

**WEB TECHNOLOGY**  
**(MCAP 2102)**

**Time Allotted : 3 hrs**

**Full Marks : 70**

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

*Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.*

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

**Group - A**  
**(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Which of the following is not used to declare variables in JavaScript?  
(a) var (b) let (c) dim (d) const.
- (ii) Which is the scheme or protocol in the following URL?  
https://www.heritageit.edu/  
(a) https (b) www (c) heritageit (d) edu
- (iii) Storyboards are intended to  
(a) Indicate the structure of a site during site design and as a user feature  
(b) Prototype the screen layout showing navigation and main design elements  
(c) Prototype typical customer journeys or click streams through a website  
(d) Integrate consistently available components on the webpage (e.g. navigation, search boxes).
- (iv) In CSS, how can an element with id "demo" be selected?  
(a) #demo (b) demo (c) .demo (d) \*demo
- (v) Which statement is not true?  
(a) white-space is not preserved in XML  
(b) XML tags are case sensitive  
(c) XML elements must be properly nested  
(d) XML documents must have a root tag.
- (vi) When trying to access a php script from server, the following message is displayed on the browser:  
Server; Error 404.  
What could be the reason for the message?  
(a) The requested script file is not available  
(b) The path to the interpreter of the script file is invalid  
(c) The first line of the output from the script is not a valid HTTP header

- (d) The requested php script has insufficient permission.
- (vii) Which tag is used for defining an alternate content for browsers that do not support client-side scripts?  
(a) <script>                      (b) <alt>                      (c) <noscript>                      (d) <noscript>
- (viii) Which of the following is correct in JavaScript, with respect to creating an array?  
(a) var names = ("Joy", "Jamal", "Asmita", "Alex");  
(b) var names = ["Joy", "Jamal", "Asmita", "Alex"];  
(c) var names = {"Joy", "Jamal", "Asmita", "Alex"};  
(d) var names = ("Joy"; "Jamal"; "Asmita"; "Alex").
- (ix) What is the correct way to include the file "demo.php" in PHP?  
(a) <!-- include file="demo.php" -->                      (b) <?php include "demo.php"; ?>  
(c) <?php include:"demo.php"; ?>                      (d) <?php include file="demo.php"; ?>
- (x) Which global variable in PHP is used to collect form data, sent with both the GET and POST methods?  
(a) \$BOTH                      (b) \$\_BOTH                      (c) \$\_REQUEST                      (d) \$REQUEST.

**Group - B**

2. (a) Explain in brief the general principles of good web design.  
[[CO2) (Remember/LOCQ)]
- (b) How the rendering engine of a browser works? Explain with a diagram.  
[[CO1) (Understand/LOCQ)]
- 6 + 6 = 12**
3. (a) Write HTML to implement a form which has the following elements: a textbox which can accept a maximum of 40 characters, two radio buttons, two checkboxes, a selection list containing four items, two of which are always visible, a submit button, clicking on which will prompt the browser to send the form data to the server "http://responses.mysite.com" using "POST" method. You can use any text of your choice to label the form elements.  
[[CO3)(Apply/IOCQ)]
- (b) Differentiate between block tags and inline tags with suitable examples.  
[[CO3) (Analyze/IOCQ)]
- 7 + 5 = 12**

**Group - C**

4. (a) What are the different ways of adding styles (CSS) to web page?  
[[CO3) (Understand/LOCQ)]
- (b) How conflicts are resolved when multiple style rules apply to a single web page element? [[CO3) (Understand/LOCQ)]
- (c) Write CSS to achieve each of the following:  
(i) Add a background image in a web page, so that image does not scroll with the scrolling text  
(ii) Make all the <p> elements in a page bold and italic

- (iii) Use an image as a list item marker  
(iv) Display a hyperlink without an underline. [(CO3) (Apply/IOCQ)]

3 + 3 + 6 = 12

5. (a) Justify the need for namespaces in XML with proper example(s).  
[(CO5)(Analyze/IOCQ)]  
(b) Create an XML document with the following specification: Root element is emp; Root element contains more than one employee element; Each employee has empName, empId, gender and address; Address has street, city, postalcode. Also write an external DTD to validate this XML. [(CO5)(Apply/IOCQ)]

4 + 8 = 12

### Group - D

6. (a) Compare and contrast the HTTP request methods GET and PUT.  
[(CO1)(Understand/LOCQ)]  
(b) Using JavaScript validate an HTML student registration form containing roll no, name, marks obtained, grade point, with the following validation rules
- All the fields are to be filled
  - Roll no. will be consisting of digits only
  - Grade point will consist of an integer part and a decimal part
  - A student with negative marks or grade point less than 6.5 will not be allowed registration. [(CO4) (Apply/IOCQ)]

4 + 8 = 12

7. (a) What are HTTP proxies used for? [(CO1)(Remember/LOCQ)]  
(b) Differentiate between **undefined** and **null** in JavaScript. [(CO4)(Analyze/IOCQ)]  
(c) Write a JavaScript function to check whether a string is palindrome or not.  
[(CO4)(Apply/IOCQ)]

3 + 3 + 6 = 12

### Group - E

8. Create a web application using PHP to take choice of subjects from students for MCA 4<sup>th</sup> semester elective papers. Students can opt for one of the following four papers: Image Processing, Computer Graphics, Data Science, Software Project Management. Provide functionality to query the database to know how many students have opted for a particular elective paper and the list of those students in a proper format.  
[(CO6) (Create/HOCQ)]

12

9. (a) What purpose are served by PHP cookies? [(CO6)(Remember/LOCQ)]  
(b) How does cookies differ from session? [(CO1)(Understand/LOCQ)]  
(c) Write a PHP script that checks whether cookies are enabled or not.  
[(CO6)(Apply/IOCQ)]  
(d) Explain with examples the use of ksort() and asort() in PHP.  
[(CO6) (Understand/LOCQ)]

2 + 3 + 3 + 4 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	35.42	52.08	12.50

**Course Outcome (CO):**

After the completion of the course students will be able to

CO1: Identify the main components and functionality of the web, web browsers and servers.

CO2: Apply techniques useful in the design and development of web projects including those like site maps, wireframes, storyboarding.

CO3: Develop simple web pages using HTML5 and Cascading Style Sheets.

CO4: Integrate JavaScript with HTML pages to create dynamic effects.

CO5: Represent web data using XML.

CO6: Create dynamic, database-driven web applications using PHP and MySQL.

\*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question;  
HOCQ: Higher Order Cognitive Question

Department & Section	Submission Link
MCA	<a href="https://classroom.google.com/c/NDA1MTYwMzMzMzMyMDI5/a/NDU3MzUzMTE5MzZcw/details">https://classroom.google.com/c/NDA1MTYwMzMzMzMyMDI5/a/NDU3MzUzMTE5MzZcw/details</a>