MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

Direct 2nd Year MCA- I Year II Semester (R14) Regular End Semester Examinations Aug- 2015

SOFTWARE ENGINEERING

Time: 3Hrs   Max Marks: 60

Note:
1) Attempt all the questions.
2) **In Q.no 1 to 5 answer either I or II only.**

1.(I)	a) Discuss in detail various characteristics of software	**6M**
	b) Discuss on different types of software myths and the true values of these myths	**6M**

<div align="center">OR</div>

1.(II)	a) Explain in detail the Spiral Model	**6M**
	b) Briefly write about Extreme Programming	**6M**
2.(I)	a) Describe the Requirements Engineering Activities	**6M**
	b) Explain Structured Methods in detail	**6M**

<div align="center">OR</div>

2.(II)	a) Write about Software Design Attributes	**6M**
	b) Explain about Class Based Component Design	**6M**
3.(I)	Elaborate the golden rules of User Interface Design	**12M**

<div align="center">OR</div>

3.(II)	a) Write about User Interface Design steps	**6M**
	b) Explain the component level design patterns	**6M**
4.(I)	a) Describe the strategic approach of Software Testing	**6M**
	b) Explain the art of debugging	**6M**

<div align="center">OR</div>

4.(II)	Explain in detail the Basis Path Testing in White Box Testing Technique	**12M**
5.(I)	What are Software Risks? Explain how risks are identified during software development	**12M**

<div align="center">OR</div>

5.(II)	Explain the following:	**12M**
	a) Metrics for testing	
	b) Software Reengineering Activities	

<div align="center">*** END***</div>

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OPERATING SYSTEMS

Time: 3Hrs   Max Marks: 60

Note:
1) Attempt all the questions.
2) **In Q.no 1 to 5 answer either I or II only.**

1.(I)	a. List and explain the operating system features needed for Multiprogramming?	**4M**
	b. Explain various services of an operating system.	**8M**

OR

1.(II)	Briefly describe system call. List and explain the three general methods used to pass parameters between a running program and the operating system. Also describe the types of system calls.	**12M**

2.(I)	a. What is a process? Draw and explain process state transition diagram.	**7M**
	b. Define semaphore. Describe the operations used to access semaphore. Explain the two types of Semaphores.	**5M**

OR

2.(II)	Explain various mechanisms for handling deadlock.	**12M**

3.(I)	a. Differentiate between logical address and physical address. If the address binding happens at the compile time how are these two addresses related, if the binding happens at run time then how are they related?	**3M**
	b. Give a note on various page table structures.	**9M**

OR

3.(II)	Given a reference string 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1. How many page faults occur with three page frames, if the page replacement algorithm used is:	
	a) FIFO	**4M**
	b) Optimal	**4M**
	c) LRU	**4M**

4.(I)	a. What is a file? Explain file operations in detail.	**9M**
	b. Draw the single-level directory structure and describe the two problems with this structure.	**3M**

OR

4.(II)	a. Describe the two ways computers access disk storage.	**6M**
	b. "The operating system is responsible for several other aspects of disk management, too". Discuss the OS responsibilities with respect to Disk management.	**6M**

5.(I)	Explain the various methods used for implementing an access matrix.	**12M**

OR

5.(II)	Write short notes on the following:	**4M**
	a) Trojan Horse	**4M**
	b) Symmetric encryption	**4M**
	c) Biometrics	

*** END***

Course Code: 14IMCA22T09

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NETWORK SECURITY ESSENTIALS APPLICATIONS AND STANDARDS

Time: 3Hrs   Max Marks: 60

Note:
1) Attempt all the questions.
2) **In Q.no 1 to 5 answer either I or II only.**

Q.1.(I)	Illustrate in detail about OSI Reference model with neat sketch.	**12M**
	OR	
Q.1.(II)	Write briefly about	
	(a) Active vs. Passive attacks	**6M**
	(b) Concept of Key Escrow for Law Enforcement	**6M**
Q.2.(I)	Explain Diffie-Hellman key Exchange in detail with an example	**12M**
	OR	
Q.2.(II)	Elaborate in detail about Elliptic Curve cryptography.	**12M**
Q.3.(I)	Compare and contrast password based authentication and address based authentication,	**12M**
	OR	
Q.3.(II)	Discuss the need of multiple trusted intermediaries and Explain in detail about multiple KDC's and CA domains.	**12M**
Q.4.(I)	Describe Kerberos as a Key Distribution Centre (KDC) and an authentication protocol	**12M**
	OR	
Q.4.(II)	Explain the implementation of IPSec in detail.	**12M**
Q.5.(I)	Write short notes on	
	(a) Non Repudiation in email security	**6M**
	(b) Store and forward email infrastructure.	**6M**
	OR	
Q.5.(II)	Explain the transmission and reception of PGP messages, with relevant flowcharts, in detail	**12M**

*** END***

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COMPUTER ORGANIZATION

Time: 3Hrs   **Max Marks: 60**

Note:
1) Attempt all the questions.
2) **In Q.no 1 to 5 answer either I or II only.**

Q.1.(I)	a) Discus the biased exponent floating point representation.	6M
	b) Distinguish between combinational and sequential circuit with example.	6M
	OR	
Q.1.(II)	What are the various methods used to represent signed numbers in computer memory? Explain.	12M
Q.2.(I)	a) Design a 4-Bit adder-substractor circuit.	6M
	b) Give the short notes on the system bus.	6M
	OR	
Q.2.(II)	a) Differentiate RISC and CISC.	6M
	b) Write short notes on Booth's multiplication algorithm.	6M
Q.3.(I)	a) Discuss subroutine with example.	6M
	b) Give the horizontal and vertical micro instructions format and compare them.	6M
	OR	
Q.3.(II)	a) List the four phase of instruction cycle. Explain.	6M
	b) Explain the concept of instruction interpretation and execution.	6M
Q.4.(I)	a) What is a Page fault? How it is handled?	6M
	b) Differentiate Virtual memory form cache memory.	6M
	OR	
Q.4.(II)	How to organize the memory? Explain.	12M
Q.5.(I)	a) What are the needs for an I/O interfaces? Discuss.	6M
	b) Explain in detail VHDL concept.	6M
	OR	
Q.5.(II)	a) How is asynchronous I/O different from Synchronous I/O? Explain.	6M
	b) Explain about SCSI.	6M

*** END***