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Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



II SEMESTER M.TECH (COMPUTER SCIENCE AND INFORMATION SECURITY)

END SEMESTER EXAMINATIONS, MAY 2016

SUBJECT: DATABASE AND APPLICATION SECURITY [CSE 568]

12-05-2016

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ANY FIVE FULL** questions.
- ❖ Missing data, if any, may be suitably assumed.

1A. What are different components of Security Engineering? Can policy decide framework? Explain with an example.

5M

1B. How do you define Security and Dependability? Explain.

3M

1C. How are Secrecy, Privacy, Confidentiality related to Security Engineering?

2M

2A. Suppose a set of distributed tasks are given, T1, T2, T3 whose start times are e1, e2, e3 which are 10 msec, 20 msec and 30 msec, and total time taken are P1, P2, P3 which are 100 msec, 120 msec and 140 msec. Give the necessary and sufficient conditions for tasks to be schedulable.

5M

2B. How are Burglar Alarms used as an access control in Security Engineering using databases? Who will be stakeholders for such a system?

3M

2C. How can sensors be set, for securing a set of houses, which are present in a database? Explain the method involved.

2M

3A. Which Data Mining algorithm is used by the rule of Majority? Which distance formula has to be used for the same?

2M

3B. Give two Biometric Controls for Security Engineering. Which are the features used?

3M

3C. Which Life Cycle Model is used for Kennedy Memorandum? Which quadrant stands for Risk Mitigation?

5M

4A. How do you develop CMM for Database security for the Case Study A? Explain the steps involved.

5M

Case Study A: A supermarket needs to develop the following software to encourage regular customers. For this, the customer needs to supply his/her residence address, telephone number, and the driving license number. Each customer who registers for this scheme is assigned a unique customer number (CN) by the computer. A customer can present his CN to the check out staff

when he makes any purchase. In this case, the value of his purchase is credited against his CN. At the end of each year, the supermarket intends to award surprise gifts to 10 customers who make the highest total purchase over the year. Also, it intends to award a 22 caret gold coin to every customer whose purchase exceeded Rs.10,000. The entries against the CN are the reset on the day of every year after the prize winners' lists are generated.

- 4B. How will you develop Security Controls for withdrawing cash from ATM? 3M
- 4C. What are System Layers? Which System Layer will be used for closing account in a bank? 2M
- 5A. How do you give Secure Development Life Cycle to avoid Corporate Frauds, such as tampering official files, to get details of employees? 5M
- 5B. What is Context Switching Time? What is its relevance? 2M
- 5C. What is Top Down approach in Security Encapsulation? Explain with respect to University Student System and Automobile System. 3M
- 6A. Explain the encryption system using characters, for efficient login in Banking System. 5M
- 6B. What are different types of Protection in Security Engineering using Databases? Explain with respect to Health Care Management System. 3M
- 6C. Explain the Security Concepts, with respect to Deposit Cash into ATM. 2M