# MALLA REDDY UNIVERSITY

Telangana State Private Universities (Establishment and Regulations) (Amendment) Act No.13 of 2020
G.O.No.Ms.14, Higher Education (UE) Department, Telangana State
Maisammaguda, Kompally, Hyderabad – 500 100

# SCHOOL OF ENGINEERING

## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

## II Year–II Semester

# QUESTION BANK

MALLA REDDY UNIVERSITY

# SCHOOL OF ENGINEERING

## DEPARTMENT OF CSE

### R20 Regulations

### II Year – II Semester Subjects

| S No | Subject Code | Subject | Credits | Max. Marks | |
|---|---|---|---|---|---|
| | | | | INT | EXT |
| 1 | MR20-1BS0103 | Probability & Statistics | 3 | 40 | 60 |
| 2 | MR20-1CS0106 | Java Programming | 3 | 40 | 60 |
| 3 | MR20-1CS0107 | Design and Analysis of Algorithms | 3 | 40 | 60 |
| 4 | MR20-1CS0108 | MEAN Stack Web Development | 3 | 40 | 60 |
| 5 | MR20-1BS0162 | Financial Accounting & Management | 3 | 40 | 60 |
| 6 | MR20-1CS0141 | Embedded Systems | 3 | 40 | 60 |

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# SCHOOL OF ENGINEERING

## DEPARTMENT OF CSE

### QUESTION BANK

## PROBABILITY AND STATISTISCS - MR20-1BS0103

# MALLA REDDY UNIVERSITY

## QUESTION BANK

**SUB NAME: Probability and Statistics** **SUB CODE: MR20-1CS0103**

### UNIT-I: Probability and Random Variables

1. a) If a pair of dice is thrown, find the probability that the sum of the digits on them is 11
   b) If the probabilities that an hardware engineer will service 3,4,5,6,7 and 8 or more systems on any given working day are respectively: 0.12, 0.19, 0.28, 0.24, 0.10 and 0.07. What is the probability that he will service (i) at least 5 (ii) no more than 4 (iii) fewer than 8 (iv) either 3 or 4 systems on his next day at work?

2. A bag contains 10 gold and 8 silver coins. Two successive drawings of 3 coins are made such: (i) coins are replaced before the second trail (ii) coins are not replaced before the second trail. In each case find the probability that the first draw will give 3 gold coins and the second draw will give 3 silver coins.

3. A Manufacturing firm employs three analytical plans for the design and development of a particular product. For cost reason, all the three are used at varying times. In fact, Plans: 1, 2 and 3 are used for 30% , 20% and 50% of the products respectively. The defect rate is different for the three procedures and is: 0.01, 0.03 and 0.02 respectively. If a random product was observed and found to be defective, which plan was most likely used and thus responsible?

4. The following table gives the probabilities that a certain computer will malfunction 0, 1, 2, 3, 4, 5, or 6 times on any day:

| Number of malfunctions (X) | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| P(X=x) | 0.17 | 0.29 | 0.27 | 0.16 | 0.07 | 0.03 | 0.01 |

   a) Verify whether it can be considered as probability distribution or not
   b) Compute the mean, variance and standard deviation of number of malfunctions on any given day
   c) Construct the cumulative distribution function of the number of malfunctions

5. Measurement of scientific systems are always subject to variation, some more than others. There are many structures for measurement error, and statisticians spend a great deal of time modeling these errors. The measurement error X of a certain physical quantity is decided by the density function:

$$f(x)=\begin{cases} k\left(3-x^2\right), & -1\le x\le 1 \\ 0, \textit{ else where} \end{cases},$$

   a) Determine k that renders f(x) a valid density function
   b) Find the probability that a random error in measurement is less than 0.5
   c) For this particular measurement, it is undesirable if the magnitude of the error (i.e., $|x|$) exceeds 0.8. What is the probability that this occurs?

