

WEB TECHNOLOGY
(MCA 2102)

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) Which of these is a properly formatted link?
(a) `HITK`
(b) ``
(c) `<link location="www. heritageit.edu">HITK`
(d) `HITK`
- (ii) Which of the following form attributes specifies the URL to be used to submit form data?
(a) action (b) method (c) id (d) name
- (iii) Webkit, Trident, Gecko are
(a) Rich Internet Applications (RIAs) (b) Web APIs
(c) Web Servers (d) Web browser engines
- (iv) What is the default value of the CSS property 'background-attachment'?
(a) fixed (b) scroll (c) local (d) float
- (v) Which of the following is a correct XML declaration?
(a) `<?xml version="1.0" />` (b) `<xml version="1.0" />`
(c) `<?xml version="1.0"?>` (d) `<?xml version="1.0" /?>`
- (vi) Which of the following is not used to declare variables in JavaScript?
(a) dim (b) let (c) var (d) const
- (vii) Which event occurs when the user clicks on an HTML element?
(a) onclick (b) onmouseover
(c) onmouseclick (d) onchange
- (viii) Which of the following JavaScript 'typeof' returns object?
(a) `typeof NaN` (b) `typeof false`
(c) `typeof function () {}` (d) `typeof null`

- (ix) Which of the following functions is used in PHP to define a cookie to be sent along with the rest of the HTTP headers?
 (a) createcookie() (b) makecookie()
 (c) setcookie() (d) cookie()
- (x) Which superglobal variable holds information about headers, paths, and script locations?
 (a) \$_SESSION (b) \$_GET
 (c) \$_SERVER (d) \$_GLOBALS

Fill in the blanks with the correct word

- (xi) The HTML form element that specifies a list of pre-defined options for an <input> element is _____.
- (xii) The JavaScript Array method that adds new elements to the beginning of an array is _____.
- (xiii) To reference an external DTD in an XML document, the _____ declaration is used.
- (xiv) HTTP status code _____ indicates that the server is refusing to fulfil the request because it lacks proper authorization.
- (xv) XAMPP stands for "XAMPP Apache + _____ + PHP + Perl".

Group - B

2. (a) State the basic steps followed by a rendering engine of a browser while displaying a page on screen. [[CO1](Understand/LOCQ)]
- (b) Create an HTML page to display a product catalogue with a list of products. Each product should have an image, name, description, and price. Use HTML5 semantic elements. [[CO3](Apply/IOCQ)]
7 + 5 = 12
3. (a) Develop a wireframe for a conference management system that includes features for event schedules, speaker profiles, attendee registration, session booking, and feedback collection. [[CO2](Create/HOCQ)]
- (b) Differentiate between the , , and <dl> tags in HTML. When should each be used? [[CO3](Understand/LOCQ)]
7 + 5 = 12

Group - C

4. (a) Describe the use of the 'display' property in CSS. What is the difference between 'block', 'inline', and 'inline-block' values? [[CO3](Understand/LOCQ)]
- (b) Create a DTD for a travel itinerary XML document that includes: A 'trip' element as the root. Each trip contains one or more 'flight' elements and optional 'hotel' and 'activity' elements. Each flight must have details like 'flightNumber', 'departureTime', 'arrivalTime', and 'airline'. Each hotel element includes the

'hotelName', 'checkInDate', 'checkOutDate', and 'address'. The activity element lists activities with 'activityName', 'date', and 'location'.

[[CO5](Apply/IOCQ)]

5 + 7 = 12

5. (a) Differentiate between class selector and id selector in CSS with relevant examples.
- (b) Design an XML Schema (XSD) for managing educational courses with the following structure: A root element 'courseManagement' containing 'courses', 'instructors', and 'students'. 'courses' should contain multiple 'course' elements with 'courseID', 'courseName', 'credits', and 'instructorID' referring to an instructor in the 'instructors' section. 'instructors' should list multiple 'instructor' elements with 'instructorID', 'name', 'department', and 'email'. 'students' should list multiple 'student' elements with 'studentID', 'name', 'email', and an optional 'enrollments' element listing 'courseIDs' the student is enrolled in.

[[CO3](Understand/LOCQ)]

[[CO5](Apply/IOCQ)]

4 + 8 = 12

Group - D

6. (a) Describe the difference between HTTP/1.1 and HTTP/2.
- (b) Explain with relevant example optional chaining operator in JavaScript.
- (c) Create a JavaScript function to find the median of an array of numbers.
7. (a) Describe the purpose of HTTP status codes and give examples of three common status codes.
- (b) Analyse the impact of using 'var' vs. 'let' in a loop in JavaScript.
- (c) Design a JavaScript function insertIntoArray(arr, val, n) that receives an array 'arr', a value 'val', and an integer 'n' and returns an array with the value inserted at every nth position.

[[CO1](Understand/LOCQ)]

[[CO4](Understand/LOCQ)]

[[CO4](Understand/LOCQ)]

5 + 3 + 4 = 12

[[CO1](Remember/LOCQ)]

[[CO4](Analyse/IOCQ)]

[[CO4](Apply/IOCQ)]

4 + 4 + 4 = 12

Group - E

8. (a) Explain the difference between converting the type of a variable with 'casting' and 'settype()'.
- (b) With proper justification, state the output from the following PHP code snippet.
\$arr = array(1 => 'A', 1.1 => 'B', '01' => 'C', '1.1' => 'D', true => 'E', false => 'F', 'G', 3 => 'H'); print_r(\$arr);
- (c) Develop a PHP application (using PDO for database access) that inserts username and password from an HTML form to a MySQL database. Use prepared statements to prevent SQL injection.

[[CO6](Understand/IOCQ)]

[[CO6](Understand/LOCQ)]

[[CO6](Apply/IOCQ)]

3 + 3 + 6 = 12

9. (a) What are the differences in defining a constant by using 'define()' and 'const'? *[(CO6)(Understand/LOCQ)]*
- (b) Explain with a suitable example how variable-length argument lists in user-defined functions are supported in PHP. *[(CO6)(Apply/IOCQ)]*
- (c) Write a PHP script that connects to a MySQL database and retrieves all records from a specific table. *[(CO6)(Apply/IOCQ)]*

3 + 4 + 5 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	44.8	47.9	7.3