

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.

To be filled by the applicant:

Registration Number							
NIC No:							
Batch:							
Exam Center:							

To be filled by the examiner:

$\alpha_1 \cdot \alpha_1$	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 (6marks) protocol, wired-media and wireless-technique used in each network type.

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

(2) What are the content of an "IP-Datagram"?

1Header
SectionSenders IP
Receivers IP2Payload
SectionData

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

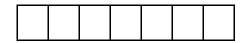
	Application Name	Protocol	Port Number
1	www	http	80
2	Email	smtp	25
3	File Transfer	FTP	21

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

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

(4marks)

(4marks)



(6marks)

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(5) Draw a diagram to represent the

"WAMP-Environment and 3 types of Client-Server Interactions".

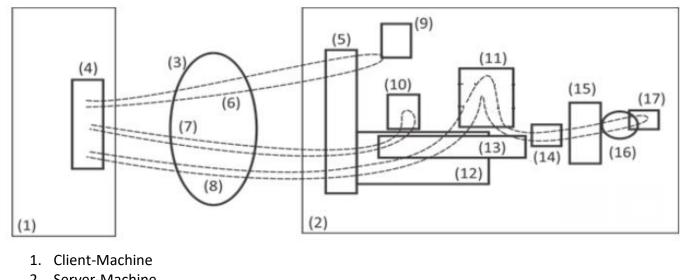
Use the following terms to describe your diagram,

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



- 2. Server-Machine
- 3. Internet
- 4. Chrome
- 5. Apache
- 6. Static HTTP-Request
- 7. Dynamic HTTP-Request without DB-Connectivity
- 8. Dynamic HTTP-Request with DB-Connectivity
- 9. course.html
- 10. validation.php
- 11. courseregister.php
- 12. PHP-Engine
- 13. PHP-Library
- 14. MySQL-PHP-Connector
- 15. MySQL
- 16. Database
- 17. Course-Table

(6) Give 2 items that could be configured using "httpd.conf"

(2marks)

1	Port Number
2	Document Root

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(7) Give 2 developer facilities available in "Chro	me" Web-Browser
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(5marks)

1	Toggle Device
2	Inspect Element

Part-B (10marks, 10min)

Questions are based on the given Case-Study,

"Booking Management System for Salon Scissors-Art"

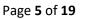
"Scissors-Art" Pvt Ltd. is a modern Salon newly established in Colombo. The Salon provides various services for its customers such as hair-cuttings, shaving and facial. Various types of shavings are available for customers such as "full-shaving" and "shaving-cut". Haircut may be normal, design or full. One can book various facial treatments from the Salon. Customers could register themselves online by filling a form. Ones registered they could log into the system and book a service. Ones booking has done, the manager will call back to the customer and make necessary adjustments to the booking and assign an available room and a hairdresser. Hairdressers are able to get their own assignment details from the systems. The owner of the company need to get various reports from the data collected during the business transactions. Details of employees such as Mangers and Hairdresser are managed by the owner himself. Payment to the counter is also accomplished via the proposed web-based-system by the cashiers. Visitors are able to get details about services, contact details and other details by browsing the website.

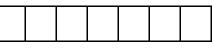
Student must base on the above case study, but they must enrich the above case study by adding relevant facts when they analyze and design the above proposal.

(1) Draw a possible ER-Diagram to implement the Database of the above system.

service sub category 📃 customer 📃 booking 💡 id INT 🕈 id INT 💡 id INT id INT name VARCHAR(45) name VAR(HAR(45)) name VARCHAR(45) 🔾 date DATE amount DECIMAL(5) con_num VARCHAR(45) service_category_id INT customer id INT service status id INT u name VARCHAR(45) services id INT service sub_category_id IN1 password VARCHAR(45) ○ time TIME booking_status id INT booking res serv ice cate service status id VARCHAR(45) booking status 🔻 id INT id INT booking_id INT payr id INT name VARCHAR(45) ame VARCHAR(45) resources_id INT 🕈 id INT ame VARCHAR(45) amount DECIMAL(5) date DATE ○ time TIME + booking id VARCHAR(45) allocate id INT 💡 id INI employee_id INT name VARCHAR(45) employ booking_id INT resource_status_id INT የ id INT date DATETIME resource_type_id INT name VARCHAR(45) u_name VARCHAR(45) urce_type 🐧 password VARCHAR(45) 🕈 id INT name VARCHAR(45) contact no VARCHAR(45) designation designation id INT id INT name VARCHAR(45) rce status 🕈 id INT oname VARCHAR(45)

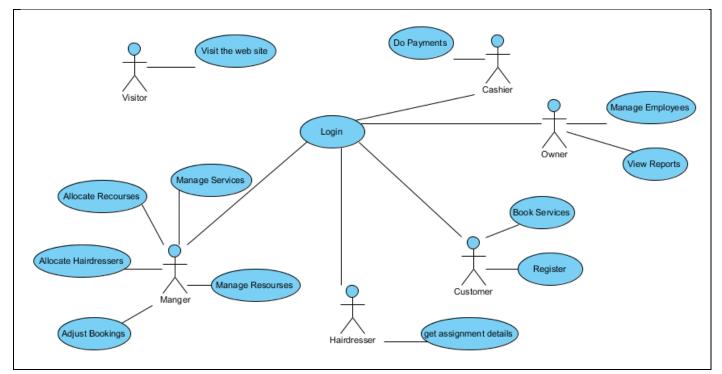
Note: Attributes are Not Required





(3marks)

