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TE (COMP) VI (Re) 1815112
Adbms

20 : 1st half.12-SHILPA(b)

Con. 3755-12.

GN-6972

(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 any suitable data wherever **required**.

1. You need to design a database for an art gallery. The database schema must keep information about artists, their names, (which are unique), birth places, age and style of art and photograph. For each piece of artwork, the artist, the year it was made, its unique title, its type of art (e.g. painting, sculpture, photograph), and its price, along with picture (thumbnail) must be stored. The database also stores information about customers.
For each customer, database stores the person's unique name, address, and total amount of money spent in the gallery and the artist and type of art the customer tends to like (can be a text).
 - (a) Draw an EER dia for the system 6
 - (b) Map the EER to Relations 8
 - (c) Take two typical queries and write them in SQL. 6
2.
 - (a) Explain different architectures for parallel database. 10
 - (b) State comparison of RDBMS, OODBMS, ORDBMS. 10
3.
 - (a) Explain data fragmentation, replication and allocation technique for distributed database design. 10
 - (b) Give an overview of 3-Tier client server architecture. 10
4.
 - (a) What is SQL 3 ? Write in detail about features of SQL 3. 10
 - (b) What is well formed and valid XML document ? With example explain what is XML schema file ? 10
5.
 - (a) Explain in detail about heuristic approach to query optimization. 10
 - (b) Explain the method for implementing the SELECT operation. 10
6.
 - (a) Explain conceptual database design in database design and implementation process. 10
 - (b) Explain concurrency control in distributed database. 10
7. Write a short notes on (any two) :- 20
 - (a) Specialization and Generalization
 - (b) Joins in SQL
 - (c) Measures of query cost.

L TE | CMPN | V CREO 23/5/2012
microprocessor

ws May-2012 I

Con. 3925-12.

(3 Hours)

GN-6962

[Total Marks : 100

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

(2) Solve any **four** questions from remaining.

(3) **Figures** to the **right** indicate marks.

(4) Assume data if **necessary**.

1. (a) Explain addressing modes of 8085 microprocessor with example. 10
(b) What is segmented memory? State the advantages of it wrt 8086 microprocessor. 10
2. (a) What is meant by DMA? Show interfacing of 8237/57 with 8086 and explain. 10
(b) Explain following instructions with one example each (wrt 8086). 10
(i) SAL (ii) TEST (iii) STOS (iv) CMP (v) JC.
3. (a) Explain the operation of IC 8259 with block diagram. 10
(b) Write an assembly language program for 8086 to exchange the blocks of 1 kB located at 0100 H and 0200 H using string instructions. 10
4. (a) Explain Assembler directives of 8086. 10
(b) What are the various modes of operation of 8255 PPI? 10
5. (a) Explain the addressing modes of 8085 microprocessor. 10
(b) Draw the timing diagram and explain for : 10
(i) Memory read in minimum mode
(ii) Memory write in maximum mode.
6. (a) - Explain Interrupts of 8086 in detail. 10
(b) (i) Explain Generation of Address and data Bus. 5
(ii) Differentiate between memory mapped I/O and I/O mapped I/O. 5
7. Write short notes on any three :- 20
(a) RS 232 serial Interface Standard
(b) Memory Banking in 8086
(c) 8284 Clock Generator
(d) 8288 Bus Controller.

TE/Comp/II (REV) 28/5/2012
Computer Network.

Con. 4430-12.

GN-8240

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No. 1 is compulsory.
(2) Solve any four questions out of the remaining.
(3) Marks assigned to the sub-questions as indicated.

1. a) With a neat diagram compare the uses and functions of different hardware components/devices used in an internetwork. (10)
b) Compare virtual circuits and datagram subnets and show their diagrammatic representation during congestion control. (10)
2. a) What are the advantages of a variable length frame over fixed length frames. Explain the different framing methods. (10)
b) Explain FDMA, TDMA and CDMA (10)
3. a) Derive the efficiency of Pure Aloha protocol (10)
b) A receiver receives the code **11001100111**. When it applies the Hamming code algorithm the result is **0101**. Which bit has the error? What is the correct Hamming code? (10)
4. a) Describe the IPv4 header format in detail. (10)
b) Explain the three protocol scenarios for establishing a connection using a 3-way handshake in TCP (10)
5. a) Explain DVR routing algorithm and mention the drawbacks of the algorithm when put into practice (10)
b) Explain the working of Transactional TCP (10)
6. a) List the design features to be taken care of as congestion prevention policies in the different layers of network (10)
b) Draw the layered structures and compare the two network reference models – OSI and TCP/IP (10)
7. Write notes on: (any two) (20)
 - a) SONET
 - b) Ethernet frame formats
 - c) ADSL
 - d) Satellite Communication

TE (COMPNI V (OLD)
(OLD COURSE)

18/5/2012

GN-7868

PODC

(3 Hours)

Principles of [Digital Communication
Total Marks : 100

- N. B. :**
- (1) Question No. 1 is **compulsory**.
 - (2) Attempt in **all five** questions.
 - (3) **Figures** to the **right** indicate **full marks**.
 - (4) Draw neat **circuit** diagrams/blocks diagrams wherever **necessary**.

Q 1. Attempt any four ;

- a. Compare PCM and delta modulation
- b. Compare between antipodal and Orthogonal signal.
- c. Explain ergodic process.
- d. Explain Inter Symbol Interference
- e. What is the function of match filter in communication system

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Q.2. a) Explain Quadrature Amplitude shift keying (transmitter, Receiver) in detail 12

b) Explain Central Limit Theorem (CLT) 05

C) What is companding ? Explain laws of compression . 03

Q No.3. a) Define cumulative distribution function and probability distribution function. List their Properties. 10

b) The required power at the receiving antenna is 10^{-6} W. The gain of the transmitting and receiving antennas are 20 dB each. The frequency of the carrier is 5GHz and distance between two antennas is 10Km. Determine power to transmitted by transmitter 10

Q4 a) Generator polynomial for a (15,7) Cyclic code is $g(x) = 1 + X^4 + x^6 + x^7 + x^8$

i) Find the code vector (in systematic form) for message polynomial $D(x) = X^2 + X^3 + X^4$

ii) Assume that first & last bits of the code vector for $D(X) = x^2 + x^3 + x^4$ suffer from transmission errors. Find the error syndrome of received code vector. 10

b) What is matched filter? Derive the expression for minimum probability of error of the matched filter' 10

Q.No.5 a) What is Binary Symmetric channel (BSC)? Explain optimum receiver algorithm for binary symmetric channel. 10

b) A key is given by the sequence of K_1, K_2, \dots, K_{29} , where K_i is the shift number of i^{th} character. Its value lies in the range of 1 to 25. All the possible keys are equally likely. Calculate unicity distance if English language is used in encryption. 10

Q.No.6 a) A Delta modulation system is design to operate at 3 times the Nyquist rate for a Signal with 3 KHZ bandwidth. The quantizing step size to 250 mv .

i) Determine the miximum amplitude of 1KHZ input sinusoid for which delta modulator does not show slope overload .

ii) Determine the post filtered output SNR for the signal of part (i) 10

b) Explain viterbi algorithm. 10

Q.No.7 Write short Note (any four):

- a. Effect of noises on communication system.
- b. Signature authentication using public key crypto system.
- c. Image and data compression
- d. Modified Deobinary Encorder
- e. Equilizers.

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