|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course:** | **Web Programming** | **Course Code:** | **CS-406** |
| **Program:** | **BS (Computer Science)** | **Semester:** | **Fall 2018** |
| **Duration:** | **60 Minutes** | **Total Marks:** | **50** |
| **Paper Date:** | **3-Oct-18** | **Weight** | **10 %** |
| **Section:** | **A** | **Page(s):** | **1 - 9** |
| **Exam:** | **Midterm** | **Reg. No.** |  |
| **Instruction/Notes:** | Put a tick mark against the correct answer for the MCQs. Each MCQ is of one 1 mark.  Provide solutions in the spaces provided after each question.  Good luck!  **SECTION A of paper is for Section A students. And SECTION B of the paper is for Section B students**  **SECTION A** | | | |

1. Which of the following is not a request header field:
2. Host
3. Connection
4. ETag
5. Content-Length
6. Accept
7. Which of the following is not a response header field:
8. Date
9. Server
10. Last-Modified
11. Keep-Alive
12. Expires
13. Location
14. Identify each of the following from the url: https://www.youtube.com/watch?v=U8XF6AFGqlc
15. Fragment \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
16. Query \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
17. Path \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
18. Scheme \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
19. Authority \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
20. Which of the following is invalid use of call or apply for the code below:

var person1 = {  
    firstName:"Ali",  
    lastName: "Akber",  
}

var person = {  
    fullName: function(city, country) {  
        return this.firstName + " " + this.lastName + "," + city + "," + country;  
    }  
}

1. person.fullName.call(person1, "Pakistan", "Islamabad");
2. person.fullName.apply(person1, ["Pakistan", "Karachi"]);
3. person.fullName.call(person1, ["Pakistan", "Lahore"]);
4. None of the above
5. Which of the following is **not** true about the loading of an HTML document in the browser?
6. The HTML document is loaded from top to bottom
7. the style dependencies in the <head> will load first
8. the structural elements in the <body>will load after the style dependencies
9. The JavaScript code included as an external file will execute first
10. Which of the following statement is valid to use a Node module fs in a Node based application?
11. var fs = require("fs");
12. var fs = import("fs");
13. package fs;
14. import fs;
15. In Node.js how do web servers differ from traditional web servers ?
16. Node based server uses a single threaded model and can serve much larger number of requests compared to any traditional server like Apache HTTP Server.
17. Node based server process request much faster than traditional server.
18. There is no much difference between the two.
19. All Of The Above
20. What are the key features of Node.js ?
21. Real time Data intensive.
22. Highly scalable servers for Web Applications.
23. Builds fast and scalable network Applications.
24. All of the above
25. Node.js uses an event-driven, non-blocking I/O model ?
26. True
27. False
28. Which method of fs module is used to open a file ?
29. fs.openFile(path, flags[, mode], callback)
30. fs.open(path, flags[, mode], callback)
31. fs.openPath(path, flags[, mode], callback)
32. None of the above.

### Node.js is a single-threaded application, but it can support concurrency via the concept of events and callbacks. ?

1. Yes
2. No

### Which is true for the following two lines of code

eventEmitter.addListener("connection", listener1);

eventEmitter.on("connection", listener2);

1. **addListener** is an alias for **on**, you can use either to bind a listener to an event
2. **addListener** can be replaced with on in the first line
3. both a and b
4. None of the above
5. Consider the following JavaScript code

var arr = [5, 6, 8];

var plus\_one = arr.map(function(n) {

return n + 1;

});

console.log(plus\_one);

let another\_plus\_one = arr.map(n => n + 1);

console.log(another\_plus\_one);

What will be the output? (2)

1. What results will these function calls return? (2)

function add(a = 10, b = 5) {

return a + b;

}

add(11, 12);

add(3);

add(undefined, 20);

add();

1. What will be the output of the following code? If there are errors then what is the reason?(2)

var firstname = "Farooq";

var addSurname = function() {

var surname = "Shah";

console.log(firstname + " " + surname);

};

addSurname();

console.log(firstname + " " + surname);

1. Here is some JavaScript code with intentional bugs:

var myName = {

first: "Saad",

last: "Zaheer"

},

age = 20,

country = "Pakistan";

console.log("1:", myName.first, myName.last);

var changeDetails = (function() {

console.log("2:", age, country);

var age = 19;

country = "Pakistan";

console.log("3:", age, country);

var reduceAge = function(step) {

age = age - step;

console.log("4: Age:", age);

};

var doAgeIncrease = function(step) {

for (var i = 0; i <= step; i++) {

window.age += 1;

}

console.log("5: Age:", window.age);

},

increaseAge = function(step) {

var waitForIncrease = setTimeout(function() {

doAgeIncrease(step);

}, step \* 200);

};

console.log("6:", myName.first, myName.last, age, country);

return {

reduceAge: reduceAge,

increaseAge: increaseAge

};

})();

changeDetails.increaseAge(5);

console.log("7:", age, country);

changeDetails.reduceAge(5);

console.log("8:", age, country);

Write the output and also list the bugs.(5)

