

TE (Comp) Sem V (old) A DBMS N/13-2014

(OLD COURSE) Q.P. Code : 11982

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No.1 is **compulsory**.
(2) Attempt any four out of the remaining six questions.
(3) Assume suitable data wherever required.

1. (a) Explain in details working of hash join. 10
(b) Discuss the database design and implementation process with suitable diagram. 10

2. (a) Discuss the steps of mapping of EER schemes into relational model. 10
(b) Explain following join operation with example. 10
 - (i) Left outer joint
 - (ii) Right outer joint
 - (iii) Equi Join
 - (iv) Self join
 - (v) Inner join

3. (a) Consider following relations database to perform DDL operation on it. 10
STUDENT (Sid, Name, Address, DOB)
COURSE (Course-id, Name Dept)
 - (1) Create a student and course table.
 - (2) Insert 5 records in both tables.
 - (3) Delete all students record whose name are stating with 'k' letter.
 - (4) Modify course id.
 - (5) Drop both table
(b) Explain the concept of specialization and generalization with example. 10

4. (a) Explain in details goals and approaches of Query optimization. 10
(b) Discuss following technique of data partitioning. 10
 - (1) Round Robin partitioning
 - (2) Range partitioning.

5. (a) Consider the following relational database 10
Employee (Eid, name, dept, salary, DOJ).
 - (1) Arrange all records of database departmentwise.
 - (2) Display name of Employee who earn max salary in sales dept.
 - (3) Find out total salary paid to the employees.
 - (4) Display all employees list who have join before 07/12/2012.

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- (b) Explain query processing technique DBMS with suitable diagram. 10
6. (a) Explain in details various approaches of query evaluation. 10
(b) Explain following with example. 10
 (1) Structured data
 (2) Semi-structured data.
7. Write a short notes on :- 20
 (a) Exist and NOT EXIST
 (b) XML scheme features
 (c) Three-Tier Architecture
 (d) Two Phase Commit Protocol.
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QP Code : **12022**

(3 Hours)

[Total Marks : 100

N.B. (1) Question No .1 is **compulsory**.

(2) Solve any **four** of the remaining six questions.

1. (a) Explain the operation of IC 8254 as a square wave generator with the control word and timing diagram for count value of 4. 5
- (b) Explain following addressing modes of Intel 8086. Write an instruction for each mode. 5
 - (i) Direct addressing mode
 - (ii) Relative Base Indexed.
- (c) Explain the operation of IC 8259 with the block diagram. Explain all the signals in detail. 10
2. (a) What is segmented memory ? Enumerate the advantages of segmented memory with reference to the 8086 microprocessor. 10
- (b) Compare the 8085 and the 8086 microprocessor with respect to architecture, instruction set, speed etc. (At least 8 points) 10
3. (a) Explain the necessity of a Bus controller in the 8086 maximum mode system. Also explain the 8288 Bus controller in detail. 10
- (b) Show an interfacing diagram of the 8086 with the 8237 DMA controller. What are the advantages of direct memory access ? Enumerate with two practical examples. 10
4. (a) Explain the addressing modes of 8085 microprocessor. 10
- (b) What are the various modes of operation of 8255 PPI 10
5. Explain the need of Bus arbitration. What are the various Bus arbitration schemes in loosely coupled systems ? Draw a loosely coupled systems ? Draw a multiprocessor system of 2-8086 modules using the 8289 Bus arbitor. Explain the diagram. 20
6. (a) Design 8086 Based system with following specifications. 10
 - (i) Interface 32KB SRAM. Use IC 6264.
 - (ii) Interface 16KB ROM. Use 8 KB chips.
- (b) Write an assembly language program for Intel 8086 processor to perform the division of 2 digit BCD number which is in unpacked form. 5
- (c) Explain the fully nested mode of PIC 8259. 5
7. Write short note on (any **four**) : - 20
 - (a) IEEE - 488 GPIB standard.
 - (b) Comparison between SRAM & DRAM
 - (c) Serial communication using RS-232C
 - (d) Modes of operation of the 8253 PIT.
 - (e) Difference between memory mapped I/O & I/O mapped I/O.

(OLD COURSE)

QP Code :12064

(3 Hours)

[Total Marks : 100

1: Question No. 1 is compulsory.

2: Attempt any four out of the remaining six questions.

Q1(a) Explain the layers details of OSI and TCP/IP Models. (10)

(b) With a neat diagram compare the uses and functions of different hardware components/devices used in an inter network (10)

Q2(a) Explain FDMA, TDMA and CDMA (10)

(b) Derive the efficiency of pure Aloha protocol (10)

Q3 (a) What is the function of TCP protocol? Discuss its header format (10)

(b) Explain sliding window protocol using Go Back -N Techniques (10)

Q4 (a) What is IPV4 Protocol ? Explain the IPV4 Header format with diagram (10)

(b) What are transport service primitives? (10)

Q5 (a) Differentiate between the following :- (10)

- (i) Protocol and Interface
- (ii) Connectionless and connection oriented service.

(b) What are different types of routing ? Explain any one in detail. (10)

Q6 (a) Explain the different factors associated with quality of service in inter network. (10)

(b) What are transport service primitive . (10)

Q7 Write short notes on (any four):- (20)

- (a) Berkeley Sockets
- (b) SONET
- (c) Bluetooth
- (d) IEEE 802.11
- (e) CIDR

LM-Con.:8696-14.

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QP Code : 12100

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No. 1 is compulsory.
(2) Attempt any **four** questions out of the remaining **six** questions.
(3) **Figures** to the **right** indicate **full** marks.
(4) Make suitable assumptions if **necessary**.

1. (a) Define a Regular Expression with the help of an example. Briefly discuss the applications of Regular Expressions. 05
(b) Explain with an example the Chomsky Normal form. 05
(c) Compare and contrast DPDA and NDPDA 05
(d) Design a FSM that checks if a given decimal number is even. 05
2. (a) Design a Turing Machine to accept strings of type $0^n 1^n, n \geq 1$ 10
(b) Convert the following grammar to GNF 10
 $S \rightarrow XA/BB$
 $B \rightarrow b/SB$
 $X \rightarrow b$
 $A \rightarrow a$
3. (a) Using pumping lemma check if $a^n b^n$ is regular, where $n \geq 1$ 08
(b) Design a Turing Machine to find value of $\log_2 n$, where n is a unary number. 12
4. (a) Draw NFA with Σ moves that recognizes the RE $(a+b)^* ab$. Convert the above NFA to DFA 10
(b) Design a PDA that accepts all the strings containing equal number of a's and b's. 10
5. (a) What are the steps to convert a MOORE Machine to a Mealy Machine. Design a Moore Machine to convert each occurrence of 100 to 101. Convert it into an equivalent Mealy Machine using the above mentioned steps. 10
(b) Consider the following grammar. 10
 $S \rightarrow SAS$
 $S \rightarrow b$
 $A \rightarrow ba$
 $A \rightarrow b$
 For the string "bbabbbbab" derive
 (i) Left most derivation (ii) Right most derivation
 (iii) Parse Tree.
6. (a) Design a PDA to check for well-formed parentheses. 10
(b) Discuss different classes of Chomsky hierarchy in detail. 10
7. Write short notes on (any four) 20
(a) Kleen's Closure
(b) Post Correspondence Problem
(c) Myhill Nerode Theorem
(d) Halting Problem
(e) Arden's Theorem