



**1707**

Department of Examination  
Earth University College

**BIT-Pre-Semester  
Web Engineering – 1**

**11402**

**2017.12.23**

**(10.00am – 12.00pm)**

**Mid Examination – Proper  
Essay Paper**

**Important Instructions:**

- The duration of the paper is 2 (two) hour.
- The medium of instructions and questions is English.
- The paper has 4 questions and 19 pages.
- All questions should be answered. All questions do not carry equal marks.
- Answers should be marked on the space given under each question.
- Note that questions appear on both sides of the paper.  
If a page is not printed, please inform the supervisor immediately.
- Do not tear off any part of this answer book. Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.

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**To be filled by the applicant:**

Registration Number	<input type="text"/>
NIC No:	<input type="text"/>
Batch:	<input type="text"/>
Exam Center:	<input type="text"/>

**To be filled by the examiner:**

Q1 :	Q2 :	Q3 :	Q4 :	Total :
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# Question – 1

(60marks, 40min)

## Part-A (30marks, 20min)

(1) There are 2 types of Computer Networks. Give Example for each along with a possible protocol, wired-media and wireless-technique used in each network type. (6marks)

	Net. Type	Example	Protocol	Wired Media	Wireless Technique
1	<b>LAN</b>	Office Network	Ethernet Wi-Fi (IEEE 802.11)	Twisted Pair	Wi-Fi
2	<b>WAN</b>	Bank Network	PPPoE Wi-Max	Fiber Optic	Wi-Max, Satellite

(2) What are the content of an “IP-Datagram”? (4marks)

1	Header Section	Senders IP Receivers IP
2	Payload Section	Data

(3) Give 3 Client-Server Internet Application along with most relevant protocol and port number. (6marks)

	Application Name	Protocol	Port Number
1	www	http	80
2	Email	smtp	25
3	File Transfer	FTP	21

(4) Give 3 example software/platform for each layer of a server environment. (4marks)

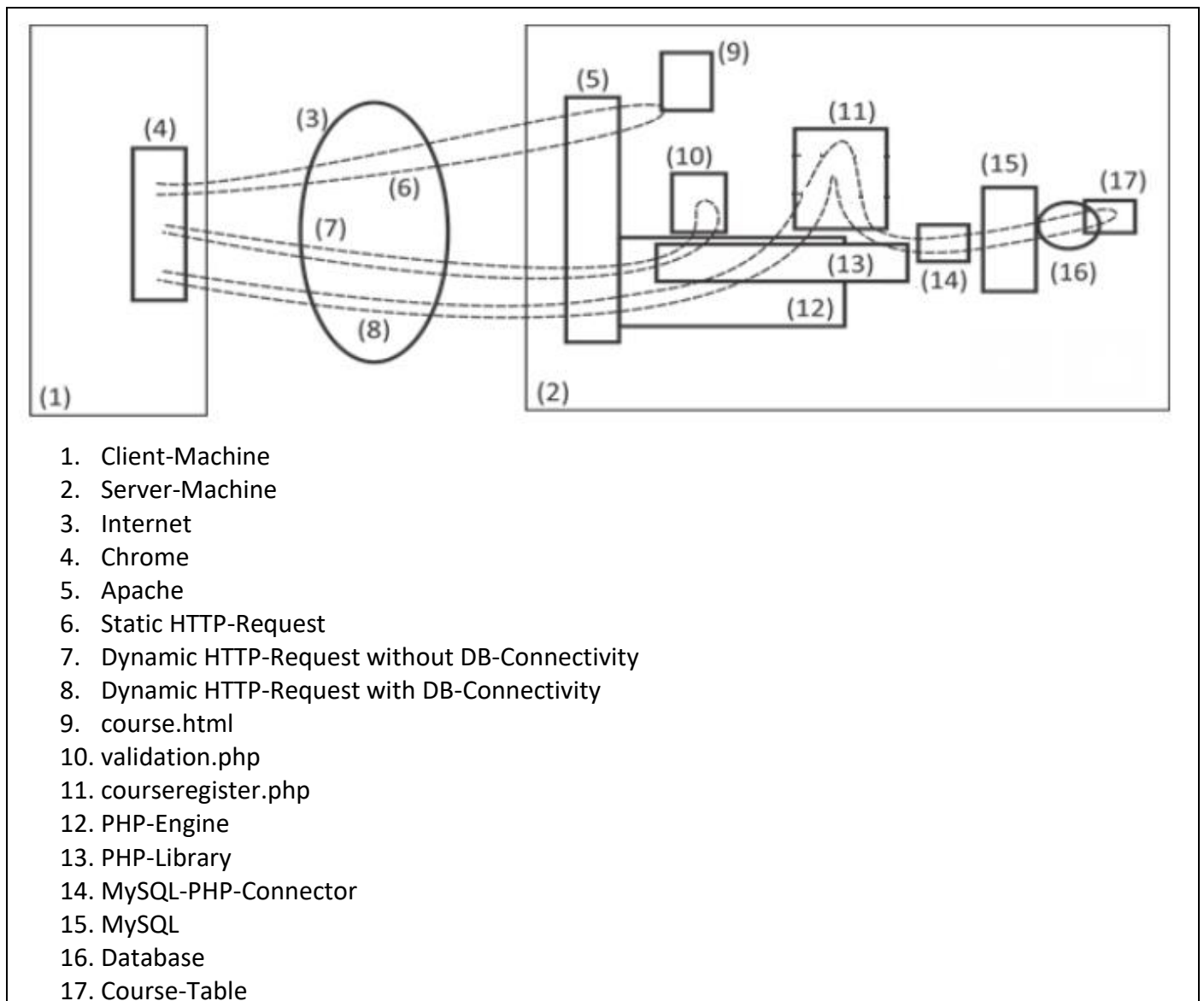
		Example-1	Example-2	Example-3
1	Web Layer	Apache	IIS	Apache Tomcat
2	Application Layer	PHP	ASP	J2EE (JSP or Servlet)
3	Database Layer	MySQL	MSSQL	Oracle DB