## UNIT-II: Probability Distributions

1. a) With usual notations find the parameter p for a binomial distribution if n=6 and 9*P(X=4) = P(X=2). Find also the mean and standard deviation of the distribution.

   b) Assuming that half of the population is vegetarian so that the chance of an individual being a vegetarian is 0.5 and assuming that 100 investigators can take a sample of 10 individuals to see whether they are vegetarians, how many investigators would you expect to report that three people or less were vegetarians?

2. a) The number of arrivals at a Regional Computer Center at express service counter between 12:00 Noon and 03:00PM has a Poisson distribution with a mean of 1.2 per minute. Determine the probability that (i) No arrivals (ii) At least 2 arrivals (iii) Not more than 3 arrivals, on any given minute of time.

   b) The number of breakdowns of a computer is a random variable having Poisson distribution with a mean of 1.8 per month. Determine the probability that the computer will function for a month (i) without any breakdowns (ii) with only one breakdown (iii) with at least 2 break downs.

3. a) A manufacturer of cotter pins knows that 2% of his product is defective. If he sells cotter pins in boxes of 200 and guarantees that not more than 5 pins will be defective. What is the probability that a box will fail to meet the guaranteed quality by using (i) formula for binomial distribution and (ii) Poisson approximation to the binomial distribution?

   b) If a random variable has the standard normal distribution, find the probability that it will take on a value: (i) less than 1.65; (ii) greater than -1.95 (iii) lies in between 1.5 and 2.5; (iv) lies in between -1.25 and 1.25 (v) lies in between -1.75 and -1.04

4. In a photographic process, the time to process 8 x 10 prints from a memory card may be looked upon as a random variable having the normal distribution with mean $(\mu)$ of 10.28 seconds and standard deviation $(\sigma)$ of 0.12 seconds. Find the probability that it will take: (i) anywhere from 10.00 to 10.50 seconds to process one of the prints; (ii) at least 10.20 seconds to process one of the prints; (iii) at most 10.35 seconds to process one of the prints?

5. In a distribution exactly normal, 10.03% of the items are under 25 kilogram weight and 89.97% of the items are under 70 kilogram weight. What are the mean and standard deviation of the distribution?

## UNIT-III: Sampling Theory and Testing of Hypothesis - I

1. A manufacturer claimed that at least 98 of the steel pipes which he supplied to a factory conformed to specifications. An examination of a sample of 500 pieces of pipes revealed that 30 were defective. Test this claim at a significance level of 0.05. Determine 95% confidence limits of the percentage of defective items in the shipment.

2. A Company is considering two different television advertisements for promotion of a new product. Management believed that the advertisement-A is more effective than advertisement B. Two test market areas with virtually identical consumer characteristics are selected; A is used in one area and B in other area. In a random sample of 60 customers who saw A, 18 tried the product. In another random sample of 100 customers who saw B, 22 tried the product. Does this indicate that advertisement A is more effective than advertisement B, if 5% level of significance is used?

3. An ambulance service claims that it takes on the average 8.9 minutes to reach its destination in emergency calls. To check this claim, the agency which licenses ambulance services has them time on 50 emergency calls, getting a mean of 9.3 minutes with a standard deviation of 1.6 minutes. What can they conclude at the level of significance of 0.05? Also determine the 99% confidence limits for the mean time to reach the destination on an emergency call.

4. The average hourly wage of a sample of 150 workers in a plant A was Rs.2.56 with a standard deviation of Rs.1.08. The average hourly wage of a sample of 200 workers in plant B was Rs.2.87 with a standard deviation of Rs.1.28. Can an applicant safely assume that the hourly wages paid by the plant B are higher than those paid by plant A?

5. A commonly prescribed drug for relieving nervous tension is believed to be only 60% effective. Experimental results with a new drug administered to a random sample of 100 adults who were suffering from nervous tension show that 70 received relief. Is this sufficient evidence to conclude that the new drug is superior to the one commonly prescribed? Use a 0.05 level of significance.

## UNIT- IV: Testing Hypothesis – II

1. A die is thrown 60times with the following results.

| Face | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Frequency | 8 | 7 | 12 | 8 | 14 | 11 |

Test at 5% level of significance if the die is unbiased, at 0.05 level of significance.

