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Course Code: MCA-151

Course Name: Fundamentals of IT

Practice Questions (Practical)

Q1. Construct logic circuits for following expressions in Logisim:

And also draw truth tables for these expressions to verify the results.

1. $A'B.C + B'.(C+D)'$
2. $A.(B' + C. D') + D'.E$
3. $X.(YZ' + Y'Z) + Y'.Z'$
4. $X'.(Y + Z')$

Q2. Design a 2X4 decoder in Logisim with truth table.

Q3. Design an algorithm to print fibonacci series upto n terms

Q4. Design an algorithm to print all prime numbers between 50 to 200

Q5. Draw a flowchart to print all prime numbers between 50 to 200

Q6. Design an algorithm to find perfect numbers between 1 to 1000

Q7. Draw a flowchart to display first 10 multiples of odd numbers between 1 to 20

Q8. Draw a decision table for a company with three person A,B,C whose share in the company are 50%,20%,30% sequentially. Any low arises in the company will be passed if it is supported by share holders and whose share holding exceed 2/3 of the total shares.

Q9. An insurance company uses the following rule to determine the eligibility of a driver for insurance.

The driver will be insured if:-

- The driver lives in the city with population less than 5000 and he is married man.
- The driver lives in the city with population less than 5000 and he is married and age is over 30 years old.
- The driver lives in the city with population is 5000 or more and it is married female.
- The driver is male over 30.
- The driver is married and under 30.

Draw a decision table for this case study.

Q10. A householder is currently considering insuring the contents of his house against theft for one year. He estimates that the contents of his house would cost him £20,000 to replace.

Local crime statistics indicate that there is a probability of 0.03 that his house will be broken into in the coming year. In that event his losses would be 10%, 20%, or 40% of the contents with probabilities 0.5, 0.35 and 0.15 respectively.

An insurance policy from company A costs £150 a year but guarantees to replace any losses due to theft.

An insurance policy from company B is cheaper at £100 a year but the householder has to pay the first £x of any loss himself. An insurance policy from company C is even cheaper at £75 a year but only replaces a fraction (y%) of any loss suffered.

Q11. Study following conditions and draw a decision table:-

1. If product code=A
And customer type=1
And the order amount<=700
Then 5% discount allowed
2. If product code=A
And customer type=2
And the order amount<=700
Then 7.5% discount allowed
3. If product code=A
And customer type=1
And the order amount>=700
Then 7.5% discount allowed
4. If product code=A
And customer type=2
And the order amount>700
Then 10% discount allowe
5. A flat discount of 5% on product code=B regardless of customer type and the order amount

Q12 to Q18 are based on Linux commands

Q12. Create a file and send top and last 5 lines of it in another file.

Q13. Create five files in a directory and move all files together in another directory.

Q14. Create three levels of nested directories in one main directory 'MCA I year' and try moving/copying files within the directory structure.

Q15. Use pipe (|) for executing multiple commands together.

Q16. Use redirection symbols (> and >>) to send the output of one command to a file.

Q17. Use history to show only last 10 commands executed.

Q18. Use ls command with 5 different switches and observe the difference in their outputs.

Q19to Q23 are based on Windows command prompt

Q18. Create a batch file for few actions and execute it.

Q19. Move a file available in one folder to some other location.

Q20. Create few nested directories directory 'MCA I year' and try removing the entire directory tree.

Q21. Search for all files with '.doc' extension and create a copy of all those files in a separate folder.

Q22. Create a '.txt' file and make it hidden file using attrib command.

Q23. Create a table 'Book' with following attributes using SQL:

Attribute	Data Type & Size	Keys
BCode	Number (3)	Primary Key
Book_Name	Varchar (20)	Not Null
Publisher	Varchar (10)	Not Null
ISBN_No	Number(5)	Unique
Author	Varchar (10)	
Price	Number(4)	Not Null

Now, execute the following queries:

1. Insert 10 records in the table
2. Display all book details in alphabetical order of Publisher.
3. Display book names that belong to 'TMH' or 'Pearson Education' publisher.
4. Display book names of those books written by author who wrote 'An introduction to DBMS'.
5. Add a new column in the table – 'Subject'
6. Update all records to add subject in the newly added column.
7. Delete records of books authored by 'Jai Prakash'.
8. Update the price of all books by 10% of their current price.