--	--	--	--	--	--

(5) Draw a diagram to represent the (6marks)  
**“WAMP-Environment and 3 types of Client-Server Interactions”**.

Use the following terms to describe your diagram,

- Apache, PHP-Engine, PHP-Library, MySQL-PHP-Connector, Chrome, Client-Machine, Server-Machine, Database, Course-Table, MySQL*
- Static HTTP-Request, course.html*
- Dynamic HTTP-Request without DB-Connectivity, validation.php*
- Dynamic HTTP-Request with DB-Connectivity, courseregister.php*



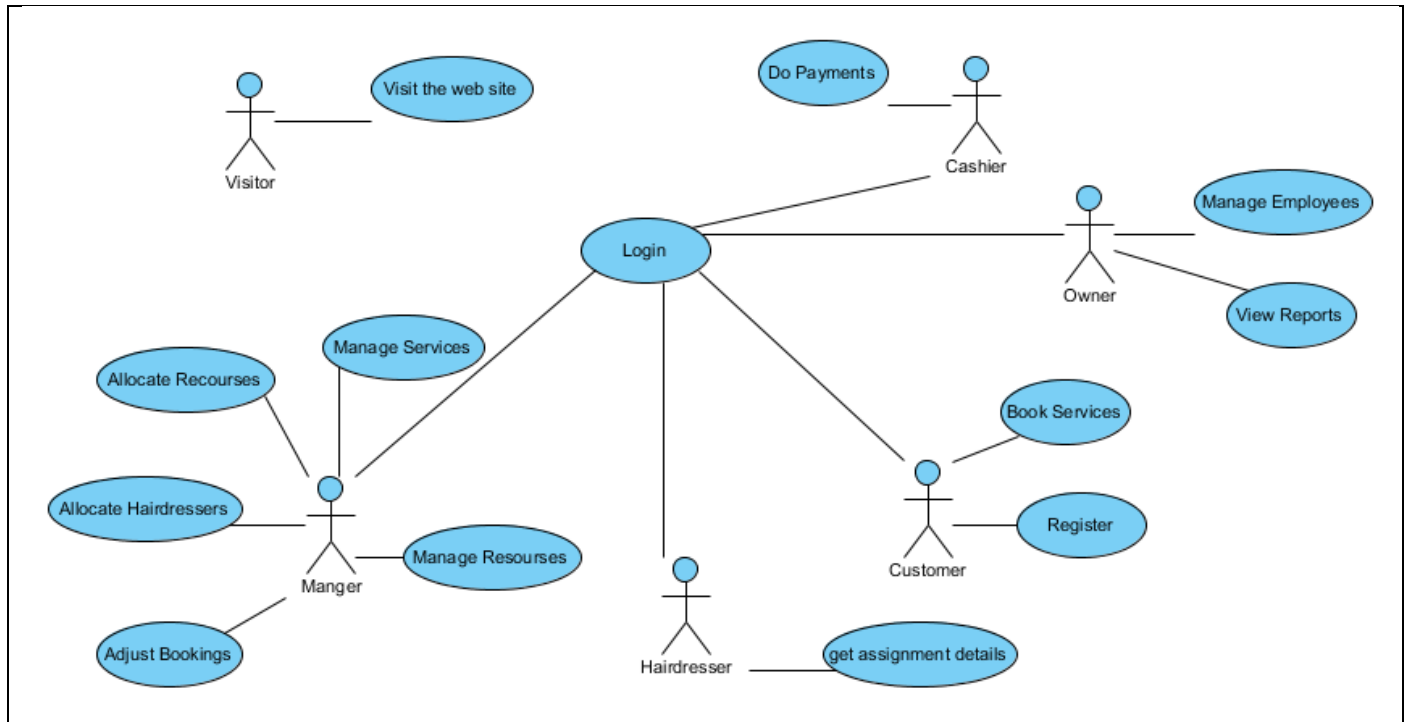
(6) Give 2 items that could be configured using “httpd.conf” (2marks)