2. The following table gives the classification of 1072 college students according to their intelligence and economic conditions. Test at 0.05 level of significance, whether there is any association between intelligence and economic conditions.

| | | Intelligence | | | |
|---|---|---|---|---|---|
| | | Excellent | Good | Mediocre | Dull |
| Economic Condition | Good | 48 | 199 | 181 | 82 |
| | Not Good | 81 | 185 | 190 | 106 |

3. Ten specimens of copper wires drawn from a large lot have the following breaking strength (in kg weight):

578, 572, 570, 568, 572, 571, 570, 572, 596, and 548.

Test whether the mean breaking strength of the lot may be taken to be 578kg. weight?

4. The measurements of fat content of two kinds of ice-cream, Brand A and Brand B, yielded the following sample data:

| | | | | | |
|---|---|---|---|---|---|
| Brand A | 13.5 | 14.0 | 13.6 | 12.9 | 13.0 |
| Brand B | 12.9 | 13.0 | 12.4 | 13.5 | 12.7 |

Test the null hypothesis $\mu_1 = \mu_2$ (where $\mu_1$ and $\mu_2$ are the respective true average fat contents of the two brands of ice-creams) against the alternative hypothesis $\mu_1 \neq \mu_2$ at the level of significance of 0.05.

5. The following are the values in thousands of an inch obtained by two engineers in 10 successive measurements with the same micrometer. Is the one engineer significantly more consistent than the other?

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Engineer A | 503 | 505 | 497 | 505 | 495 | 502 | 499 | 493 | 510 | 501 |
| Engineer B | 502 | 497 | 492 | 498 | 499 | 495 | 497 | 496 | 498 | |

## UNIT- V: Correlation, Regression and Curve Fitting

1. The following data pertain to the resistance (X) in ohms and Failure times (Y) in minutes of a certain overloaded resistors. Compute the correlation coefficient between X and Y. State your conclusions.

| X | 43 | 29 | 44 | 33 | 33 | 47 | 34 | 31 | 48 | 34 |
|---|---|---|---|---|---|---|---|---|---|---|
| Y | 32 | 20 | 45 | 35 | 22 | 46 | 28 | 26 | 37 | 33 |

2. A sample of 12 students scores in Psychological test (X) and Arithmetical ability (Y) are given below. Compute the rank correlation coefficient between X and Y. State your conclusions.

| X | 65 | 63 | 67 | 64 | 68 | 62 | 70 | 66 | 68 | 67 | 69 | 71 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Y | 68 | 66 | 68 | 65 | 69 | 66 | 68 | 65 | 71 | 67 | 68 | 70 |

3. The following data gives the experience of the machine operators and their performance ratings as given by the number of good parts turned out per 100 pieces.

| Experience(X) | 16 | 12 | 18 | 4 | 3 | 10 | 5 | 12 |
|---|---|---|---|---|---|---|---|---|
| Performance Ratings (Y) | 88 | 87 | 89 | 68 | 78 | 80 | 75 | 83 |

Obtain the regression line of performance ratings on experience and estimate the probable performance if the operator has 7 years of experience.

4. In a partially destroyed laboratory record of an analysis of correlation data, the following results are only legible:

Variance of X=9. Regression equations are: 8X-10Y+66=0, 40X-18Y-214=0.

What are:

a) The mean values of X and Y
b) Correlation coefficient between X and Y
c) Standard deviation of Y

5. For 10 randomly selected observations, the following data were recorded:

| Over time (X) | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|
| Additional Units (Y) | 2 | 7 | 7 | 10 | 8 | 12 | 10 | 14 | 11 | 14 |

Fit a second degree parabola of the form: $Y = a + bX + cX^2$ by using principle of least squares.