1. What is the purpose of wrapping all JavaScript behavior inside of the .ready() method? (2)
2. Write jquery code to make all div elements fade in or out over a period of one second. (1)
3. Write jquery code that allows a user to click a **LOGIN** button that toggles a login form with the id login-menu. (1)
4. What is the difference between blocking code and non-blocking code? Give an example. (5)
5. Write JavaScript code against the instructions (10)
6. Import events module
7. Create an eventEmitter object
8. Create an event handler function connectHandler that logs connection successful message to the console. It should also fire a data\_received event
9. Bind the connection event with the handler
10. Bind the data\_received event with an anonymous function that prints the message data received successfully
11. Fire the connection event
12. Log the message program ended to console
13. What will be the output?
14. Write code for a RESTful API using the express framework that handles the following requests: (8)
15. /listProducts -> Show a list of products (The application level middleware/controller logic should intercept this path, read the data from the products.json file and send the response to the client)
16. /addProduct -> Add a new product (intercept a post request to this path, read the existing products from the file, parse the file and store it in a data variable, add a new product to the data variable, stringify the data and send it back to the client)
17. /deleteProduct ->Delete an existing product (intercept a delete request to this path, read the existing products from the file, parse the file and store it in a products variable, delete product 2, send the updated data to the client)
18. /:id -> Show details of a product (intercept a get request to this path, read the existing products from the file, parse the file and store it in a products variable, extract the specific product from the products collection into a product variable, stringify the product and send it back to the client)

The products data is available in a products.json file as follows:

{

"product1":{

"name":"Check print shirt",

"price":"4000",

"imageUrl":" <https://content.shop.com/media/catalog/product/imgl8986.jpg>",

"id":1

},

" product2":{

"name":"Blue Sweater",

" price ":"2000",

" imageUrl ":" https://content.shop.com/media/catalog/product/imgl8776.jpg ",

"id":2

},

" product3":{

"name":"Yellow Jacket",

" price ":"2500",

" imageUrl ":" https://content.shop.com/media/catalog/product/imgl4586.jpg ",

"id":3},

}

Start with requiring the modules necessary and creating an express application. Then define the four routes required. Lastly, start up the server on port '3000' and print a log comment to the console.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course:** | **Web Programming** | **Course Code:** | **CS-406** |
| **Program:** | **BS (Computer Science)** | **Semester:** | **Fall 2018** |
| **Duration:** | **60 Minutes** | **Total Marks:** | **30** |
| **Paper Date:** | **3-Oct-18** | **Weight** | **15 %** |
| **Section:** | **B** | **Page(s):** | **10 - 16** |
| **Exam:** | **Midterm** | **Reg. No.** |  |
| **Instruction/Notes:** | Circle the correct answer for the MCQs. Each MCQ is of one 1 mark.  Provide solutions in the spaces provided after each question.  **SECTION A of paper is for Section A students. And SECTION B of the paper is for Section B students**  **SECTION B** | | | |

1. How can you make an e-mail link:
   1. <a href=”xxx@yyy”>
   2. <mail href=”xxx@yyy”>
   3. <mail>xxx@yyy</mail>
   4. <a href=”mailto:xxx@yyy”>
2. Which attribute you'll use with TD tag to merge two cells horizontally?
3. merge=colspan2
4. rowspan=2
5. colspan=2
6. merge=row2
7. HTML documents are saved in
8. Special binary format
9. Machine language codes
10. ASCII text
11. None of above
12. JavaScript supports a composite data type known as object?
13. True
14. False
15. In JavaScript, what is the value of x: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

var x = 2+ 2 + "Hello" + 0 + 4

1. In JavaScript if we use document.write() after an HTML document is loaded, will it delete all existing HTML?
2. True
3. False
4. JavaScript has a built-in function constructor?
5. True
6. False
7. \_\_\_\_\_\_\_ removes the child elements from the selected element “p” using jQuery.
8. (“#p”).remove();
9. (“#p”).empty();
10. None of these
11. Write code in jQuery to select first <li> element of every <ul> \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. jQuery contains the following features:
13. HTML/DOM and CSS manipulation
14. Effects and animations
15. Ajax
16. All of these
17. Explain ASP.net compilation procedure (1)
18. What is the difference between value type and reference type? (1)
19. What is the difference between boxing and unboxing? (1)
20. What is Sql injection and how can you avoid it in ADO.net? (2)
21. Consider a database with following table Employee (id, name, salary, deptID)

Write a query to get the average salary for all departments employing more than 10 employees (1)

1. What are the benefits of using n-tier architecture (1)
2. In HTML forms we use an attribute called as method i.e. Request method. Explain the different types of it with the help of an example (1)
3. Suppose you have one image (image1.gif) and two buttons (button1 and button2) on the HTML page. By default, image1.gif is set. Use JavaScript to change the image source to image2.gif when button1 is clicked and change image source back to image1.gif when button2 is clicked (2)
4. You have two tags <p id = “intro”> Hello World </p> and <p id = “demo”> </p>. Write JavaScript code to get the text from paragraph with id = intro and then place that text onto paragraph with id = demo. (1)
5. In this question you have to create new html elements using JavaScript. Assume the following code is already written:

<div id = “div1”>

<p id = “p1”> This is a paragraph </p>

</div>

* 1. Write JavaScript code to create one paragraph with text “this is new paragraph” inside div (it should be written before “This is a paragraph”).
  2. Then remove the existing paragraph with id = p1 (2).

1. What is the purpose of wrapping all jQuery methods inside of the .ready() method? (1)
2. What are the advantages jQuery has over JavaScript? (1)
3. Suppose you have:

<p>change my background color using jQuery</p>

Using jQuery change the background color of “p” to white when mouse pointer leaves the html element. Change the background color of “p” to yellow when the mouse pointer double clicks the html element (2)

1. Write jQuery code to make all elements fade to 0.5 opacity over a period of one second (1)
2. Write jQuery code to change the following div:

<div id=”d1”> </div>

Change its height and width to 200px and opacity to 0.3 (1)

1. What are the three powerful methods to change and manipulate HTML elements and attributes by jQuery. Write their names (1)

**National University of Computer and Emerging Sciences, Lahore Campus**