1	Port Number
2	Document Root





(2) Draw a possible Use Case-Diagram to represent the requirements of the above system. (3marks)



(3) Select the most suitable Wireframe Technique for the Home-Page of the above web-site. (1marks)

**Low-Fidelity | High-Fidelity**

High-Fidelity

(4) Select the most suitable Hosting Technique for the above web-site. (1marks)

**In-House | Shared-Hosting-Account | Reseller-Hosting-Account**

Shared-Hosting-Account

**Part-C (20marks, 10min)**

(1) Compare at least 3 factors between “Dedicated” and “VPS” Solutions. (6marks)

	Dedicated	VPS-Virtual Private Server
1	Relatively High Performance	Relatively Low Performance
2	Relatively High Cost	Relatively Low Cost
3	No Resource Sharing such as physical RAM, Hard Disk	Has Recourse Sharing

(2) Name 3 ccTLD with the relevant country other than Sri Lanka. (2marks)

	Country	ccTLD
1	United Kingdom	.uk
2	France	.fr
3	Australia	.au

(3) Briefly Describe the Steps to be followed to register “.lk” Domain. (Use real life details). (4marks)

<ol style="list-style-type: none"> <li>1. Visit “www.nic.lk”</li> <li>2. Check whether the domain-name is available or not</li> <li>3. If available it will display names and prices</li> <li>4. Choose the preferred Domain Name and click ‘Add’.</li> <li>5. Type the Reason for selecting the selected domain</li> <li>6. Register with LK-Domain Registry creating an Account with your Email.</li> <li>7. Hereafter this Email is the official way to contact the Domain-Register.</li> <li>8. Wait 24 hours for Approval process</li> <li>9. If approved, Proceed with Payment</li> <li>10. Provide Host server’s IP or nameserver details by login into the account</li> <li>11. It will take 24 hours to update whole domain name system including root name servers</li> </ol>
---

(4) Give 3 Facility-Categories other than “Files” available in the “cPanel” Main-Window. (3marks)

1	Database
2	Email
3	Domain

(5) Give 3 Operations that could be accomplished using “File-Manger” facility of the “cPanel”. (3marks)

1	Upload
2	Edit
3	Rename

(6) Give 2 “Google” web-tools that could be helpful for professional SEO. (2marks)

1	Google Analytics
2	Google Search Console



## Question – 2

(40marks, 20minuts)

(1) Consider the following web-page that use **a HTML List** to display details of Sri Lanka.

(10marks)

Note :            The page will use “flag.jpg”, “lan.html” and “rel.html” files  
They are saved in the same directory.

### Details of Sri Lanka

Capital  
Colombo

Flag



Population  
20 Milion

Demography  
[Language](#) | [Religion](#)

```

<h3>Details of Sri Lanka</h3>
<dl>
  <dt>Capital</dt>
  <dd>Colombo</dd>
  <dt>Flag</dt>
  <dd>
    
  </dd>
  <dt>Population</dt>
  <dd>20 Milion</dd>
  <dt>Demography</dt>
  <dd>
    <a href="lan.html">Language</a>
    <a href="rel.html">Religion</a>
  </dd>
</dl>

```

Consider the following codes written in HTML to answer question (2) and (3).