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## DEPARTMENT OF CSE

## QUESTION BANK

## JAVA PROGRAMMING –

## MR20-1CS0106

**SUB NAME:** Java Programming **SUB CODE:** MR20-1CS0106

## UNIT-I: Introduction to JAVA

1. List and explain the features of object oriented programming.
2. a. What is Type Casting? List and explain types of type casting methods with suitable example.
   b. List the primitive data types available in Java and explain
3. Define Constructor. Illustrate various types of Constructors.
4. Explain about control statements in java with example.
5. a. Describe different levels of access specifies in Java.
   b. Define an Array. How do you declare and access the array in java? Give an example.

**SUB NAME:** Java Programming **SUB CODE:** MR20-1CS0106

## UNIT-II: Inheritance & Polymorphism

1. Define Inheritance. Explain the following with suitable example.
    a. has-a-relationship
    b. is-a-relationship
2. Explain about prevention of Inheritance with suitable example.
3. a. Explain Super and “this” key words with suitable example.
    b. Why Java does not support multiple Inheritance and Hybrid Inheritance? Explain it.
4. a. Illustrate method overloading and method overriding.
    b. What is Polymorphism? Explain the concepts of polymorphism with suitable example.
5. Define an abstraction. Illustrate abstract classes and its methods.

**SUB NAME:** Java Programming **SUB CODE:** MR20-1CS0106

## UNIT-III: Interfaces & Packages

1. What is meant by interface? State its need and write syntax and features of interface with example program.
2. a. Explain how interface is used to achieve multiple Inheritances in Java with suitable example.
   b. Differentiate between interfaces and abstract class?
3. Define package. How to create and access user defined package in Java? Explain it.
4. a. What are the ways to access package from another package? Explain with an example.
   b. Write a java program to extend interface assuming suitable data.
5. a. Define inner classes. List and explain types of Inner Classes with suitable example.
   b. List any five built-in packages from Java API along with their use.

## UNIT- IV: Exception Handling & Multithreading

1. Define exception. How an exception can be handled in Java? And also List the benefits of Exception Handling.
2. a) What are try, catch, and finally keywords in java? Explain it with an example.
   b) Differentiate between Checked and Unchecked exceptions?
3. Explain the usage of throw and throws keyword in Exception Handling.
4. a. Explain in detail the process of creating thread with an example.
   b. What is a thread? Explain the states of a thread with a neat diagram. (Thread Life Cycle)
5. a. Discuss about producer consumer pattern with an example.
   b. Distinguish between multi-tasking and multi-threading?
   c. How do we set priorities for threads? Explain it.

## UNIT- V: Java Collections & File Handling

1. Explain the concept of Java collection frame. Write a brief overview on it.
2. a. Explain briefly about Vector class with an example.

   b. What is hash table? Explain with an example.
3. a. Demonstrate about stack class with an example.

   b. Explain briefly about Array List with an example.
4. a. Explain in detail about Byte Stream Classes in Java.

   b. Explain in detail about Character Stream Classes in Java.
5. How a file can be managed using file class? Explain it.

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## DEPARTMENT OF CSE

### QUESTION BANK

## Design And Analysis Of Algorithms - MR20-1CS0107

# QUESTION BANK

**SUB NAME: Design and Analysis of Algorithms** **SUB CODE: MR20-1CS0107**

## UNIT-I:

1. a) Define an algorithm. Give characteristics of an algorithm with advantages and disadvantages.

   b) Explain asymptotic notations.

2. Illustrate Merge sort algorithm and discuss its time complexity.

3. Explain Strassen's matrix multiplication and its time complexity.

4. a)Give the general procedure of divide and conquer method.

   b)Simulate Quick sort algorithm for the following example

25,36,12,4,5,16,58,54,24,16,9,65,78.

5. Write an algorithm for Binary search with example and discuss its complexity.

## UNIT-II:

1. a) Define Disjoint Set? Show that set A={2,5,6} and B={4,7,8} are disjoint sets. Write an algorithm for Simple Union and Simple find.

   b) What is an articulation point? How to find articulation point for a given graph.

2. a) Define spanning tree? Narrate few applications of spanning trees with example.

   b) Write in detail about Hamiltonian cycles. Give example to it.

3. Construct State Space Tree for Sum of Subset Problem, given weights are w[1:6]={ 5,10,12,13,15,18}such that sum of subset is 30.

