4.

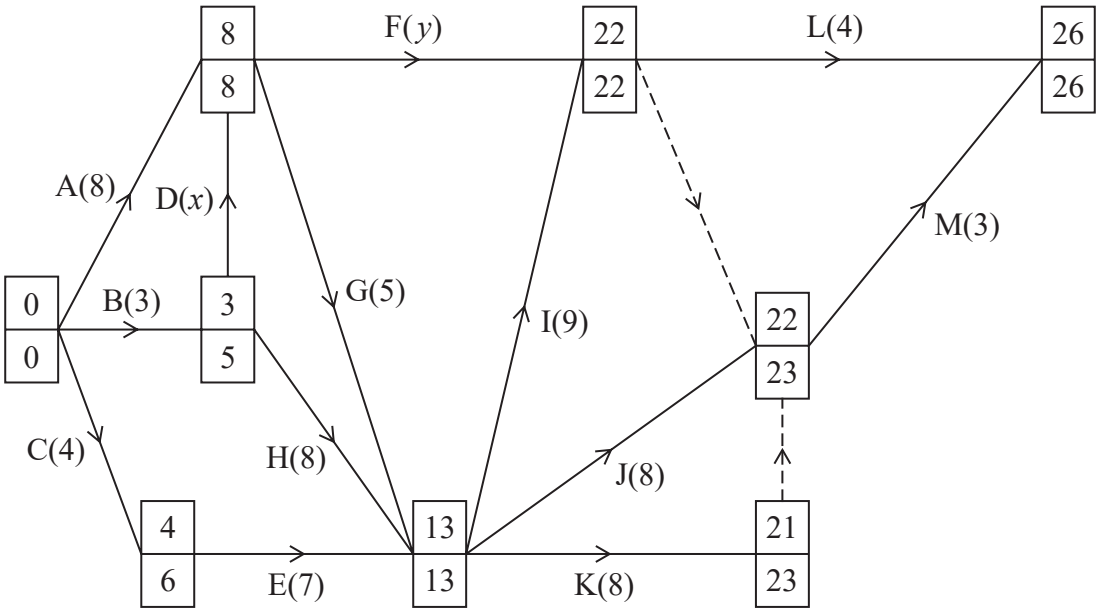


Figure 3

The network in Figure 3 shows the activities that need to be undertaken by a company to complete a project. Each activity is represented by an arc. The duration of the activity, in days, is shown in brackets. Each activity requires exactly one worker. The early event times and the late event times are shown at the vertices.

It is given that the total float on activity F is twice the total float on activity D.

It is also given that the total duration of the activities on the path BDFM is 10 days less than the duration of the critical path.

(a) Determine the value of x and the value of y. You must make your method and working clear.

(4)

(b) Draw a cascade chart for this project on Grid 1 in the answer book.

(4)

(c) Use your cascade chart to determine the minimum number of workers needed to complete the project in the shortest possible time. You must make specific reference to time and activities. (You do not need to provide a schedule of the activities.)

(2)

(Total 10 marks)