

**WEB TECHNOLOGY**  
**(CSBS 4134)**

**Time Allotted : 2½ hrs**

**Full Marks : 60**

*Figures out of the right margin indicate full marks.*

*Candidates are required to answer Group A and any 4 (four) from Group B to E, taking one from each group.*

*Candidates are required to give answer in their own words as far as practicable.*

**Group – A**

1. Answer any twelve:

**12 × 1 = 12**

*Choose the correct alternative for the following*

- (i) World Wide Web was invented by  
(a) Ted Nelson (b) Tim Berners-Lee  
(c) Linus Torvalds (d) Robert E. Kahn
- (ii) Which of the following tag is used with JavaScript?  
(a) <table> (b) <canvas> (c) <article> (d) <footer>
- (iii) Which package manager is bundled with Node.js by default?  
(a) npm (b) bower (c) yarn (d) grunt
- (iv) Which AngularJS function is used to create a module?  
(a) module (b) ng-bind (c) angular.create (d) angular.module
- (v) Metadata store information about the web page that is not necessarily visible to end users.  
(a) True (b) False  
(c) Can not specify until it is loaded (d) Partially visible
- (vi) Which operator is used to check both the value and the type of a variable in JavaScript?  
(a) == (b) === (c) != (d) !==
- (vii) Which directive repeats an HTML element?  
(a) ng-repeats (b) ng-iterate  
(c) ng-model (d) ng-repeat
- (viii) In MongoDB, what is the role of the mongod process?  
(a) Manages the database (b) Runs the shell interface  
(c) Manages client connections (d) Handles replication

- (ix) What is the result of trying to extend the length of an array using a function in JavaScript?
- ```
function extendArray(arr) {
  arr.push(5);
}
let myArr = [1, 2, 3];
extendArray(myArr);
console.log(myArr.length);
```
- (a) 3                      (b) 4                      (c) 5                      (d) Error
- (x) Which of the following input control represents a date and time (year, month, day, hour, minute, second, fractions of a second) encoded according to ISO 8601 with no time zone information in Web Form 2.0?
- (a) datetime              (b) datetime-local              (c) date                      (d) month

*Fill in the blanks with the correct word*

- (xi) \_\_\_\_\_ is not a HTML5 tag.
- (xii) \_\_\_\_\_ is not a Boolean attribute.
- (xiii) An article element contains \_\_\_\_\_ .
- (xiv) \_\_\_\_\_ is an asynchronous equivalent for a function.
- (xv) The primary function of the mongo shell is \_\_\_\_\_.

### Group - B

2. (a) What is Semantic Web? Explain the foundational components of the Semantic Web Technology. [[CO1](Understand/LOCQ)]
- (b) What is Web Application? Compare and Contrast between different types of Web Application. [[CO1](Analyse/IOCQ)]
- (2 + 4) + (2 + 4) = 12**
3. (a) What happens if you view a new HTML5 form input type in an older browser? [[CO2](Analyse/HOCQ)]
- (b) What is the usage of a novalidate attribute for the form tag that is introduced in HTML5? [[CO2](Remember/LOCQ)]
- (c) What are the differences between HTML5 and HTML? [[CO2](Remember/IOCQ)]
- (d) Describe the relationship between the <header> and <h1> tags in HTML5. [[CO2](Apply/IOCQ)]
- 3 + 3 + 3 + 3 = 12**

### Group - C

4. (a) Write JavaScript program that accepts a string as a parameter and converts the first letter of each word of the string in upper case.
- INPUT : the students of csbs final year
- OUTPUT : The Students Of Csbs Final Year [[CO3](Apply/IOCQ)]

- (b) Write JavaScript function(s)/program to Validate an HTML student registration form containing roll no, first name, middle name, last name, password, date of birth, mobile number, email address, marks obtained, grade point, with the following validation rules :
- All the fields except for middle name cannot be empty.
  - Roll no. will be consisting of digits only
  - First name, middle name (if present), last name will be consisting of alphabets only.
  - Password length will be 6 to 14, containing alphabets, digits and special characters @, \$, #, \_ and must contain at least one alphabet, at least one digit and at least one of the special characters
  - Age must be at least 18 years
- [[CO3](Apply/IOCQ)]  
**2 + (5 × 2) = 12**
5. (a) What is the difference between synchronous and asynchronous programming? Can you explain what a closure is and why they are important when dealing with asynchronous code?  
[[CO3](Apply/IOCQ)]
- (b) Explain with examples of JavaScript code to implement: shift(), unshift() methods of Array.  
[[CO3](Apply/IOCQ)]
- (c) Describe the functionality of the following HTML DOM events with JavaScript code: mouseup, unload.  
[[CO3](Apply/IOCQ)]  
**4 + 4 + 4 = 12**

### Group - D

6. Create one Hospital Management System using MongoDB Database. Designs the system do the following operation.
- (I) Create a database named "ABC Hospital". Create collections named "Doctor" and "Patient".  
[[CO6](Apply/HOCQ)]
- (II) In the Doctor collection insert two documents:-  
 Doctor Id: "D01", Doctor Name: "Dr. Arijita Nandi", Qualification: "MBBS", Reg No: 5326, Year of Exp: "5 Years".  
 Doctor Id: "D02", Doctor Name: "Dr. Bidisha Das", Qualification: "MD", Reg No: 7359, Year of Exp: "7 Years".  
 In the Patient collection insert two documents:-  
 Patient Id: "P01", Patient Name: "Tapati Roy", Contact No: 234567891, Address: "Kolkata", No. of Visit : 5.  
 Patient Id: "P02", Patient Name: "DolaMitra", Contact No: 735921684, Address: "Delhi", No. of Visit : 7.  
 [[CO6](Apply/HOCQ)]
- (III) (i) Find the list of Doctors whose Qualification is "MBBS"  
 (ii) Change the Address to "Madras" whose Id is "P02"  
 (iii) Delete the Doctors Details who's Qualification are "MD".  
 [[CO6](Apply/IOCQ)]  
**(2 + 4 + 6) = 12**
7. (a) Write a program in Node.js to synchronously read the file content.  
[[CO4](Apply/IOCQ)]

- (b) How to load environment variables from a .env file in Node.js? How to access environment variables in Node.js? [[CO4)(Apply/IOCQ]]
- (c) How to create a web server in Node.js? [[CO4)(Apply/IOCQ]]
- 4 + 4 + 4 = 12**

### Group - E

8. (a) Take an input field. The background color of the input box will be whatever you write in the input field. Write an AngularJS code to implement this feature. [[CO5)(Apply/IOCQ]]
- (b) Compare and Contrast between AngularJS Expressions and JavaScript Expressions with a proper example. [[CO5)(Analyse/IOCQ]]
- (c) Implement an AngularJS code with proper example to add a controller to your application, and refer to the controller with the ng-controller directive. [[CO5)(Apply/IOCQ]]
- 4 + 4 + 4 = 12**
9. (a) Describe the process of interpolation in the context of AngularJS with example. [[CO5)(Evaluate/HOCQ]]
- (b) Explain the file structure of app component in the context of AngularJS. Discuss how Event Binding works in AngularJS. [[CO5)(Understand/LOCQ]]
- 6 + (3 + 3) = 12**

| Cognition Level         | LOCQ  | IOCQ  | HOCQ  |
|-------------------------|-------|-------|-------|
| Percentage distribution | 15.63 | 68.75 | 15.63 |