Ministry of Higher Education and Scientific Research
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Exam: Web Application Development **Domain / Field / Specialty:** Math & Info / Computer Science / ISIL
Academic Year: 2023 / 2024 **Semester / Session:** S05 / SN **Date:** 16/05/2024

Part I: Questions

1. What is the difference between static and dynamic web pages?
2. What is the primary function of XML?
3. Explain how XML differs from HTML in terms of usage and capabilities.
4. What does PHP stand for?
5. What is the difference between Mysqli and PDO (PHP Data Objects)?
6. In PHP, what are the differences between the GET and POST methods for sending data to a server?

Part II: Practical

1. Write HTML code to create a simple web page with the following elements:
   a) A heading tag (h1) with the title "My Web Page"
   b) A paragraph tag (p) containing a concise description of your webpage using 20 random words.
   c) An image tag with a source linked to a relevant image.
2. Create a CSS snippet that styles a paragraph with the id "introduction" to have a font-size of 16px, a blue color, and a yellow background.
3. Write a JavaScript function that validates a form input (*institute*, *departement*) to ensure it is not empty.
4. Write a simple PHP script that creates a class named "Book" with properties for title, author, and price, and a method to display these properties.
5. Style a navigation bar (**nav**) to display horizontal links to "Home", "World News", "Sports", and "Contact Us". Ensure these links are evenly distributed across the full width of the navigation bar
6. Let $a=10; et $b=12;, What is the result of the following code?

```
echo  " a = ".$a++." and  b = ".$b;
echo  " a = ".++$a." and b = ".(boolean)$b;
echo  " a = $a and b = $b"; echo  ' a = $a++ and b = $b';
```

7. What is the result of the following code

```
$a = 1;
++$a;
$a *= $a;
echo $a--;
```

Exam correction

Exam correction: Web Application Development **Semester / Session:** S05 / SN **Date:** 16/05/2024

Part I: Questions (08M)

1. What is the difference between static and dynamic web pages? **(02M)**

Feature	Static Web Pages	Dynamic Web Pages
Content	Fixed content	Variable content
Technology	HTML, CSS, sometimes JavaScript	Server-side scripting (PHP, ASP.NET, Python, etc.) and databases (MySQL, PostgreSQL, etc.)
Interactivity	Limited	High
Performance	Generally faster	Potentially slower due to server-side processing
Examples	Company homepages, personal blogs, portfolios	Social media platforms, e-commerce sites, CMS (e.g., WordPress), web applications
Updates	Requires manual updates by the developer	Content can be updated dynamically based on user interactions or database queries
Cost	Generally lower	Can be higher due to complexity and server requirements
Scalability	Simple to scale	More complex to scale due to dynamic content generation

2. What is the primary function of XML? **(0.5M)**
   XML was designed to store and transport data
3. Explain how XML differs from HTML in terms of usage and capabilities **(02M)**

Feature	XML	HTML
Purpose	Data exchange and representation	Displaying content and structure of web pages
Structure	Hierarchical tree-like (nested elements)	Flexible, some self-closing elements
Data Definition	Extensible - define new elements/attributes	Predefined set of elements and attributes
Tags	Opening and closing tags required for each element (except some empty elements)	Some elements self-closing (e.g., `?euA`)
Validation	Often uses DTDs or XSDs for validation	Limited validation, relies on browsers
Focus	Structured data representation	Visual presentation and user interaction

4. What does PHP stand for? **(0.5M)**
   PHP : Hypertext Preprocessor
5. What is the difference between Mysqli and PDO (PHP Data Objects)? **(01M)**

Feature	MySQLi	PDO
Database Support	MySQL only	Multiple databases (MySQL, PostgreSQL, SQLite, etc.)
Usability	Ideal for MySQL-specific projects, offers both procedural and object-oriented styles	Ideal for projects requiring flexibility across different databases, supports only object-oriented style

6. In PHP, what are the differences between the GET and POST methods for sending data to a server? **(2M)**

Feature	GET	POST
Data Placement	URL (after `B`)	HTTP request body
Security	Less secure (visible in URL)	More secure (hidden)
Data Size Limit	Smaller (limited by URL length)	Larger
Example Use Cases	Search queries, pagination, sorting data	Form submissions, login credentials, file uploads

Part II: Practical

1. HTML code (02M)

```
<!DOCTYPE html>
<html lang="en">                                                    (01M)
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>My Web Page</title>
</head>

<body>                                                                  (01M)
   <h1>My Web Page</h1>
   <p>lorem20.</p>
   <img src="https://example.com/your-image.jpg" alt="Description of image">
</body>
</html>
```

2. CSS snippet to style a paragraph with the id "introduction" (1.5M)

```
#introduction {
   font-size: 16px;                (0.5M)
   color: blue;                    (0.5M)
   background-color: yellow;       (0.5M)
}
```

3. JavaScript function (03M)

```
<script>
      function validateForm() {
         var institute = document.getElementById('institute').value;    (0.5M)
         var department = document.getElementById('department').value;   (0.5M)
         var isValid = true;
         var errorMessage = '';

         if (institute.trim() === '') {     (0.5M)
            errorMessage += 'Institute field is required.\n';      (0.5M)
            isValid = false;
         }

         if (department.trim() === '') {    (0.5M)
            errorMessage += 'Department field is required.\n';       (0.5M)
            isValid = false;
         }

         if (!isValid) {
            alert(errorMessage);
         }

         return isValid;
      }
   </script>
```

4. PHP script that creates a class named "Book" (03M)

```php
<?php
class Book {
   public $title;
   public $author;
   public $price;

   public function __construct($title, $author, $price) {
      $this->title = $title;
      $this->author = $author;
      $this->price = $price;
   }

   public function display() {
      echo "Title: " . $this->title . "<br>";
      echo "Author: " . $this->author . "<br>";
      echo "Price: $" . $this->price . "<br>";
   }
}

// Example usage:
$book1 = new Book("1984", "George Orwell", 9.99);
$book1->display();

$book2 = new Book("To Kill a Mockingbird", "Harper Lee", 7.99);
$book2->display();
?>
```

(01M) (01M) (01M)

5. Nav bar style

```
.navBar {
    display: flex;                          (0.5M)
   flex-direction: row;    flex-wrap: wrap;
  justify-content: space-evenly;            (0.5M)
}
```

6. result :

a = 10 and b = 12 (0.25M)

a = 12 and b = 1 (0.25M)

a = 12 and b = 12 (0.25M)

a = $a++ and b = $b (0.25M)

7. result:

4 (0.5M)

/* echo $a--; will print the current value of $a, which is 4, and then $a will be decremented to 3. */