MALLA REDDY UNIVERSITY

School of Engineering

Subject Name: Computer Networks

Subject Code:MR20-1CS0109

QUESTION BANK

UNIT-I- INTRODUCTION TO COMPUTER NETWORKS

1 What is a computer network? Explain LAN, MAN and WAN with examples?

2 a) What is Topology? Discuss about various network topologies with suitable diagram?

b) Explain the functions of various layers in ISO-OSI reference model

3 a) Explain about Protocol stack of TCP/IP with proper diagrams.

b) Discuss about similarities and difference between TCP/IP and OSI Reference Model?

4 Discuss about mechanism of following devices:

a) Hub b) Bridge c) Router d) Gateway e) Switch

5 Write a short notes on:

a)NIC Card and MAC address

b)Firewall and Proxies

UNIT-II- DATA LINK LAYER

6 a) Elaborate the design issues of data link layer.

b) What is the need for framing? What are the different framing techniques?

7 a) Explain in detail about the sliding window protocol using Selective Repeat ARQ.

b) Explain in detail about the sliding window protocol using Go-Back-N.

8 Explain the CRC error detection technique using generator polynomial X^4+X^2+1 & data 11100011.

9 a) What is the purpose of CSMA/CD explain with example.

b) Compare and contrast pure aloha and slotted aloha.

10 a) Describe the stop and wait protocol with neat sketch.

b) Explain flow control mechanism using Sliding window protocol.

UNIT-III- NETWORK LAYER

11 a) Compare Virtual-Circuit and Datagram networks.

b) Discuss about the concept of internetworking in detail.

12 a)Explain briefly about the shortest path routing algorithm

b)Discuss the following: i) Broadcast Routing ii) Multicast Routing

13 a) Explain about classes of IP addresses used in network layer

b) Explain Internet Protocol with the neat block diagram of IPv4 header format.

14 a) Explain leaky bucket and token bucket algorithm for traffic shaping.

b) Explain following Jitter Control with neat and clean diagram.

15 a)Explain Link State Routing with an example

b) Distance Vector Routing algorithm with suitable example.

UNIT-IV- TRANSPORT LAYER

16 Explain in details about transport services and elements of transport layer?

17 a) Illustrate the connection establishment and release in transport layer.

b) Explain the Closed Loop Congestion Control.

18 What are the general principles of congestion control? Explain

19 What is TCP? Discuss about TCP connection establishment and Connection release phases.

20 a) Discuss about the network performance issues.

b) Describe Datagram Format of UDP.

UNIT-V- APPLICATION LAYER

21 What is DNS? What are the services provided by DNS and explain how it works.

22 Write short notes on the following:

a. FTP b) BOOTP

23 What is electronic E-mail? Describe in brief about the two architectures of E-Mail.

24 Explain in detail about following

a) www b) Firewalls

25 Briefly discuss about the operational model of HTTP.

Explain about SNMP protocol with example.

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SCHOOL OF ENGINEERING
Subject Name: Data Base Management System (AIML/CSE/DS/CS)
Subject Code: MR20-1CS0101

Question Bank

UNIT–I: Introduction to DBMS& Data Models

1. Describe the Structure of Database Management system with a neat diagram (S) 10M
2. a) What is meant by Data Abstraction? Describe various levels of Data Abstraction (S) 5M
   b) Define Data Independence. Describe Physical Data Independence and Logical Data (S) 5M
3. What is Data Model? List out various Data Model and explain with suitable example (S) 10M
4. a) Describe the Structure of Database Management system with a neat diagram. (S) 7M
   b) List out various applications of Database Management Systems. (S) 3M
5. Explain the differences between files system data management and database systems. (S) 10M

UNIT–II: ER-Model & Relational Model

1. Describe the components of entity-relationship diagram with suitable examples. (S) 10M
2. Explain the following in ER-Model:
   a. Aggregation (M) 5M
   b. Class Hierarchies (M) 5M
3. Explain the process of converting ER Diagram into a Table, explain with example. (C)
4. Explain the different integrity constraints used in Relational Model. (M) 10M
5. a. Explain in detail about Basic Operations of Relation Algebra with Examples(M) 5M
   b. Define a view, how a view is created from single table and multiple tables? (M) 5M