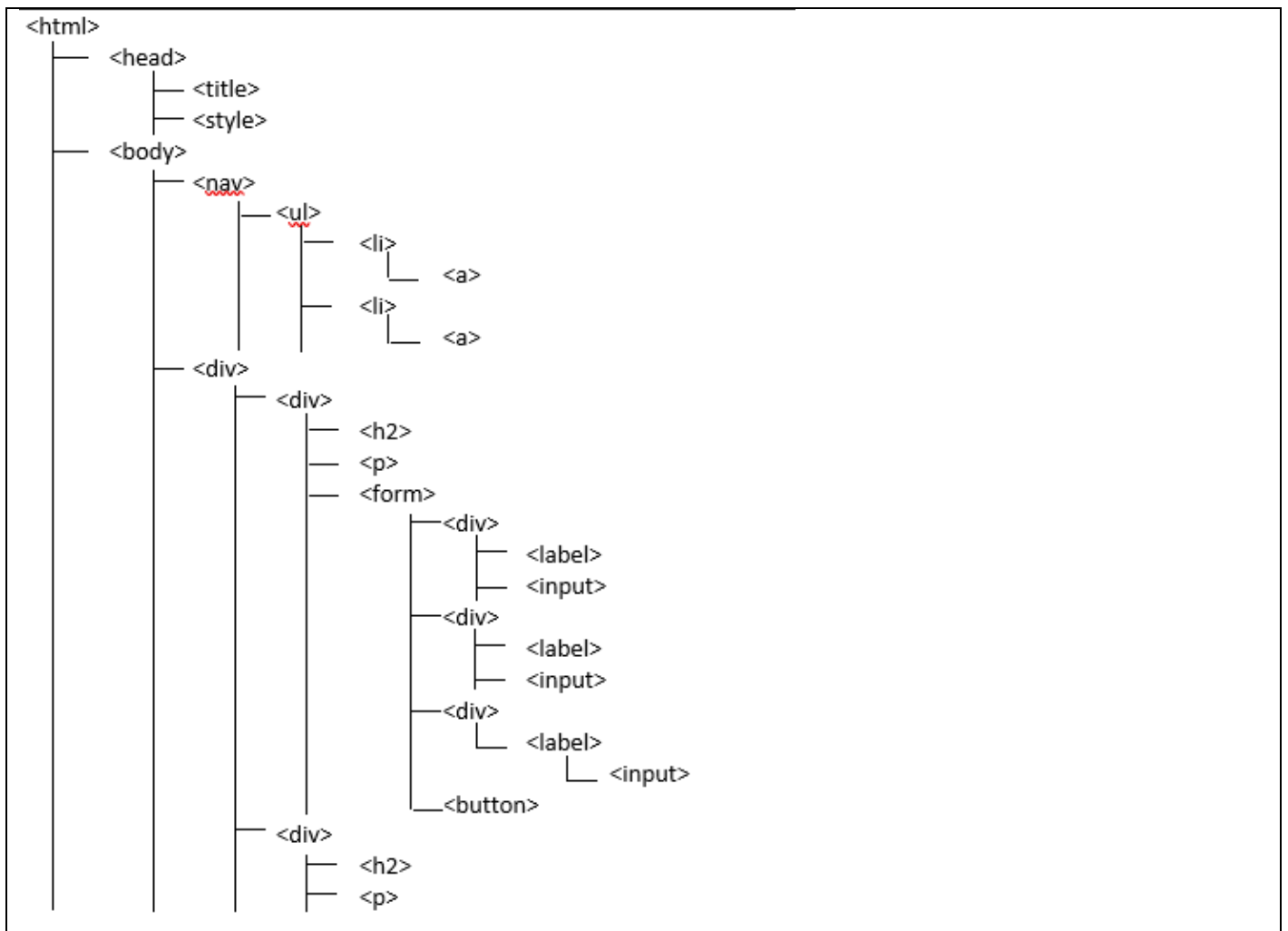
```

<html> <head> <title> BIT </title> <style> * { font-family:calibri; } </style>
</head> <body>
<nav><ul> <li><a href="#">Home</a></li> <li><a href="#">News</a></li></ul></nav>
<div><div><h2>Login form</h2>
<p>Use Your Registration Number as the Username. </p>
<form> <div>
<label for="email">Username :</label>
<input type="email" class="form-control" id="email" placeholder="Enter email">
</div>
<div><label for="pwd">Password:</label>
<input type="password" id="pwd" placeholder="Enter password"></div>
<div><label><input type="checkbox"> Remember me</label></div>
<button type="submit">Submit</button>
</form></div>
<div>
<h2>News Block</h2>
<p> Registration close on 15.01.2018. </p> </div>
</div></body></html>

```

(2) Draw the Tag-Hierarchy of the above Web-Page.

(10marks)