4. Discuss in detail about N- queen's problem using backtracking.

5. Explain Graph Coloring problem using back tracking with an example graph.

## UNIT-III:

1. a) Explain General method of Greedy method.

   b) Find the greedy solution for the following job sequencing with deadlines problem n = 7,

   (p1,p2,p3,p4,p5,p6,p7) = (3,5,20,18,1,6,30), (d1,d2,d3,d4,d5,d6,d7) = (1,3,4,3,2,1,2).

2. a) Explain knapsack problem in Greedy method.

   b) Discuss about Greedy Job sequencing with deadlines.

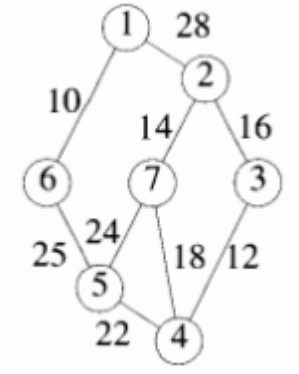
3. Define Greedy knapsack. Find the optimal solution of the Knapsack instance n= 7,

   M=15,

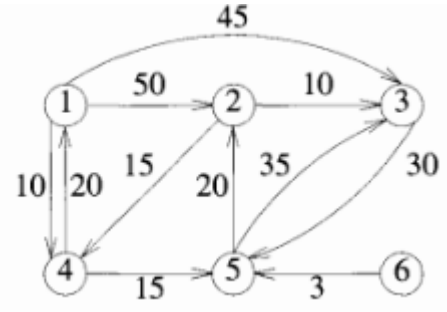
   (p1, p2, .....,p7) = (10,5,15,7,6,18,3) and (w1,w2,.....,w7)=(2,3,5,7,1,4,1).

4. How do you construct a minimum Cost Spanning tree using Prim's and kruskal's

   algorithm for the below weighted graph

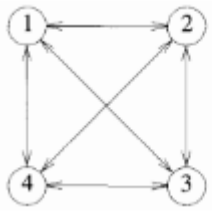



5. Explain Single source shortest path problem for the following graph.



## UNIT- IV:

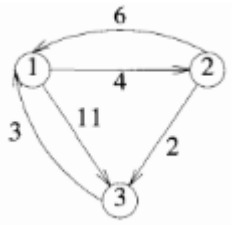
1. Solve a travelling sales person problem using dynamic programming by considering the following directed graph and edge length matrix.




$$\begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix}$$

2. Explain the chained matrix multiplication with suitable example.

3. Give optimal solution for all pairs shortest path problem using dynamic programming for the given digraph




4. Provide optimal solution for the 0/1 knapsack instance n = 3, (p1, p2, p3) = (1,2,5) , (w1,w2,w3)=(2,3,4)and m = 6 by using dynamic programming.

5. a) Define Principle of optimality. Discuss general method of dynamic programming.

b) Differentiate between Greedy Method and Dynamic Programming.

## UNIT- V:

1. Draw the state space tree generated by LCBB for the following instance of 0/1 knapsack problem n= 4, M=15, profits:{10,10,12,18} and weights:{2,4,6,9}. 2. a. Explain briefly about Vector class with an example.
2. Generate reduced cost matrices by considering the traveling sales person instance defined by the cost matrix corresponding to each node.

$$\begin{bmatrix} \infty & 20 & 30 & 10 & 11 \\ 15 & \infty & 16 & 4 & 2 \\ 3 & 5 & \infty & 2 & 4 \\ 19 & 6 & 18 & \infty & 3 \\ 16 & 4 & 7 & 16 & \infty \end{bmatrix}$$

3. a) Explain general method of Branch and Bound algorithm design technique.

   b) Elaborate non deterministic algorithm.

4. Discuss in detail about the class NP-hard and NP-complete problems.

5. a) Explain briefly FIFO and LC Branch and Bound method.

   b) Differentiate between NP - Hard and NP-Complete classes.