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



(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)	(1) Compare at least 3 factors between "Dedicated" and "VPS" Solutions.			
	Dedicated	VPS-Virtual Private Server		
1	Relatively Hight Performance	Relatively Low Performance		
2	Relatively High Cost	Relatively Low Cost		
3	No Resource Sharing such as physical RAM, Hard Disk	Has Recourse Sharing		

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

(2marks)

(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)

- 1. Visit "www.nic.lk"
- 2. Check whether the domain-name is available or not
- 3. If available it will display names and prices
- 4. Choose the preferred Domain Name and click 'Add'.
- 5. Type the Reason for selecting the selected domain
- 6. Register with LK-Domain Registry creating an Account with your Email.
- 7. Hereafter this Email is the official way to contact the Domain-Register.
- 8. Wait 24 hours for Approval process
- 9. If approved, Proceed with Payment
- 10. Provide Host server's IP or nameserver details by login into the account
- 11. It will take 24 hours to update whole domain name system including root name servers

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

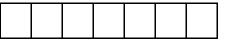
1	Database
2	Email
3	Domain

(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.

1	Google Analytics
2	Google Search Console





(1) Consider the following web-page that use <u>a HTML List</u> 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 <u>Religion</u>	

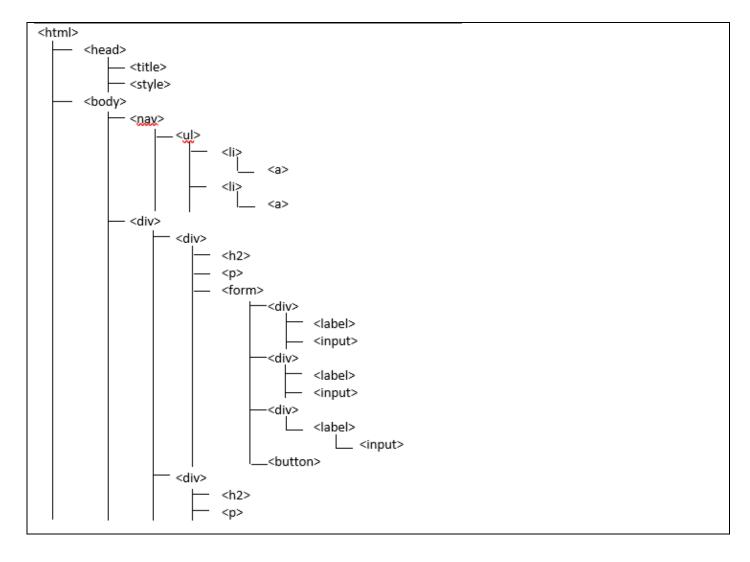
```
<h3>Details of Sri Lanka</h3>
<d1>
    <dt>Capital</dt>
    <dd>Colombo</dd>
    <dt>Flag</dt>
    \langle dd \rangle
        <img src="flag.jpg" />
    </dd>
    <dt>Population</dt>
    <dd>20 Milion</dd>
    <dt>Demography</dt>
    <dd>
        <a href="lan.html">Language</a>
        <a href="rel.html">Religion</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> <a href="#">Home</a> <a href="#">News</a></nav>
<div><div><h2>Login form</h2>
Use Your Registration Number as the Username. 
<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>
 Registration close on 15.01.2018.  </div>
</div></body></html>
```

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

(10marks)



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

(10marks)

Head	
Title	
Style	
Body	
Nav	
UL	
	а
li	
	а
Div	
Div	h2
	p
F	Form
	Div Label Input
	Div Label Input
	Div Label Input
	Button
Div	
	H2 P

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

(a)	©	©
(b)	&	&
(c)	®	®
(d)	™	тм
(e)	<	<

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

(7marks)