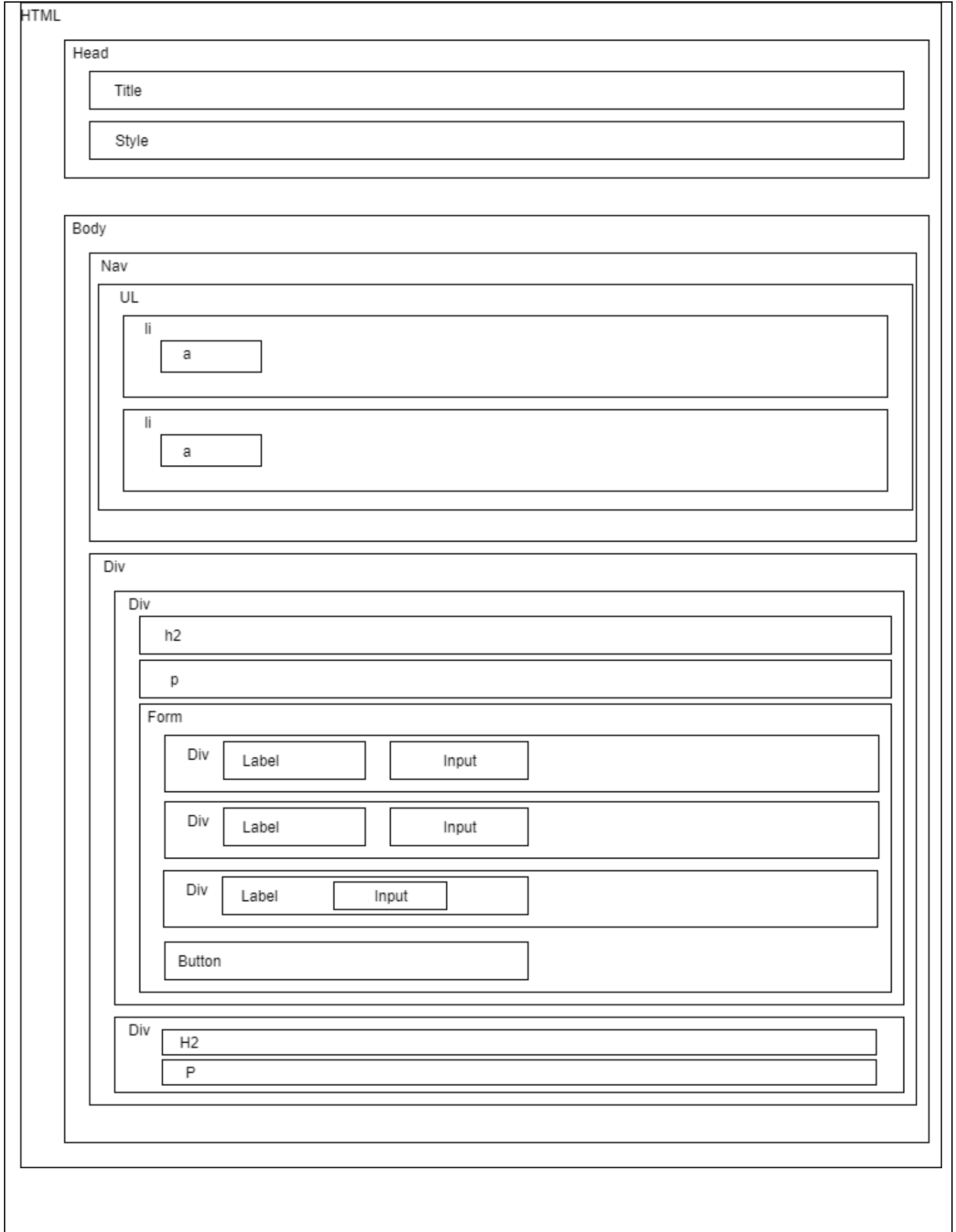






(3) Draw the Box-Architecture of the displayed content of the above Web-Page.

(10marks)



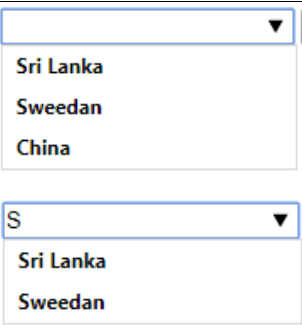
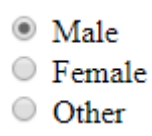
(4) Draw the appearance of the following entity references.

(3marks)

(a)	&copy;	©
(b)	&amp;	&
(c)	&reg;	®
(d)	&trade;	™
(e)	&lt;	<

(5) Write needed HTML to implement following form elements.

(7marks)

(a)		<pre>&lt;input list="x" name="country"&gt; &lt;datalist id="x"&gt;   &lt;option value="Sri Lanka"&gt;   &lt;option value="Sweedan"&gt;   &lt;option value="China"&gt; &lt;/datalist&gt;</pre>
(b)		<pre>&lt;label&gt;&lt;input type="radio" name="genders" checked&gt; Male&lt;/label&gt;&lt;br/&gt; &lt;label&gt;&lt;input type="radio" name="genders"&gt; Female&lt;/label&gt;&lt;br/&gt; &lt;label&gt;&lt;input type="radio" name="genders"&gt; Other&lt;/label&gt;</pre>

## Question – 3

(50marks, 30minuts)

Consider the following “Internal-Integration” of CSS-Styles to answer question-1 and question-2.

```
<html><head>
<style type="text/css">

.btn {    color: white;
         font-size: 12px;    }

</style>
</head>
<body>
<button class="btn"> Clear </button>
</body></html>
```