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# SCHOOL OF ENGINEERING

## DEPARTMENT OF CSE

### QUESTION BANK

## MEAN STACK WEB DEVELOPMENT -

## MR20-1CS0108

# QUESTION BANK

**SUB NAME : MEAN Stack Web Development SUB CODE: MR20-1CS0108**

## UNIT-I: Typescript and Introduction to Angular

1. What are the data types available in typescript and explain in detail.
2. Explain implementation of classes and modules in typescript with example
3. What are the important aspects of angular framework and discuss their contribution
4. Write in detail about angularCLI with all available commands with their purpose
5. Explain the procedure to create a new Angular Project and add the Bootstrap

## UNIT-II: Angular Components and Data Binding

1. Explain the concept of using constructor and external templates in angular
2. Create an angular project with custom components
3. Explain the concept of angular routing to single page application
4. What is data binding. Describe the concept of interpolation and property binding.
5. Explain two way data binding in angular with example .

## UNIT-III: Built-In Directives and Custom Directives

1. Define Directives. What are the most common directives used in Angular
2. Create an angular project to implement attribute directives
3. Explain the following Structural Directives with an Example
    a. *ngIf
    b. *ngFor
    c. ngSwitch
4. Explain the following Attribute Directives with an Example
    a. ngClass
    b. ngStyle
5. How to build a Custom directive. Explain with an example

## UNIT- IV: Events, Expressions and Angular Services

1. What are Built-in Browser Events available in Angular with example
2. Explain the following Built-in Pipes with Example
    a. Currency
    b. Number
    c. Date
3. Write about the creation of an angular project to collect the data through Login Form using Template-Driven Forms
4. What is Dependency Injection in angular. How to create a service in angular
5. Explain briefly about HTTP Services with an example

## UNIT- V: MongoDB

1. What is the difference between MongoDB and MySQL?
2. Explain various data types in MongoDB
3. How can you create and delete collections in MongoDB database
4. What are the Database update operators available in MongoDB
5. Explain in detail about finding, adding and deleting of a document in a collection

MALLA REDDY UNIVERSITY

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## DEPARTMENT OF CSE

### QUESTION BANK

## Financial Accounting and Management - MR20-1BS0162

## UNIT-1 Introduction to Financial Accounting

1. What do you mean by Financial Accounting? Explain its Nature and Scope
2. Discuss About the Accounting Principles
    a. Accounting Concepts B) Accounting Conventions
3. What are the various steps of Accounting Cycle? Explain
4. Write a short note on A) GAAP B) IASB C) IFRS
5. Explain the Branches of Accounting.

## UNIT-II - Preparation of Accounting Records.

1. What is meant by Double Entry System of Accounting? Elucidate its Advantages.
2. Explain the golden rules of Accounting with examples
3. Journalize the following transactions of Gautama & Co of Karthik

| | |
|---|---|
| June 1,2022 | 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 Anandh |
| June 8 | Sold goods worth Rs.2, 000 for cash. |
| June 10 | Goods returned by Anandh 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 Anandh and discount allowed Rs.50. |
| June 29 | Paid Anwar on account Rs.4,800 and discount allowed by him Rs.100. |

4. Journalize the following transactions, post them into Ledger and balance the accounts:

| | | |
|---|---|---|
| April 1,2020 | Ramu commenced business with a capital of | Rs. 50,000 |
| 2 | Purchased goods from Jagan | Rs. 5,000 |
| 4 | Sold goods to Gopal | Rs.10,000 |
| 5 | Cash purchases | Rs. 10,000 |
| 7 | Paid salaries | Rs. 3,000 |
| 8 | Cash sales | Rs. 10,000 |
| 9 | Bought machinery and paid through bank | Rs.2,000 |
| 14 | Cash paid to Jagan in full settlement | Rs. 4,800 |
| 17 | Cash received from Gopal and<br>discount allowed | Rs. 9,500<br>Rs. 500 |
| 18 | Deposited with bank | Rs. 5,000 |
| 24 | Sold old machinery | Rs. 1,500 |
| 26 | Interest received through Cheque | Rs. 500 |
| 31 | Ramu's personal use | Rs. 1,000 |