UNIT–III: Structured Query Language (SQL)

1. Explain various Data Definition Commands (DDL) in detail with its syntax. (S) 10M
2. Explain Data Manipulation Commands (DML) with syntax and examples. (S) 10M
3. a) Explain how Order By , Group By , Having Clauses used in SQL (M) 6 M
   b) Briefly explain about TCL and DCL Commands in SQL. (S) 4 M
4. How would you use the operators IN, EXISTS, UNIQUE, ANY and ALL in Writing nested queries? Why are they useful? Explain with an example. (C) 10M
5. a) Explain various types of Joins available in SQL with examples. (M) 5M
   b) Consider following relations and write SQL queries for given statements. (M) 5M

   Assume suitable constrains:

   Instructor (ID, Name, Dept_name , Salary)

   Teaches (ID, Course_id, Sec_id, Semester (even/odd),Year)

i) Find the average salary of the instructors in computer department.

ii) Find the number of instructors in each department who teach a course in even semester of 2016.

iii) Find the names of instructor with salary amounts between 30000 and 50000.

iv) Find the minimum and maximum Salary in each department.

v) Find the Instructor names that start with letter “A”

UNIT–IV: Schema Refinement &Normalization

1. What are the problems caused by Redundancy? Explain about Normalization and need fornormalization. (M) 10M
2. Define Axioms of Functional Dependencies. (S) 4M
   Consider a relation R (A, B, C, D, E, F, G) with the functional dependencies-
   $A \rightarrow BC$
   $BC \rightarrow DE$
   $D \rightarrow F$
   $CF \rightarrow G$
   Find all candidate keys in relation R. (M) 6M
3. Explain about Third NF and BCNF with relevant table structure. (M) 10M
4. Explain the following: Multi-valued dependencies and fourth normal forms. 10M
5. a. Write a short notes Decomposition and its types. (M) 5M
   b. Given a relation R(P, Q, R, S, T, U, V, W, X) and Functional Dependency set FD = {$PQ \rightarrow R$, $QS \rightarrow TU$, $PS \rightarrow VW$, and $P \rightarrow X$}, determine the given R is in which normal form? (C) 5M

UNIT–V: Transaction Management and Concurrency Control

1. What is transaction? Explain the ACID Properties. (M) 10M
2. Define Concurrency control. Explain different concurrency control. (C) 10M
3. a. What are the different types locking? (C) 5M
   b. Explain Lock-based Concurrency control with diagram. (C) 5M
4. Explain about concurrency control based on time-stamp ordering. (C) 10M
5. What is Serializability? Explain different types of Serializability with examples.(C) 10M

* (S) – Simple
* (M) - Medium
* (C) - Complex

MALLA REDDY UNIVERSITY
School of Engineering
Question Bank
Department of AIML

Subject: Data Structures Using Python **Subject Code: MR20-1CS0102**

UNIT-1

1) What is OOPS? Explain the OOPs concepts with examples?
2) What is inheritance? Explain various types of inheritance with examples?
3) What is data structure? Explain the classification of data structures?
4) Explain comprehensions and its types with examples?
5) Define array and list? Differentiate between array and list?
6) What is Constructor? Explain with example?

UNIT-2

1) Explain single linked list and its operations with examples and Program?
2) Explain double linked list and its operations with Examples and Program?
3) Define stack and explain its operations with examples and Program?
4) What is a Queue explain various types of operations on queue with examples and Program?
5) Write a short note on i) Circular linked list ii) Dequeue

UNIT-3

1) Explain linear search technique with program and example?
2) Explain Binary search technique with program and example?
3) Explain Bubble sort implementation with example and program?
4) Explain Selection sort implementation with example and program?
5) Explain Insertion sort implementation with example and program?
6) Explain Quick sort implementation with example and program?
7) Explain Merge sort implementation with example and program?

