



Course:	Web Programming	Course Code:	CS-406
Program:	BS (Computer Science)	Semester:	Fall 2019
Duration:	180 Minutes	Total Marks:	100
Paper Date:	12/11/2019	Weight	40
Section:	A&B	Page(s):	6
Exam:	Final	Reg. No.	

Instruction/Notes: *Paper is open book and open notes.
 You have to solve the paper according to content covered in class i.e. via NODEJS or .NET.
 Please use sheet to answer your question.
 You are trained to be a Software engineer and not a story write so answer point to point.
 Do not unnecessarily smile at the person sitting next to you, they may also not know the answer.
 It's good to have a lot of options in life but all questions are compulsory here.*

Question 1 (Multiple choices (20 mins))

(10 points)

- 1) **How can you create an email link?**
 - a) `<mail href="a@b">`
 - b) `<mail>a@b</mail>`
 - c) ``
 - d) ``
- 2) **Which tag is used to define a block of text that have quotation marks?**
 - a) `<quote>`
 - b) `<mark>`
 - c) `<blockquote>`
 - d) None
- 3) **The statement `a === b` refers to**
 - a) Both a and b are equal in value, type and reference address
 - b) Both a and b are equal in value
 - c) Both a and b are equal in value and type
 - d) There is no such statement
- 4) **JavaScript is designed for following purpose -**
 - a) To Execute Query Related to DB on Server
 - b) To Style HTML Pages
 - c) To add interactivity to HTML Pages.
 - d) To Perform Server-Side Scripting Operation
- 5) **We can embed JS code inside HTML directly?**
 - a) True
 - b) False
- 6) **What makes Ajax unique?**



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- a) It works as a stand-alone Web-development tool.
- b) It works the same with all Web browsers.
- c) It uses C++ as its programming language.
- d) It makes data requests asynchronously.

7) Which of the following is a valid JSON string?

- a) { "meals" : { "breakfast" , "lunch" , "dinner" } }
- b) { "meals" : ["breakfast" , "lunch" , "dinner"] }
- c) ["meals" : { "breakfast" , "lunch" , "dinner" }]
- d) [{ "meals" : { "breakfast" , "lunch" , "dinner" } }]

8) Is this placement of JS code inside HTML Element is Error Free ?

```
<html><head><title>My Page</title>
</head>
<body>
<a href="myFunction();">Click here</a>
<script type="text/javascript"> function
myFunction() {
    alert('Hello world')
}
</script>
</body>
</html>
```

- a) Yes
- b) No

9) How will you make all paragraph elements 'RED' in color?

- a) p.all {color: red;}
- b) p.all {color: red;}
- c) all.p {color: red;}
- d) p {color: red;}

10) What will happen in this case? h1 {color: red text-decoration: underline; font-style: italic;}

- a) color: red, text-decoration: underline and font-style: italic all works
- b) text-decoration: underline and font-style: italic works
- c) color: red, text-decoration: underline works
- d) only font-style: italic works



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Question 2 (Short questions - each question = 2 marks)**(20 points)**

- 1) Write the code for adding new elements dynamically in JavaScript/jQuery?
- 2) How can the style/class of an element be changed in JavaScript/jQuery?
- 3) What are escape characters in JavaScript/jQuery?
- 4) Describe the properties of an anonymous function in JavaScript?
- 5) What are `==` and `===` operators in JavaScript and how do they differ?
- 6) Write a program that takes input integer N from user and return an integer which is greater than N and that ends with 0. You can assume that N is a positive integer. For example: Given N=27 your function may return 30 and for N=30 your function may return 40.
- 7) What is the difference between DOM and DOM Tree?
- 8) In HTML5, which attribute is used to specify that an input field must be filled out?
- 9) Write an optimized function that takes one Boolean argument/parameter and return the opposite of it.
- 10) Do mention contribution (in percentage) of each group member in your final projects along with their role in the project.

Question 3**(70 points)**

You need to design a mobile-first form application for students so that users can fill the form according to the requirements. The application gets the user data and save the data in the database. The results are shown to the user when the user submitted the data in a proper format. The form mockup design can be found on the last page of the paper.

Instruction: You don't have to write the HTML or CSS to achieve the output. Consider these tasks are already done. You just have to write the code for the specific question. For example, write the query logic to get the required data. You have to solve this question according to the content covered in your class i.e. NodeJS, .Net, Angular, SQL, Mongo, Express, JavaScript and so on.

- 1) **You have to validate the form inputs with the following validation criteria. When user click on the submit button the form will validate the inputs value and check for the required inputs. The * sign indicates the input field is required. You have to write the regular expressions to validate the inputs when form is submitted. (20)**



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- a) Use Angular or React to write/add code to validate for the following input
 - i) Add required validation for all inputs except semester input (3)
 - ii) Name: Any string that just includes alphabet and underscores. (2)
 - iii) Roll Number: Pattern (L-16-1111) where 16 and 1111 can be any integer value (3)
 - iv) Email: Should be email (2)
 - v) Section: Web (A) where A can be any alphabet (5)
 - vi) **Verify the marks input that the user will only enter an integer value with the required range (5)**
 - (1) Assignment & Quizzes: 0-10
 - (2) Mid: 0-30
 - (3) Final: 0-50
- 2) **If the user enters wrong value for the input, then display error messages for each input (5)**
 - a) Use Angular/React
- 3) **Write a function reset the forms values/inputs (5)**
 - a) Use Angular/React
- 4) **If the user enters the data in the correct format. Then save the data in the database (15)**
 - a) Write down the DB schema for this in Mongo/SQL (5)
 - b) Create and register the API endpoint in server side to add/retrieve the data in NodeJS/.Net (5)
 - i) <http://example.com/register/>
 - ii) <http://example.com/display/{rollno}>
 - c) Write down the function to send and store data to above API endpoints in NodeJS/.Net with Mongo dB/SQL. Also verify if the roll number already exists (5)
- 5) **Display information via Angular/React based on roll no. (15)**
 - a) CGPA (Cumulative Grade Point Average) is defined on all student's comparative performance. suppose in 100-mark paper highest marks secured by topper is 90 marks than 90 marks will be 100% and if student x will get 80 marks then CGPA of student x will be: $100/90 \times 80 = 88.89$ on scale of 10 its 8.9.
 - i) Display user information with subject status as per follows:
 - (1) If students fail to score 50% marks, then display status = fail (5)
 - (2) Else display status pass with CGPA as described above. (10)
- 6) **Write CSS media query to update design for 320px to 799px width devices (10)**



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- Change the form background color from white to block and text from black to white.
- Make the form inputs full width (screenshot can be found at the end of the paper)

Name *

Roll Number *

Email *

Semester

Section *

Select Any Course (Total Marks: 100)

☒ Web ☐ OOP ☐ Mobile

Enter Assignment Marks (0-10) *

Enter Quizzes Marks (0-10) *

Enter Mid Exam Marks (0-30) *

Enter Final Exam Marks (0-50) *

SUBMIT **RESET**

Desktop view



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Name *

Roll Number *

Email *

Semester

Section *

Select Any Course (Total Marks: 100)

☒ Web ☐ OOP ☐ Mobile

Enter Assignment Marks (0-10) *

Enter Quizes Marks (0-10) *

Enter Mid Exam Marks (0-30) *

Enter Final Exam Marks (0-50) *

SUBMIT

RESET

View for 320px to 799px width

Good Luck!