

**PLEASE ANSWER ALL QUESTIONS.**

**Total 25 Marks**

## **QUESTION 1**

What are the different datatypes used for transmitting data? “XML must have one root key-value pair. JSON can have multiple.” Explain with an example. **(3+4=7 Marks)**

## **QUESTION 2**

What are the different types of data you can transmit using routes in flask? How do you use dynamic elements in a Jinja template? Provide an example.

Consider the following python route:

```
1 from flask import request, jsonify
2 from app import taj_app
3
4 @taj_app.route('/country_info')
5 def get_info():
6     countryName = request.args.get("countryName", type=str)
7     print(countryName)
8
9     info = {
10         "Bangladesh": {
11             "capital": "Dhaka",
12             "lang": "Bengali",
13             "currency": "BDT"
14         },
15         "USA": {
16             "capital": "Washington DC",
17             "lang": "English",
18             "currency": "USD"
19         },
20         "Canada": {
21             "capital": "Ottawa",
22             "lang": "English, French",
23             "currency": "CAD"
24         },
25         "Australia": {
26             "capital": "Canberra",
27             "lang": "English",
28             "currency": "AUD"
29         }
30     }
31
32     return jsonify(info[countryName])
```

Now look at the results displayed when this route is called:

**Traveler's Companion**  
**Essential information for traveling abroad**  
Please enter the country you'd like to find information for:   
  
Capital: Dhaka  
Language: Bengali  
Currency: BDT

Write the code to display the Capital, Language and the Currency of the searched country. Use the flask templating syntax to display the information. **(2+3+3=7 Marks)**

## **QUESTION 3**

Write a program (HTML and Javascript) with a button that counts the number of times it has been clicked and displays the result in a div. Instead of using Javascript DOM objects, use jQuery to perform the operation. **(5 Marks)**

## **QUESTION 4**

Briefly discuss the steps of SSL encryption and how it prevents unauthenticated access to protected resources. **(3+2=5 Marks)**

**\*\*END OF QUESTIONS\*\***