UNIT-4

1) Define tree? Discuss about representation of a Binary Tree?
2) Discuss binary tree traversal techniques with example and program?
3) Construct the binary search tree for the following numbers?
   50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24
4) What is height balanced tree Construct a Height Balanced Tree (AVL tree) for the following elements. 51, 26, 11, 6, 8, 4, 31, 21, 9, 16
5) Explain binary search tree and its operations with example and program?
6) Discuss concept of AVL Tree and its rotations with an example

UNIT-5

1) Define graph? Discuss representation of graph with examples.
2) Explain about Breadth First Search Technique with an Example and program?
3) Explain about Depth First Search Technique with an Example and program?
4) Explain about Directed Acyclic graph with example?
5) Explain the steps for shortest path in Directed Acyclic graph?

MALLA REDDY UNIVERSITY

School of Engineering

Financial Accounting and Management (AIML/DS/CS)

Subject Code: MR20-1BM0162

UNIT-I

1. What do you mean by Financial Accounting? Explain its Functions, Objectives, Scope, Nature and Applications.**(S)**
2. Discuss About the Accounting Principles **(S)**

   A) Accounting Concepts B) Accounting Conventions
3. What are the various steps of Accounting Cycle? Explain **(M)**
4. Write a short note on A) GAAP B) IASB C) IFRS **(M)**
5. Explain Branches of Accounting and Accounting Equation**. (D)**

UNIT-II

6. Journalize the following transactions of Gautam & Co, post the same in relevant ledger account. **(S)**

June 1	Karthik commenced business with Rs.20,000.
June 2	Paid into bank Rs.5,000.
June 3	Purchased Plant worth Rs.10,000 from Modi & Co.
June 6	Goods worth Rs.4,000 sold to Anbu
June 8	Sold goods worth Rs.2,000 for cash.
June 10	Goods returned by Anbu Rs.50.
June 15	Paid rent Rs.250.
June 18	Withdrawn from bank for office use Rs. 2,500.
June 20	Paid Salaries Rs.1,800.
June 25	Withdrawn for personal use Rs.250.
June 26	Goods returned to Anwar Rs.100.
June 27	Paid for office furniture Rs.1,500 by cheque.
June 28	Received Rs.3,900 cash from Anbu and discount allowed Rs.50.
June 29	Paid Anwar on account Rs.4,800 and discount allowed by him Rs.100.

7. Journalize the following transactions of Sunanda & Co. **(M)**

2019		**Rs.**
June 1	Started business with a capital of	60,000
June 2	Paid into bank	30,000
June 4	Purchased goods from Kamal on credit	10,000
June 6	Paid to Shiram	4,920
June 6	Discount allowed by him	80
June 8	Cash Sales	20,000
June 12	**Sold to Hameed**	**5,000**
June 15	**Purchased goods from Bharat on credit**	**7,500**
June 18	**Paid Salaries**	**4,000**
June 20	**Received from Prem**	**2,480**
June 20	**Allowed him discount**	**20**
June 25	**Withdrew from bank for office use**	**5,000**
June 28	**Withdraw for personal use**	**1,000**
June 31	**Paid Hira by cheque**	**3,000**

8. Deri is a sole trader dealing in automobiles. From the following transactions, pass journal entries and Prepare Corresponding ledgers for the month of January, 2018.**(D)**

Jan. Rs.

1 Commenced business with cash 1,00,000

with goods 2,00,000

with buildings 5,00,000

2 Purchased goods from A and Co. on credit 3,00,000

3 Cash deposited into bank 80,000

4 Purchased goods from B and Co. and payment made through credit card 5,000

5 Paid A and Co. through RTGS

6 Sold goods to C and Co. and cheque received 50,000

7 Deposited the cheque received from C and Co. with the bank

8 Purchased goods from Z & Co. and paid through debit card 12,000

9 Stationery purchased for and paid through net banking 6,000

10 Income tax of Deri is paid by cheque 10,000

9. What is Double Entry System? Explain its Golden Rules of Accounts, Advantages of double entry system. **(S)**

10. Discuss about the Revenue and Capital items . **(M)**

UNIT-III

11. From the following Trial Balance prepare the **Final accounts** of Mrs. Garima as on 31-3-2018. **(S)**

Particular	Dr	Cr	Particular	Dr	Cr
Capital		100,000	Transportation out	7,000	
Furniture	20,000		Creditors		120,000
Purchases	150,000		Provision for bad debts		6,000
Debtors	200,000		Printing and stationery	8,000	
Interest earned		4,000	Insurance expense	12,000	
Salaries	30,000		Opening stock	50,000	
Sales		321,000	Office expenses	12,000	
Purchases returns		5,000	Bank overdraft		2,000
Wages	20,000		Drawing	24,000	
Rent	15,000				
Sales return	10,000		**Total**	**Rs. 558,000**	**Rs. 558,000**

