



# UNIVERSITY OF RUHUNA

## Faculty of Engineering

End-Semester 5 Examination in Engineering: May 2023

Module Number: EE5209

Module Name: Web Application Development

Part - B

[2 hours]

[Answer all questions]

Q1 Answer the following using the knowledge on Angular.

a. Write the CLI commands for the below operations.

- i. Create a new angular project
- ii. Create new component

[1.0 Mark]

b. An Angular component typically consists of four files. Explain the purpose of each of these files in the context of an Angular component. [2.0 Marks]

c. Write the output of the following code snippets.

- i. `<p>The date is {{ myDate | date:'fullDate' }}</p>`
- ii.

```
<ng-container *ngIf="isDiscountAvailable; else regularPrice">
  <ng-container *ngTemplateOutlet="discountedPrice"></ng-
container>
</ng-container>
```

```
<ng-template #regularPrice>
  <span>Product Price: {{ productPrice | currency }}</span>
</ng-template>
```

```
<ng-template #discountedPrice let-discountedPrice="value">
  <span>Discounted Price: {{ discountedPrice | currency
}}</span>
</ng-template>
```

```
export class ProductComponent {
  isDiscountAvailable: boolean = false;
  productPrice: number = 100;
  discountPercentage: number = 10;
}
```

[2.0 Marks]

Q2 Answer the following using the knowledge on APIs and REST standards.

a. What is the purpose of an API?

[1.0 Mark]

b. Explain the stateless behavior in an API.

[2.0 Marks]

- c. What HTTP methods are commonly used in REST APIs and what do they correspond to? [2.0 Marks]

Q3 Answer the following using the knowledge on ASP.Net.

- a. Briefly explain MVC pattern. [2.0 Marks]  
b. Briefly explain the use of the 2 attributes in ASP.Net MVC. [2.0 Marks]  
c. Write the Controller class code snippet for an API endpoint to create a new student (POST/students). Please use ASP.Net syntaxes. [2.0 Marks]  
d. Briefly explain the Singleton, Transient, and Scoped behaviors of Dependency Injection in Asp.Net Core. [2.0 Marks]  
e. Briefly explain the behavior of the following code snippet. Include the purpose of default parameters. [2.0 Marks]

```
routes.MapRoute(  
    "Default", // Route name  
    "{controller}/{action}/{id}", // URL with parameters  
    new { controller = "Home", action = "Index", id = "" } // Parameter defaults  
);
```

Q4 Answer the following using the knowledge on HTTP.

- a. Name 3 main components of an HTTP message. [1.0 Mark]  
b. Name the components of a generic URI. [2.0 Marks]

Diagram illustrating the components of a generic URI: `http://john.doe:password@www.example.com:123/forum/questions/?tag=networking&order=newest#top`

The components are labeled as follows:

- 1: Protocol (http)
- 2: Username (john.doe)
- 3: Password (password)
- 4: Hostname (www.example.com)
- 5: Port (123)
- 6: Path (forum/questions)
- 7: Query string (?tag=networking&order=newest)
- 8: Fragment (#top)

- c. Briefly explain HTTP Request-Response Lifecycle. [2.0 Marks]