5.Journalize the following transactions in the books of Raju:2002.

| | | | |
|---|---|---|---|
| April | 1 | - Raju commenced business with a cash of | Rs. 40,000 |
| April | 3 | - Cash purchases | Rs. 20,000 |
| April | 5 | - Paid salaries | Rs. 10,000 |
| April | 13 | - Sold goods to Ravi | Rs. 35,000 |
| April | 15 | - Sold Furniture | Rs. 25,000 |
| April | 20 | - Commission Received | Rs. 1,000 |
| April | 22 | - Discount allowed | Rs. 2,000 |
| April | 28 | - Bought goods from Venkat | Rs. 50,000 |
| April | 29 | - Sold goods for cash | Rs. 15,000 |

## UNIT-III Financial Statements

1. From the following balances of Mr. Ram ascertain the Gross profit by preparing a TradingAccount for year ended 31-3-2002.

| | |
|---|---|
| Stock | Rs. 15,000 |
| Sales | Rs. 28,000 |
| Purchase returns | Rs. 400 |
| Carriage inward | Rs. 500 |
| Wages | Rs. 5,000 |
| Sales Returns | Rs. 1,000 |
| Manufacturing expenses | Rs. 200 |
| Octroi | Rs. 600 |
| Fuel | Rs. 800 |
| Electricity | Rs. 600 |
| Purchases | Rs.10,000 |
| Closing stock | Rs. 9,000 |

2. From the following Ledger balance of M/s. Ram & Co. Prepare a Trading and a Profit and Loss Account for the period ended 31-12-2003.

| | |
|---|---|
| Stock 1-1-2003 | 5,000 |
| Purchases | 50,000 |
| Returns outward | 5,000 |
| Sales | 1,00,000 |
| Returns inward | 5,000 |
| Direct Wages | 2,000 |
| Indirect wages | 1,000 |
| Carriage | 500 |
| Carriage outward | 1,000 |
| Distribution expenses | 500 |
| Office Rent | 2,000 |
| Repairs | 1,000 |
| Import Duty | 500 |
| Coal & Gas | 1,500 |
| Office Lighting | 1,000 |
| Closing Stock | 15,000 |

3. Prepare Trading, Profit and Loss account and Balance Sheet as on 31-12-2002 from thefollowing Trial Balance of Natasha.

Trial Balance as 31-12-2002

| | Debit (Rs) | | Credit (Rs) |
|---|---|---|---|
| Cash on hand | 3,000 | Capital | 50,000 |
| Purchases | 40,000 | Sales | 72,000 |
| Returns | 500 | Returns | 300 |
| Wages | 5,000 | Creditors | 4,000 |
| Salaries | 3,200 | Bills payable | 3,700 |
| Stock 1-1-2002 | 22,000 | | |
| Carriage inwards | 800 | | |
| Carriage outwards | 1,200 | | |
| Buildings | 25,000 | | |
| Machinery | 15,000 | | |
| Insurance | 700 | | |
| Debtors | 8,000 | | |
| Bills Receivable | 5,600 | | |
| | 1,30,000 | | 1,30,000 |

**Make the following adjustments**:

1. Closing stock Rs. 26,000
2. Outstanding salaries Rs. 550
3. Write off bad debts Rs. 600 and provision @ 5% has to be made on Debtors
4. Machinery and Buildings are to be depreciated by 700 and 1,200 respectively.
5. prepaid insurance Rs. 200

4. Prepare Trading, Profit & Loss Account and Balance Sheet

Trial Balance as 31-12-2002

| | Debit (Rs) | | Credit (Rs) |
|---|---|---|---|
| Cash on hand | 3,000 | Capital | 50,000 |
| Purchases | 40,000 | Sales | 72,000 |
| Returns | 500 | Returns | 300 |
| Wages | 5,000 | Creditors | 4,000 |
| Salaries | 3,200 | Bills payable | 3,700 |
| Stock 1-1-2002 | 22,000 | | |
| Carriage inwards | 800 | | |
| Carriage outwards | 1,200 | | |
| Buildings | 25,000 | | |
| Machinery | 15,000 | | |
| Insurance | 700 | | |
| Debtors | 8,000 | | |
| Bills Receivable | 5,600 | | |
| | 1,30,000 | | 1,30,000 |