Additional Information

1. Depreciation furniture by 10% by written down method (WDM).
2. A provision for doubtful debts is to be created to the extent of 5% on sundry debtors.
3. Salaries for the month of June, 2019 amounting to Rs. 3,000 were unpaid which must be provided for. However, salaries included Rs. 2,000 paid in advance. Office expenses outstanding Rs. 8,000.
4. Insurance amounting to Rs. 2,000 is prepaid.
5. Stock use for private purpose Rs. 6,000 and closing stock Rs. 60,000.

12. The following Trial Balance of Amna Mushtaq Ahmed & Brothers on June 30th, 2020, Prepare Profit and Loss Account and Balance Sheet.

Particular	Dr	Cr	Particular	Dr	Cr
Owner's Equity		4,000	Note Payable		560
Account Payable		5,200	Note Receivable	720	
Plant and Machinery	5,000		Return Inward	930	
Office Furniture & Fittings	260		Provision for Bad Debts		250
Opening Inventory	4,800		Drawing	700	
Motor Van	1,200		Return Outward		550
Account Receivables	4,570		Rent	600	
Cash in Hand	40		Excise duties	80	
Cash at Bank	650		Insurance	630	
Wages	15,000		General Expenses	100	
Salaries	1,400		Bad Debts	250	
Purchases	21,350		Discount	650	370
Sales		48,000	**Total**	**Rs. 58,930**	**Rs. 58,930**

Adjustments:

- Stock at the end of year Rs. 5,200 and Three months Excise duties is due, but not paid Rs. 30.
- 5 percent depreciation to be written-off on furniture and write-off further bad debts Rs. 70.
- The provision for bad debts to be Rs. 300 and provision for discount on debtor @ 2 % to be made.
- During the year machinery was purchased for Rs. 2,000, but was debited to Purchase account.

13. What is Computerized Accounting System? Explain its Applications, Types, Importance, Advantages and Disadvantages. **(S)**

14. Write the preform of Final Account (Trading, Profit &Loss and balance sheet). **(S)**

15. Write a short notes on Trading, Profit &Loss and Balance sheet. **(M)**

UNIT-IV

16. What do you mean by Management? Explain the Concept, Nature, Process and Functions of Management **(S)**

17. What do you understand by School of Management Thought? Discuss about the Taylor's Scientific **(M)**

18. Explain the 14 principles of Management by Henry Fayol**(S)**

19. What is Leadership? Explain its Concept, Characteristics and leader ship styles **(M)**

20. Explain the Elton Mayo's Human Relations Theory (Heathrow Experiment) **(D)**

UNIT-V

21. What is Organization structure? Explain Features and Principles Organization Structure.**(S)**

22. Discuss about the different types of Departmentations **(S)**

23. Write a short note on bellow organizational structures **(M)**

Line Organization Structure (b) Line & Staff (c) Project

24. What are Functional Organization and Matrix Structure? Explain its merits and Demerits **(D)**

25. Explain the Group Dynamics Concepts with advantages and Disadvantages **(M)**

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Probability and Statistics (MR20–1BS0103)

Question Bank

Unit-1

1. (a) From the pack of 52 cards two cards are drawn at random then find the probability that one card is of diamond and the other is of the spade.

   (b) If 5 of a company's 12 delivery trucks do not meet emission standard and 4 of the 12 trucks are randomly picked for inspection. Obtain the probability that none of them meets emission standards?

