above example perform following
i) STAR schema
ii) Snowflake schema
iii) Rollup & Drilldown operations
iv) Pivot operation
v) Slice and Dice operations
- Qu-6** Explain the following concepts with the help of example.
- a) SQL Injection **5**
- b) Mandatory Access Control **5**
- c) Statistical Database **5**
- d) Timestamp Ordering Protocol **5**

Q. P. Code : 23701

(3 Hours)

[Total Marks : 80

- N.B.
1. Question No 1 is compulsory.
 2. Solve any **three** questions out of remaining five questions.
 3. Assume suitable data if necessary.
 4. Figures to right indicate marks.

Q. 1. Solve any **four** out of five. (20)

1. a. What are the design metrics of Embedded Systems?
b. Describe the instructions of 8051 , JNC and MUL with one example.
c. 8051 microcontroller with XTAL frequency = 11.0592 MHz. Find the TH value needed to have the following baud rates of 9600.
d. Describe the feature of ARM that makes it suitable for embedded system.
e. What is semaphore? Explain the use of semaphore with respect to embedded operating systems.

Q. 2. a) Discuss Smart Card Reader System in detail. (10)

b) Illustrate scheduling algorithms of tasks in real time systems (10)

Q. 3. a) Explain multiple register load and store instructions of ARM7 processor. (10)

b) Write assembly language program to generate a rectangular waveform of frequency 1KHz and 50% duty cycle at pin P1.7 using 8051. Assume 8051 operating frequency 12MHz. (10)

Q. 4. a) Write assembly language program for 8051 microcontroller to transfer message "ARM7" serially at baud rate of 2400 in mode 1. (10)

b) Explain with one example each, the addressing modes of 8051 microcontroller. (10)

Q. 5. a) Define and classify the embedded systems also list major application areas of embedded systems. (10)

b) Give details of Barrel Shifter of ARM7 processor and the various operations carried out by the same. (10)

Q. 6. a) List functions of Kernel. Also explain different types of kernel. (10)

b) Explain interrupt structure of 8051 microcontroller in detail. (10)

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
 2. Solve any 3 from remaining.
 3. Assume suitable data where ever necessary.

- Q.1** Attempt the following: **20**
- a. Compare open source softwares with closed source softwares.
 - b. How to secure servers with Iptables.
 - c. Explain backup related commands in Linux.
 - d. Describe role of Intent in Android Programming.
- Q.2**
- a) Explain various open source software licenses. **10**
 - b) Write note on sed. Show how can it be used in following cases **10**
 - i) As replacement for head command.
 - ii) As utility for deleting all occurrences of string “UNK” from input.
- Q.3**
- a) Explain commands for new user creation in Linux. **10**
 - b) Explain use of wget and curl commands to get website contents. **10**
- Q.4**
- a) Write a note on process management in Linux. Explain relevant commands. **10**
 - b) Explain grep, cut, tr, sort and uniq commands with two options and their example usage. **10**
- Q.5**
- a) Explain Apache web server configuration in Linux **10**
 - b) Explain Linux File system hierarchy. Explain role of any five directories. **10**
- Q.6** Write short notes on following (any four)
- a) Publishing the Android application **05**
 - b) Android Activity Life-Cycle **05**
 - c) Daemon process **05**
 - d) Role of init signal. **05**
 - e) Logical Volume Manager **05**