Adjustments:

1. Closing stock Rs. 26,000
2. Outstanding salaries Rs. 550
3. Write off bad debts Rs. 600 and provision @ 5% has to be made on debtors
4. Machinery and Buildings are to be depreciated by 700 and 1,200 respectively.
5. prepaid insurance Rs. 200

5. Explain the process of Final Accounting.

## UNIT-IV Introduction to Management

1. What do you mean by Management? Explain the Concept, Nature and Functions of Management
2. Explain the 14 Principles of Management by Henry Fayol
3. Discuss about the Taylor's Scientific Theory
4. What is Leadership? Explain its Concept, Characteristics of Leadership.
5. Explain the Elton mayo's Human Relation Theory.

## UNIT-V Organizational Structure and Design

1. What is Organization? Explain Features and Structure of Organization

2. Difference between Centralization and Decentralization

3. What is Organization Design? Explain about Line& Staff and Functional Organization

4. What are the factors affect group dynamics?

5. Explain the Concept of Matrix Organizational Structure and Committee Organizational Structure.

MALLA REDDY UNIVERSITY

# SCHOOL OF ENGINEERING

## DEPARTMENT OF CSE

### QUESTION BANK

### EMBEDDED SYSTEMS - MR20-1CS0141

# MALLA REDDY UNIVERSITY

## QUESTION BANK

**SUB NAME : Embedded Systems** **SUB CODE: MR20-1CS0141**

## UNIT-I: INTRODUCTION TO MICROPROCESSORS AND MICROCONTROLLERS

1. Explain the architecture of 8086 Microprocessor with neat sketch
2. Discuss about the program model of 8086 microprocessor.
3. Discuss the memory organization in Atmega328p micro controller.
4. Explain the architecture of Atmega328p Microcontroller with neat sketch.
5. Write a note on I/O Ports in Atmega328p.

# MALLA REDDY UNIVERSITY

## QUESTION BANK

**SUB NAME : Embedded Systems** **SUB CODE: MR20-1CS0141**

## UNIT-II: INTRODUCTION TO EMBEDDED SYSTEMS

1. What Is an Embedded System? List out major application areas of Embedded Systems with examples.
2. Discuss the classification of embedded Systems based on generation.
3. Discuss the classification of embedded Systems based on complexity.
4. Briefly explain the purpose of embedded Systems.
5. List out the unique characteristics of embedded systems with an example.

# QUESTION BANK

**SUB NAME : Embedded Systems** **SUB CODE: MR20-1CS0141**

## UNIT-III: COMMUNICATION INTERFACES

1. a. Discuss the importance of sensors and actuators

   b. Write a note on Parallel Interface

2. Discuss in detail I2C communication interface with timing diagram.

3. Discuss in detail SPI communication interface with a neat diagram.

4. Outline the working of RS-232 communication interface

5. Discuss the following external communication interfaces

   a. USB

   b. Bluetooth.

## UNIT- IV: EMBEDDED FIRMWARE AND RTOS

1. Discuss about Embedded firmware design based on Super loop approach.
2. Discuss about Embedded firmware design with embedded OS based approach.
3. Discuss about Hard Real Time System and Soft Real Time System.
4. Differentiate the GPOS and RTOS.
5. Explain the characteristics of RTOS.

## UNIT- V: INTERFACING SENSORS WITH ARDUINO BOARD

1. Discuss the important features of Arduino Uno board.
2. Explain Digital I/O functions with an example.
3. Explain Analog I/O functions with an example.
4. Write a note on interfacing temperature sensor with Arduino UNO.
5. Explain the interfacing of Infrared sensor with Arduino UNO.
6. Write a program to make an LED fade-in and fade-out using Arduino