2. From past experience, a stockbroker believes that under present economic conditions a customer will invest in tax-free bonds with a probability of 0.6, will invest in mutual funds with a probability of 0.3, and will invest in both tax-free bonds and mutual funds with a probability of 0.15. At this time, find the probability that a customer will invest

   (a) in either tax-free bonds or mutual funds; (b) in neither tax-free bonds nor mutual funds.

3. In a certain assembly plant, three machines, B1, B2, and B3, make 30%, 45%, and 25%, respectively, of the products. It is known from past experience that 2%, 3%, and 2% of the products made by each machine, respectively, are defective. Now, suppose that a finished product is randomly selected. What is the probability that it is defective? if a product was chosen randomly and found to be defective, what is the probability that it was made (a) by machine B3? (b) by machine B3? (c) by machine B3?

4. For the discrete probability distribution.

X	0	1	2	3	4	5	6	7
F	0	k	2k	2k	3k	k2	2k2	7k2+k

   Find a) k b) Mean c) Variance

5. Consider the density function $f(x) = \begin{cases} k(1-x^2), & 0 < x < 1 \\ 0, & elsewhere \end{cases}$

   a) Evaluate k. b) Find the mean and variance of x. c) Obtain the $P(0.3 < X < 0.6)$.

Unit-2

1. (a) Out of 800 families with 5 children each, how many would you expect to have (a) 3 boys (b) 5 girls (c) either 2 or 3 boys (d) at least one boy? Assume equal probabilities for boys and girls.

   (b) If a bank received on the average 6 bad checks per day, what are the probabilities that it will receive (a) 4 bad checks on any given day? (b) 10 bad checks over any 2 consecutive days (c) No bad check on any given day

2. Fit a Binomial distribution for the following data and calculate the expected frequencies.

x	0	1	2	3	4	5	6
f(x)	13	25	52	58	32	16	4

3. Fit a Poisson distribution for the following data and calculate the expected frequencies.

x	0	1	2	3	4	5
f(x)	142	156	69	27	5	1

4. Given a standard normal distribution, find the value of k such that
   (a) $P(Z > k) = 0.2946$;
   (b) $P(Z < k) = 0.0427$;
   (c) $P(k < Z < -0.18) = 0.4197$.
   (d) $P(-0.93 < Z < k) = 0.7235$.

5. A research scientist reports that mice will live an average of 40 months when their diets are sharply restricted and then enriched with vitamins and proteins. Assuming that the lifetimes of such mice are normally distributed with a standard deviation of 6.3 months, find the probability that a given mouse will live
   (a) more than 32 months;
   (b) less than 28 months;
   (c) between 37 and 49 months.

Unit-3

1. samples of size 2 are taken from the population 1,2,3,4,5,6 (i) with replacement and (ii) without replacement. Find a) the mean of the population, b) standard deviation of the population, c) the mean of the sampling distribution of means, d) the standard deviation of the sampling distribution of means.

2. (a) The mean height of students in a college is 155 cms and standard deviation is 15 cms. What is the probability that the mean height of 36 students is less than 157

cms?

(b) What is the size of the smallest sample required to estimates an unknown proportion with in a maximum error of 0.06 with at least 95% confidence?

3. An electrical firm manufactures light bulbs that have a lifetime that is approximately normally distributed with a mean of 800 hours and a standard deviation of 40 hours. Test the hypothesis that $\mu = 800$ hours against the alternative $\mu \neq 800$ hours, if a random sample of 30 bulbs has an average life of 788 hours. Use a 0.05 level of significance. Also find the 95% confidence limits for the mean lifetime of all the electric bulbs.
4. An investigation of two kinds of photocopying equipment showed that 71 failures of the first kind of equipment took on the average 83.2 minutes to repair with a standard deviation of 19.3 minutes, while 75 failures of second kind of equipment took on the average of 90.8 minutes with a standard deviation of 21.4 minutes. Test the hypothesis that on the average it takes an equal amount of time to repair either kind of equipment at the 0.05 level of significance.
5. (a) In a sample of 1000 people in Maharashtra, 540 are rice eaters and the rest are wheat eaters. Can we assume that both rice and wheat eaters are equally popular in this State at 1% level of significance?