(a)	▼ Sri Lanka Sweedan China S Sri Lanka Sweedan	<pre><input list="x" name="country"/> <datalist id="x"></datalist></pre>
(b)	 Male Female Other 	<pre><label><input checked="" name="genders" type="radio"/> Male</label> <label><input name="genders" type="radio"/> Female</label> <label><input name="genders" type="radio"/> Other</label></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>
```

(3marks)



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

(3marks)

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

(2) Convert the above "Internal-Integration"	
1/1 CONVERT THE SHOVE "INTERNAL-INTEGRATION"	OT I SS-STVIDE INTO "EVTORNAL-STVIDENDOT"
()	

(4marks)

HTML-Page	comm	ion.css	
<html></html>	.btn	{color: white;	
<head></head>		font-size: 12px;	
<link href="common.css" rel="stylesheet"/>	}		
<body></body>			
<button class="btn"> Clear </button>			
(3) Give 5 method of specifying Red color in CSS.			(5marks)

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

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> Para-1 </div> <div class="c2"> Para-2 </div> Par-3 <h2> Heding-2 </h2> </body>

</html>

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

1	Tag
2	Class
3	Multiple
4	Descendant

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

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).

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

(7) Identify the Selectors described below.

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

(6marks)

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

(4marks)

(4marks)

(6marks)



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

1	::after
2	::before

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

Г

1	:hover
2	:active

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

 Margin	
Border	
Padding	
Content	

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

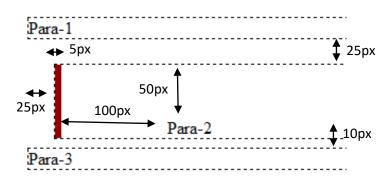
Code View	Design View
<html> <head> </head> <body> <div>Para-1</div> <div>Para-2</div> <div>Para-3</div> </body> </html>	Para-1 Para-2 Para-3

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)

(2marks)

(2marks)

(4marks)



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

(10marks)

"Code View" after the c	nange.
<html></html>	
<head></head>	
<body></body>	
<div>Para-1<td>liv></td></div>	liv>
<div id="x">Par</div>	ra-2
<div>Para-3<td>liv></td></div>	liv>
<style></td><td></td></tr><tr><td>#x{</td><td></td></tr><tr><td></td><td>margin-top: 25px;</td></tr><tr><td></td><td>margin-bottom: 10px;</td></tr><tr><td></td><td>margin-left: 25px;</td></tr><tr><td></td><td>padding-top: 50px;</td></tr><tr><td></td><td>padding-left: 100px;</td></tr><tr><td></td><td>border-left:5px solid red;</td></tr><tr><td>}</td><td></td></tr><tr><td></style>	

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



(3marks)

(5marks)

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

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.

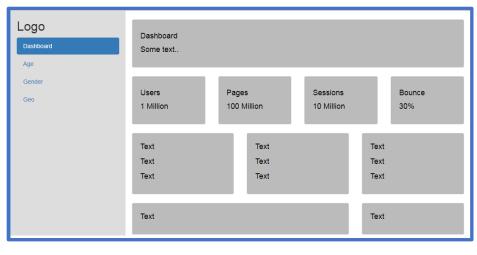
	"CSS-Only"	"JS-Mediated"
1	Panel	Dropdown
2	Forms	Collapse
3	Buttons	Carousel
4	Glyphicons	Popover
5	Pagination	Modal

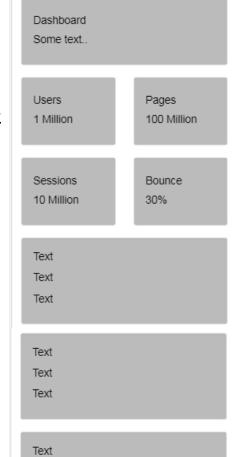
Part-B (20marks)

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

Desktop View

Smartphone View





Text Text

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Implement the above Grid-System using Bootstrap Grid Classes

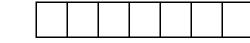
```
<div class="container-fluid">
 <div class="row">
   <div class="col-md-4 hidden-xs"></div>
   <div class="col-md-8">
     <div class="row">
        <div class="col-md-12"></div>
     </div>
     <div class="row">
       <div class="col-md-3 col-xs-6"></div>
       <div class="col-md-3 col-xs-6">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



(12marks)

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

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```
<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>
<caption> Student Details </caption>
<thead>NameCityTelephone
NimalRajagiriya0776233233
    SunilGampaha0332232811
    KamalBoralla0112684906
<tfoot>  Updated values at 2016.10.08  
<br/><br/><br/><br/><br/><br/>><br/>>
class="table" width="500" >
<caption> Student Details </caption>
<thead>NameCityTelephone
NimalRajagiriya0776233233
    SunilGampaha0332232811
    KamalBoralla0112684906
<tfoot>  Updated values at 2016.10.08 
<br/><br/><br/><br/><br/><br/>><br/>>
```

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

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```
<caption> Student Details </caption>
<thead>NameCityTelephone
NimalRajagiriya0776233233
```

</body>

```
</html>
```

Student Details		Student	Student Details		Student Details			
Name	City	Telephone	Name	City	Telephone	Name	City	Telephone
Nimal	Rajagiriya	0776233233		-	•			· ·
Sunil	Gampaha	0332232811	Nimal	Rajagiriya	0776233233	Nimal	Rajagiriya	077623323
Kamal	Boralla	0112684906	Sunil	Gampaha	0332232811	Sunil	Gampaha	033223281
		0112084900	Kamal	Boralla	0112684906	Kamal	Boralla	011268490
Updated values at 2016.10.08		Undeted ve	Updated values at 2016.10.08		Updated values at 2016.10.08			

Identify the most suitable terms for blanks

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

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(3) Suppose that you have deleted the above CSS-Styles given in the question-(2) (3ma including the " <style> </style> " tags.				rks)
What would you do If you still need to get the above appearance of the web-pa (Without including the above CSS-Codes again)	ge agair	י?		

Import the bootstrap css file.
