

**ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)**  
**ORGANISATION OF ISLAMIC COOPERATION (OIC)**  
**Department of Computer Science and Engineering (CSE)**

**MID SEMESTER EXAMINATION****WINTER SEMESTER, 2019-2020****DURATION: 1 Hour 30 Minutes****FULL MARKS: 75****SWE 4537: Server Programming****Programmable calculators are not allowed. Do not write anything on the question paper.**There are **3 (three)** questions. Answer **all** of them.

Figures in the right margin indicate marks.

1. a) Two samples of HTTP request message and HTTP response message are given in figure 1 and 2 respectively. Explain the format of the messages in the figures. Explain each of the terms in no more than two sentences. 2×8

```
POST /login HTTP/1.1
Host: www.stackunderflow.com
Content-Type: application/json
Content-Length: xx
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
Accept-Language: en-us
Accept-Encoding: gzip, deflate
Connection: Keep-Alive

{"username": "myusername", "password": "mypassword"}
```

Figure 1: Sample HTTP request message for question 1.a

```
HTTP/1.1 409 Conflict
Content-Type: application/json
Content-Length: xx

{"message": "Invalid username or password"}
```

Figure 2: Sample HTTP response message for question 1.a

- b) Suppose you have requested a server that has given you response with status code in one of the following formats. What will you understand by the following status codes? Explain each in one sentence. 3×2
- i. 2xx
  - ii. 4xx
  - iii. 5xx
- c) In which context the CONNECT HTTP method is used? 3
2. a) There are four layers of web service technology stack. Mention the responsibility of each layer with one of the mechanisms or standards to implement them. 12.5
- b) Suppose you are going to develop an application named Stack Underflow where users can post their blog articles. You will make a RESTful web service for that. Now you will let the user to request to your web service to add, edit, delete, get all the articles and get a single article through your service. 5×2.5
- What will be the URLs and HTTP verbs for the requests? Mention which URLs will be used for which purposes.
3. a) What are the five factors used for user authentication in web applications? Give example of each. 10+3
- If you are allowed to use only one-factor authentication, which factor would you use and why would you choose that?
- b) Explain the structure of JSON Web Token (JWT) used in token-based authentication and how is it being constituted in server. How JWT is used for verification of a token? 9+3