   (b) In a study to estimate the proportion of residents in a certain city and its suburbs who favor the construction of a nuclear power plant, it is found that 63 of 100 urban residents favor the construction while only 59 of 125 suburban residents are in favor. Is there a significant difference between the proportions of urban and suburban residents who favor construction of the nuclear plant?

Unit-4

1. Ten individuals are chosen at random from a normal population and their heights are found to be: 63, 63, 66, 67, 68, 69, 70, 70, 71, 71 in inches. Test if the sample belongs to the population whose mean height is 66 inches?

2. Two independent samples of sizes 8 and 7 items respectively had the following values:

Sample – I	9	11	13	11	15	9	12	14
Sample – II	10	12	10	14	9	8	10	--

Is the difference between the means of samples significant?

3. Five measurements of the output of two units have given the following results (in kilograms of material per one hour of operation)

Unit – A	14.1	10.1	14.7	13.7	14.0
Unit – B	14.0	14.5	13.7	12.7	14.1

Assuming that both samples have been obtained from normal populations, test at 0.01 level of significance if two populations have the same variance?

4. 200 digits were chosen at random from a set of tables. The frequency of the digits were:

Digits	0	1	2	3	4	5	6	7	8	9
Frequency	18	19	23	21	16	25	22	20	21	15

Use Chi Square test, to assess the correctness of hypothesis that the digits were distributed in equal number in the table at the level of significance0.05.

5. In an investigation on the machine performance the following results are obtained:

	No. of Units inspected	No. of defectives
Machine 1	375	17
Machine 2	450	22

Test whether there is any significant performance of two machine at 5% level of significance.

Unit-5

1. Calculate the Karl Pearson's coefficient of correlation between x and y for the following:

X	1	3	4	5	7	8	10
y	2	6	8	10	14	16	20

2. The marks obtained by 10 students in Mathematics (x) and Statistics (y) are given below. Find the rank correlation coefficient.

X	75	30	60	80	53	35	15	40	38	48
y	85	45	54	91	58	63	35	43	45	44

3. Calculate the regression coefficient of y on x and x on y and find the two-line regressions for the following data:

X	10	12	18	24	23	27
y	13	18	12	25	30	10

4. Determine the equation of a straight line which fits the data by least square method

X	10	12	13	12	16	15
y	40	38	43	45	37	43

5. Determine the equation of a second-degree polynomial which fits the data by least square method

X	10	12	13	16	17	20	25
y	10	22	24	27	29	33	37

MALLA REDDY UNIVERSITY
School of Engineering
Question Bank

Subject Code: **MR20-1CS0105** Subject Name **: Web Design and Development**

Unit - I

1. Write any five differences between static and dynamic websites?
2. What are the advantages of using HTML5?
3. Define web hosting and its types.
4. Write a HTML program to create a time table?
5. Explain some of the common lists to design a web page.
6. How do you validate a form in HTML with suitable example program?

Unit – II

1. Explain the different types of selectors in CSS with suitable example.
2. How to add CSS in HTML pages to format the document according to information in the style sheet with types?
3. To discuss the CSS background property is used to define the background effects on element and there are 5 CSS background properties that affect the HTML elements
4. What is the color property in CSS is used to set the color of HTML elements
5. Write short notes on CSS three types of gradients?

Unit – III

1. What is the difference between JavaScript and Java?
2. What is JavaScript? List some features of JavaScript.
3. What are the different data types present in JavaScript?
4. Write short notes on :
    a. Type Conversion
    b. Operators
5. What are the pop-up boxes available in JavaScript?

Unit – IV

1. Briefly explain the Conditional statements are in JavaScript.
2. What are the different types of looping statements available in JavaScript?
3. Define a named function in JavaScript and explain the functions parameters?
4. Write short notes on :

a. Call()
b. Apply()
c. Array

5. Briefly explain about arrays in JavaScript.

Unit – V

1. What is Bootstrap? Explain the Responsive Web Design.
2. Define Bootstrap grid and explain the types of bootstrap grid classes.
3. What is the difference between Bootstrap 3 and Bootstrap 4?
4. How would you implement a carousel in bootstrap?
5. What is bootstrap pagination and how are they classified?