Algorithm: flowchart and trailer record

Entertainment, Movie

Number Group

Q1. How does a flowchart help a programmer in program development? Ans. Flowcharts provide the visual representation of a concept and make it clear. A flow chart serves as a blueprint of the program. Flowcharts help a programmer organize his/her thoughts in a logical order and their presentation. Program development without graphics may be less effective. In big projects, it gets difficult to keep things together. Flowcharts provide flexibility so that you can make changes and restructure the project as you move further and, according to requirement. Flowcharts act as a guide during the analysis and program development phase. Moreover, they are also helpful in the debugging process.

Q2. Draw a flowchart of the logical steps needed to produce a printed listing of all students over the age of 20 in a class. The input records contain the name and age of the students. Assume a sentinel value of 99 for the age field of the trailer record. Sol.

Q3. The first 20 records in a data set are to be read and printed. Draw a flowchart for the algorithm to do this job. Make sure that the processing stops after the twentieth record. Sol.

Q4. For the employees' problem of Question 40 (even group Q3), we want to count and print the number of only male employees in the age group of 25 to 30. Assume that the input records contain SexCode and Age fields to provide this information. Draw a flowchart for the algorithm to perform this job. Sol.

Q5. A set of examination papers, which have been graded with scores from 0 to 100 is to be searched to find how many of them are above 90. The total

has to be printed. Prepare a flowchart to do this job. Assume a suitable sentinel value for the trailer record. Sol.

Q6. A shopkeeper wants to have a general program for his personal computer, which will prepare bills for each customer as and when he sells goods to them. His idea is that as soon as the customer purchases some goods from his shop, he will supply the description, unit price, and quantity purchased for each item. s input to the computer. He wants that with this information, the computer should print each item along with its unit price, quantity purchased, and the total price. Finally, the computer should also print the total cost of all the items purchased by the customer. Assuming a sentinel value of zero for the quantity purchased the field in the trailer record, draw a flowchart for the logic to do this job.

Q7. Each employee's pay record includes the hours worked and the pay rate. The gross pay is to be determined as hours worked times pay rate, and is to be printed for each employee. For all hours worked in excess of 40, the overtime rate, which is 1. 5 times the regular rate, is to be paid. Draw a flowchart for the problem logic to do this. Assume a suitable sentinel value for any of the input fields of the trailer record.

Q8. The data file of Question 48 (even group Q7) is expanded to include several sets of data, each requiring calculation of its average. Each data set is followed by a trailer record with a value of -1; however, the last data is followed by a trailer record with a value of -2. Draw a flowchart for the logic to perform this task. Solution.

Q9. Draw a flow chart to add up all the even numbers between 0 and 100. Before ending, print the result of the calculation. Solution.

Q10. Draw a flowchart for the logic to find out whether a given triangle ABC is a right-angled triangle. Assume that the sides are supplied as input and data. Print the answer as yes or no. Solution.

Q11. Draw a flowchart for the logic to convert a number from base 10 to a new base using a division remainder technique. Solution.