(1) Convert the above "Internal-Integration" of CSS-Styles into "Inline-Style"

(3marks)

```
<html>
  <head>
  </head>
  <body>
    <button style=" color: white; font-size: 12px; "> Clear </button>
  </body>
</html>
```

(2) Convert the above "Internal-Integration" of CSS-Styles into "External-Stylesheet"

(4marks)

HTML-Page	common.css
<pre>&lt;html&gt;   &lt;head&gt;     &lt;link rel="stylesheet" href="common.css"/&gt;   &lt;/head&gt;   &lt;body&gt;     &lt;button class="btn"&gt; Clear &lt;/button&gt;   &lt;/body&gt; &lt;/html&gt;</pre>	<pre>.btn {color: white;       font-size: 12px; }</pre>

(3) Give 5 method of specifying Red color in CSS.

(5marks)

1	Color name - red
2	Decimal Color Code without Opacity - rgb(255,0,0)
3	Decimal Color Code with Opacity – rgba(255,0,0,1)
4	6 digit Hexadecimal color code - #ff0000
5	3 digit Hexadecimal color code - #f00

Consider the following Web-Page to answer question-4 to question-6

```
<html>
<head>
<style>
.c1 p , h2 { text-align: center; color: green; }
.c2 p { text-align: center; color: blue; }
</style>
</head>
<body>
<div class="c1">
<h2> Heding-1 </h2>
<p> Para-1 </p>
</div>
<div class="c2">
<p> Para-2 </p>
</div>
<p> Par-3 </p>
<h2> Heding-2 </h2>
</body>
</html>
```

(4) Identify the Selectors used in the above example. (4marks)

1	Tag
2	Class
3	Multiple
4	Descendant

(5) Describe the appearance of the above page using the following table (6marks)

Element	Alignment (Left   Right   Center)	Color (Black   Blue   Green)
Para-1	Center	Green
Para-2	Center	Blue
Para-3	Left	Black
Heading - 2	Center	Green

(6) Refactor the above styles to maximize code reuse. (Use 3 Styles). (4marks)

1	<code>.c1 p , h2 , .c2 p{ text-align:center;}</code>
2	<code>.c1 p , h2{color:green;}</code>
3	<code>.c2 p{color:blue;}</code>

(7) Identify the Selectors described below. (6marks)

(first row is an example to understand how to answer the question)

Description	Name of the Selector	Sample Code
<i>When you need to define a background shadow for all &lt;h1&gt; headings of the web page</i>	<b>Tag Selector</b>	<b><code>h1 { text-shadow : 2px 2px 1px #000; }</code></b>
When you need to maintain a Single Font Type everywhere in the web page.	Universal Selector	<code>*{font-family:arial;}</code>
When you need to get the Blue color, whenever the mouse pointer moves into a Hyperlink	Pseudo class selector	<code>a:hover{color:blue;}</code>
When one need to italic all the paragraphs written within tables	Descendant Selector	<code>table p{font-style:italic}</code>



(8) Give 2 examples for “Pseudo-Elements” used in CSS

(2marks)

1	::after
2	::before

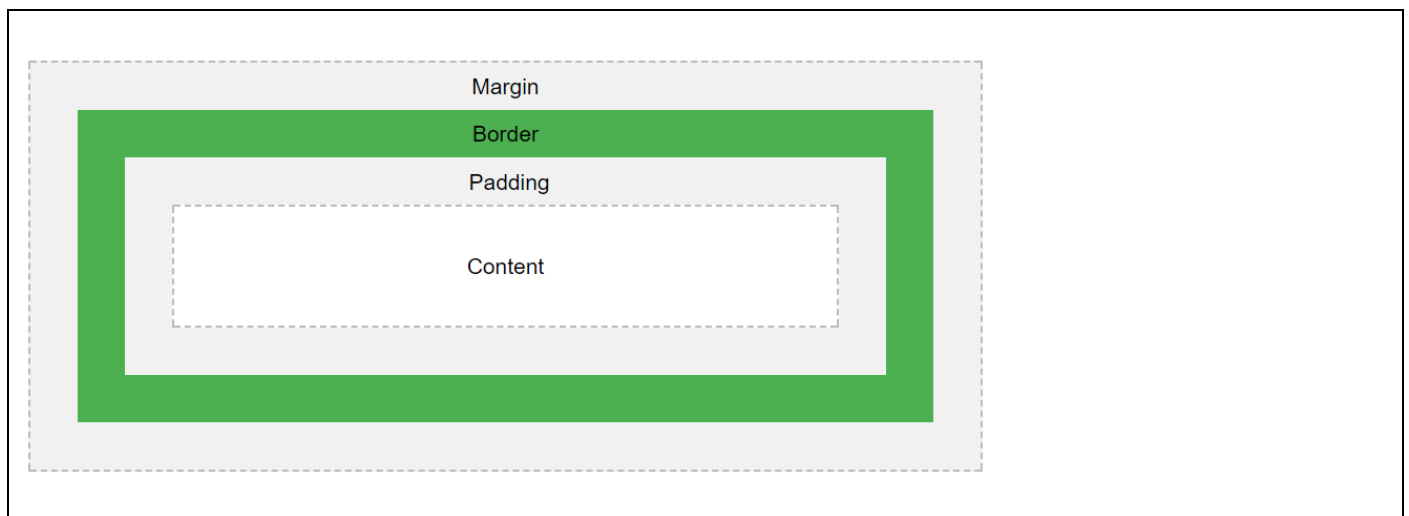
(9) Give 2 examples for “Pseudo-Classes” used in CSS

