



**EAST WEST UNIVERSITY**  
**Department of Computer Science and Engineering**  
**B.Sc. in Computer Science and Engineering Program**  
**Midterm-2 Examination, Spring 2022 Semester**

**Course:** CSE487 Cybersecurity, Law and Ethics, Section-2  
**Instructor:** Rashedul Amin Tuhin, Senior Lecturer, CSE Department  
**Full Marks:** 30 (15 will be counted for final grading)  
**Duration:** 80 minutes

**Notes:** There are **FOUR** questions, answer ALL of them. Course Outcome (CO), Cognitive Level, Mark, for each question are mentioned at the right margin.

The exam contains **complex engineering problems**, EP4: Familiarity of issues, EP5: Extent of applicable codes, EP6: Extent of stakeholder involvement and conflicting requirements

The invigilator and the examiner reserve the right of not accepting the answer script, in any case of (not limited to) non-compliance, late submissions, cheating.

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- Q1.** Differentiate between *First Preimage Resistance* and *Second Preimage Resistance*. [CO2, C3, Mark: 05]
- Q2.** With the help of a diagram, **explain** the *Kerberos* authentication protocol. [CO2, C3, Mark: 10]
- Q3.** With the help of a diagram, **demonstrate** how the *RSA algorithm* is vulnerable to *MITM attack*. **Demonstrate** how *PKI* solves the problem. [CO1, C3, Mark: 05]

**Principles of Data Collection and Use [EP4, EP5, EP6]**

- Q4.** Assume you have developed a system that includes a wearable device and a mobile application named "*Batman*", that allows the parents to track their child. The device and the app can access almost everything on the phone and monitor the vital signs of the child. You have the capability to collect, store and use any data through the app. [CO1, C3, Mark: 10]

You advertise that your app uses machine learning for early detection of health issues and unsafe events, so that the parents can be alerted. The parents can access the data anytime with another app, named "*Alfred*", which is also included in the package.

The developer team works remotely from all over the world, the hardware is manufactured and packaged in China, and the customer segments are primarily in the US and EU, and you are the CEO working from Bangladesh.

**Applying** the principles for data collection and use, create the informed consent document to collect the legal consent from the users of your product.

Use reasonable assumptions, if necessary.