Subject Code: H4002/R13

M. Tech –II Semester Regular/ Supply Examinations, October, 2015
INFORMATION SECURITY
(Common to IT, CS, CS&T and CS&E)

Time: 3 Hours   **Max Marks: 60**

Answer any FIVE questions
All questions carry EQUAL marks
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1. a. What is security mechanism? Briefly describe the relation between security services and mechanisms.
   b. Briefly describe a model for network security with the help of a neat diagram.

2. a. What are format string vulnerabilities? How they can be fixed and exploited.
   b. Briefly describe route table modification.

3. a. What is a symmetric encryption? Briefly describe the rules for secure use of symmetric encryption.
   b. Briefly describe HMAC.

4. a. Briefly describe the location of encryption devices.
   b. Compare and contrast the different conventional encryption algorithms.

5. a. Briefly describe about digital certificates and public key distribution of secret keys
   b. What are the design goals of Kerberos?

6. a. Describe in detail about combining security associations
   b. Briefly describe the applications of IPSec.

7. a. Briefly describe the involved steps in the SSL record protocol transmission
   b. Briefly describe the components of SET system.

8. a. Briefly describe the characteristics of firewalls
   b. What is SNMP? List the categories of SNMP.

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Subject Code: H6803/R13

M. Tech –II Semester Regular/ Supply Examinations, October, 2015
EMBEDDED REAL TIME OPERATING SYSTEMS
(Common to VLSI&ES, ES&VLSI, VLSID& ES, ES&VLSID, DECS, E&CE and DECE)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks
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1. a) Why does an OS function provide two modes, user mode and supervisory mode? Briefly explain about those two modes?
    b) What is the protection mechanism for the OS? Give the various activities for implementing important security functions?

2. a) Explain the terms process descriptor and process control block. What are the analogies in a PCB and TCB?
    b) Briefly explain about the Round Robin Time Slicing Scheduling?

3. a) How does a mailbox message differ from a queue message? Explain the queue functions for the intertask communications?
    b) What is RTOS? Explain the different types of RTOSes?

4. a) Classify and list the source files, which depend on the processor and those that are processor independent?
    b) Describe the features of Windows CE. Why does the Windows CE have low interrupt latencies?

5. a) Briefly explain about the software layers in software architecture of a camera system?
    b) Draw the state diagram of digital camera functions?

6. a) With suitable diagrams explain TCP stack hardware and software architecture?
    b) Tabulate the features needed in the OS for a smart card?

7. a) Write a shell script to find single letter, two letter and three letter words in a text file?
    b) List the function calls used for shared memory and message queues.

8. a) Explain how to achieve communication between a process running in Linux and a process running in RTLinux.
    b) Explain the use of semaphore with an example.

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Subject Code: H0403/R13
M. Tech –II Semester Regular/Supply Examinations, October, 2015
QUALITY ENGINEERING IN MANUFACTURING
(Common to CAD/CAM and AMS)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks
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1. (a) Explain Taguchi loss function with derivative for the model "Nominal the best".
   (b) Explain how one attribute of the loss functions helps to determine the factory tolerances.

2. (a) Distinguish between system design, parameter design and tolerance design.
   (b) How the tolerance design is made for L-type characteristic systems?

3. A company wishes to test 4 different types of tires, A, B, C, D. The lifetimes of the tires, as determined from their treads, are given (in thousands of miles) in table below, where each type has been tried on 6 similar automobiles assigned at random to tires. Test at the 0.05 level whether there is a difference in tires.

	I	II	III	IV	V	VI
A	33	38	36	40	31	35
B	32	40	42	38	30	34
C	31	37	35	33	34	30
D	29	34	32	30	33	31

Table:1

4. Explain the process of DOE indicating the steps involved in the planning phase, conducting phase and analysis phase.

5. Briefly explain six sigma philosophy and benefits of its use in small organizations.

6. (a) Determine the S/N ratio for a process that has a temperature average of 21 ^{0}C and a sample standard deviation of 2 ^{0}C for four observations. Use nominal the better equation.
   (b) Explain their role in reducing the effects of noise factors during product and process design stages.

7. (a) How ANOVA is used for four level factors and multiple level factors?
   (b) Explain with an example the importance of Orthogonal Array in design of experiments.

8. Write short notes on following:
   (a) Six sigma system
   (b) Larger the better
   (c) ANOVA

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