(2marks)

1	:hover
2	:active

(10) Draw a diagram to represent the 4 areas of the CSS-Box Model.

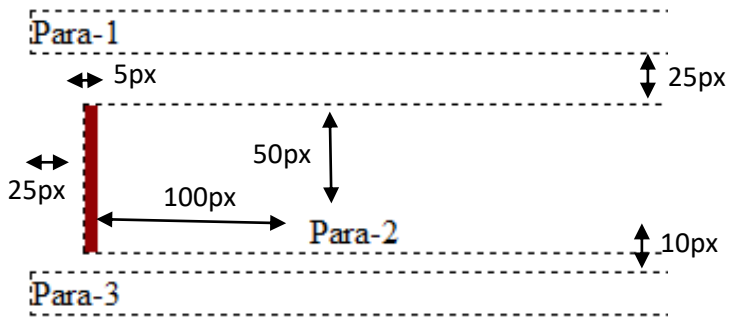
(4marks)



(11) Adobe Dream Viewer could display both “Code-View” and “Design-View” of a web page as follows.

Code View	Design View
<pre>&lt;html&gt; &lt;head&gt; &lt;/head&gt; &lt;body&gt; &lt;div&gt;Para-1&lt;/div&gt; &lt;div&gt;Para-2&lt;/div&gt; &lt;div&gt;Para-3&lt;/div&gt; &lt;/body&gt; &lt;/html&gt;</pre>	

Once the developer adds some changes to the “Code-View”, the “Design-View” get changed as follows. (Arrows Indicate the change he made, Only Para-2 has been affected by the change)



You are requested to write the Complete Implementation of the above page as seen in “Code View” after the change.

(10marks)

```

<html>
<head>
</head>
<body>
  <div>Para-1</div>
  <div id="x">Para-2</div>
  <div>Para-3</div>
  <style>
    #x{
      margin-top: 25px;
      margin-bottom: 10px;
      margin-left: 25px;
      padding-top: 50px;
      padding-left: 100px;
      border-left:5px solid red;
    }
  </style>
</body>
</html>

```

## Question – 4

(50marks, 30minuts)

### Part-A (10marks)

(1) Give 2 other examples for Front-End Frameworks like Bootstrap.

(2marks)

1	W3.CSS
2	Material Ui



(2) Give 3 advantages of using Bootstrap to implement the Front-End of a web-system. (3marks)

1	Easy to Develop a web site
2	Responsiveness
3	Good Community Support

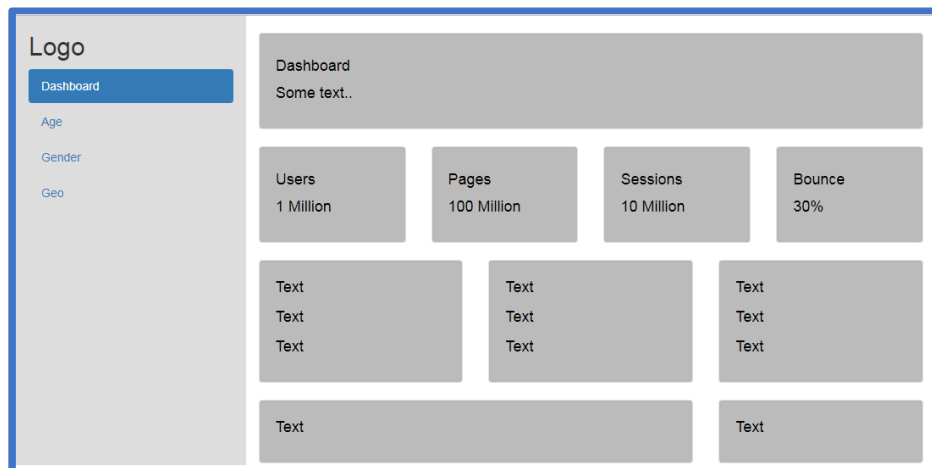
(3) Give 5 examples for “CSS-Only” and “JS-Mediated” Bootstrap Component. (5marks)

