**BIL103E - Introduction to Information Systems and Computer Engineering**
**Final Exam   07.01.2009**

(•Two hour exam  •Books and notes closed  •There are 6 questions)

**1)**  [10 points]  Write long names for the following abbreviations: **LAN , WAN , TCP / IP , DNS , HTML , HTTP, URL , Modem , FTP , ADSL**.

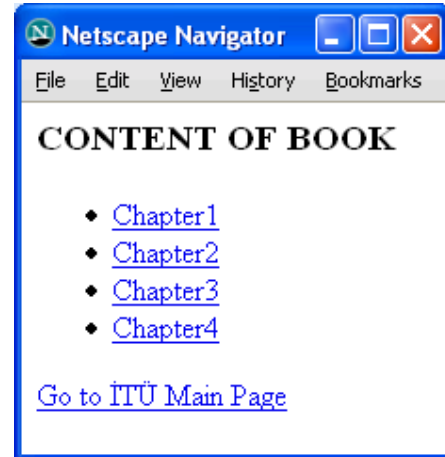**2)**  [10 points]  Briefly describe the followings: **Repeater , Hub , Modem , Switch , Router**.

**3)**  [10 points]  Suppose that you want to design an Internet Cafe with three PCs, one server, and one printer. Draw a LAN block diagram with all the necessary network devices.

**4)** [10 points]

Write a HTML page which contains the following unordered list of items (book chapters).

Items should have links to corresponding PDF files (like chap1.pdf  , etc.) on the local web site.

The last link should be to *www.itu.edu.tr*  address.



**5)**  [15 points]

$S_N$ is the sum of N terms which is defined as the following:

$$S_N = \sum_{k=0}^{N} (-1)^k \frac{1}{(2k+1)^3}$$

Write a PHP program to display the values of **N** and the corresponding $S_N$.

The N will start from zero, and  will go up to an Upper Limit.

Assume that the Upper Limit will be entered by user thru the URL (*GET method*). (You are not required to write a HTML form page.)
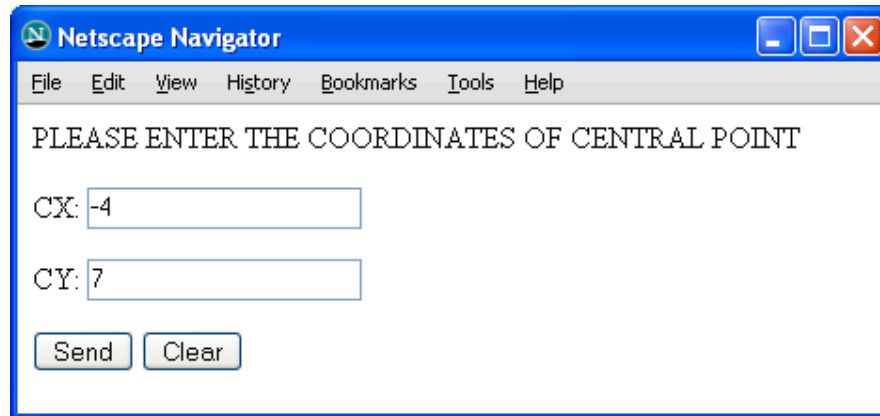


**6)**
Assume that a data file (***coordinates.txt***) is on the web server.

This data file contains pairs of X and Y values which represent points in the coordinate system. The following is an example of data file.

| | |
|---|---|
| -76 | -92 |
| 32 | -37 |
| 12 | -23 |
| -27 | 40 |
| -29 | 0 |
| 20 | -40 |
| 22 | 16 |
| 45 | 29 |
| -38 | 32 |

**6 a)** [15 points] <u>Write a HTML page</u> which contains a **form** to get the central point coordinates **CX** and **CY** from user. When the "Send" button is clicked, the PHP program should be called.
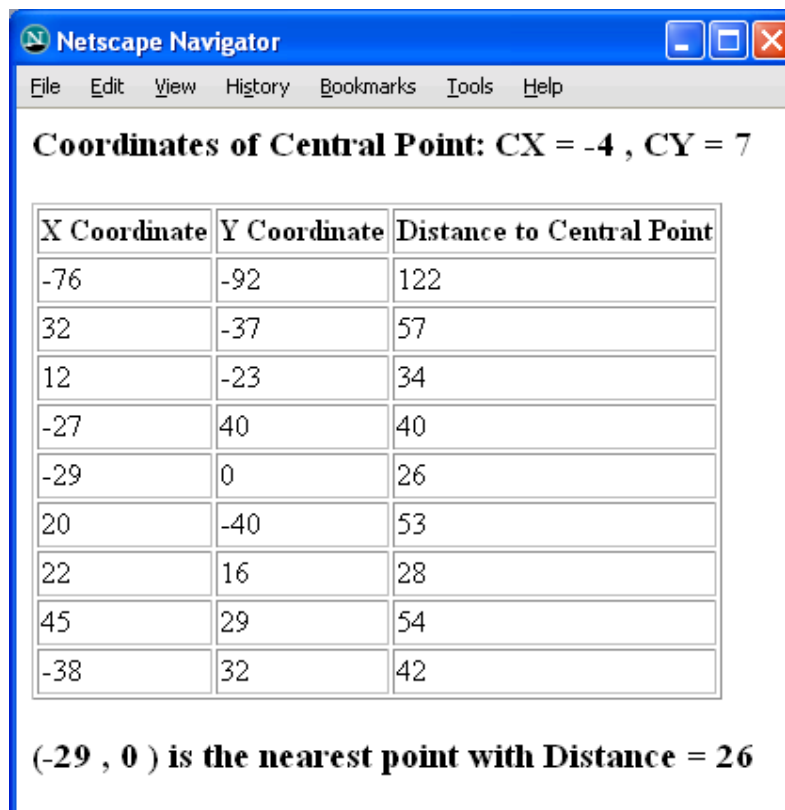
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File   Edit   View   History   Bookmarks   Tools   Help

PLEASE ENTER THE COORDINATES OF CENTRAL POINT

CX: -4

CY: 7

[ Send ]  [ Clear ]
```

**6 b)** [30 points] <u>Write a PHP program</u> that calculates and displays the distance of each point in the data file to the given central point. The output should be in a **table** format.
Your program should also find and display the point which has the nearest distance (i.e. smallest) to the central point. Distance between an (X, Y) point and the central point (CX, CY) can be calculated with the following formula.

$$\text{Distance} = \sqrt{(X - CX)^2 + (Y - CY)^2}$$

(cx, cy) Central point

(x, y)  Point

```
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Coordinates of Central Point: CX = -4 , CY = 7
```

| X Coordinate | Y Coordinate | Distance to Central Point |
|---|---|---|
| -76 | -92 | 122 |
| 32 | -37 | 57 |
| 12 | -23 | 34 |
| -27 | 40 | 40 |
| -29 | 0 | 26 |
| 20 | -40 | 53 |
| 22 | 16 | 28 |
| 45 | 29 | 54 |
| -38 | 32 | 42 |

**(-29 , 0 ) is the nearest point with Distance = 26**