



United International University (UIU)

Department of Computer Science & Engineering

Exam: Mid Term, **Term:** Summer 2019 (192)

Course Code: CSI 321, **Course Title:** Software Engineering

Total Marks: 30, **Duration:** 1:45 hours

Answer all the questions.

Question # 1

[2x5 = 10]

- (a) What are the benefits of micro-service architecture?
- (b) Draw and explain the diagram of decentralized database.
- (c) Give example of any four data types of JSON.
- (d) What are the HTTP methods, typically used for REST API?
- (e) Describe “API gateway style” using diagram.

Question # 2

We want to develop a Medical Record System (MRS) for United Hospital, Dhaka. Let us assume that, the MRS should have the following features.

- Patient registration and maintain information about the admitted patients
- Booking of cabin or bed at ward
- Diagnostics reports
- Prescriptions
- Medications

Considering the above system, please prepare the following specifications:

- (a) **Block diagram** of the complete system considering Microservice Architecture with API gateway style. [2 marks]
- (b) **Database specification** for all the tables of the complete system. [5 marks]
- (c) **API specification** for prescriptions of the patients. [5 marks]
- (d) An example of **data interchange (messaging) format** using JSON [2x4 = 8 marks]
for the following data:
 - i) Information about a pathologist.
 - ii) A diagnostics report of a patient
 - iii) A prescription of a patient
 - iv) Medication history of a hospitalized patient