	“CSS-Only”	“JS-Mediated”
1	Panel	Dropdown
2	Forms	Collapse
3	Buttons	Carousel
4	Glyphicons	Popover
5	Pagination	Modal

**Part-B (20marks)**

Consider the following Layout that may change by the device displayed. Browser Margin is indicated by the Border

**Desktop View**



**Smartphone View**



Implement the above Grid-System using Bootstrap Grid Classes

```

<div class="container-fluid">
  <div class="row">
    <div class="col-md-4 hidden-xs"></div>
    <div class="col-md-8">
      <div class="row">
        <div class="col-md-12"></div>
      </div>
      <div class="row">
        <div class="col-md-3 col-xs-6"></div>
        <div class="col-md-3 col-xs-6"></div>
        <div class="col-md-3 col-xs-6"></div>
        <div class="col-md-3 col-xs-6"></div>
      </div>
      <div class="row">
        <div class="col-md-4"></div>
        <div class="col-md-4"></div>
        <div class="col-md-4"></div>
      </div>
      <div class="row">
        <div class="col-md-8"></div>
        <div class="col-md-4"></div>
      </div>
    </div>
  </div>
</div>

```

### Part-C (20marks)

(1) What are the Bootstrap Classes that could be used to beautify HTML-Tables?

(5marks)

1	table
2	table-striped
3	table-condensed
4	table-hover
5	table-bordered





(2) Consider the following codes related with the "Native-CSS" implementation of the above Bootstrap Classes. (12marks)

```

<html> <head>
<title> CSS Applications - Tables - Own CSS </title>

<style type="text/css" >

--(1)-- {   font-family : Helvetica;
           border-collapse: collapse;   }

--(2)-- caption,th,td {   text-align: left;
                          padding: 5px;   }

--(3)-- --(4)--{   font-size:22px;
                  opacity:0.6;           }

--(5)-- --(6)-- tr th {   border-bottom: 3px solid #aaa;
                          width: 150px;   }

--(7)-- --(8)-- tr td {   border-bottom: 2px solid #ccc;   }

--(9)-- --(10)-- tr:nth-child(even){   background: #fff;   }

--(11)-- --(12)-- tr:nth-child(odd){   background: #eee;   }

</style>
</head>
<body>

<table width="500" border="1" >
<caption> Student Details </caption>
<thead><tr><th>Name</th><th>City</th><th>Telephone</th></tr></thead>
<tbody>
  <tr><td>Nimal</td><td>Rajagiriya</td><td>0776233233</td></tr>
  <tr><td>Sunil</td><td>Gampaha</td><td>0332232811</td></tr>
  <tr><td>Kamal</td><td>Boralla</td><td>0112684906</td></tr>
</tbody>
<tfoot> <tr><td colspan="3"> Updated values at 2016.10.08 </td> </tr> <tfoot>
</table>
<br/><br/><br/> <hr/><br/><br/><br/>

<table class="table" width="500" >
<caption> Student Details </caption>
<thead><tr><th>Name</th><th>City</th><th>Telephone</th></tr></thead>
<tbody>
  <tr><td>Nimal</td><td>Rajagiriya</td><td>0776233233</td></tr>
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</tbody>
<tfoot> <tr><td colspan="3"> Updated values at 2016.10.08 </td> </tr> <tfoot>
</table>

<br/><br/><br/> <hr/><br/><br/><br/>

<table class="table table-striped" width="500" >

```

```

<caption> Student Details </caption>
<thead><tr><th>Name</th><th>City</th><th>Telephone</th></tr></thead>
<tbody>
  <tr><td>Nimal</td><td>Rajagiriya</td><td>0776233233</td></tr>
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</tbody>
<tfoot> <tr><td colspan="3"> Updated values at 2016.10.08 </td> </tr> <tfoot>
</table>

</body>
</html>

```

Name	City	Telephone
Nimal	Rajagiriya	0776233233
Sunil	Gampaha	0332232811
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Updated values at 2016.10.08		

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Name	City	Telephone
Nimal	Rajagiriya	0776233233
Sunil	Gampaha	0332232811
Kamal	Boralla	0112684906
Updated values at 2016.10.08		

Identify the most suitable terms for blanks

1	.table
2	.table
3	.table
4	caption
5	.table
6	thead
7	.table
8	tbody
9	.table-striped
10	tbody
11	.table-striped
12	tbody



(3) Suppose that you have deleted the above CSS-Styles given in the question-(2) (3marks)  
including the “<style> </style>” tags.

What would you do if you still need to get the above appearance of the web-page again?  
(Without including the above CSS-Codes again)

Import the bootstrap css file.

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