Course Code: 14MCA11T03

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
MCA I Year I Semester (R14) Supplementary End Semester Examinations Aug- 2015

PROGRAMMING TO PYTHON

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

- Attempt all the questions.
- **In Q.no 1 to 5 answer either I or II only.**

Q.1(I)	a) Compare the top down and bottom up approaches of problem solving techniques. b) Solve for X in the following examples: i) $1234_{10}=2322_X$ ii) $4CD5_{16}=X_8$ iii) $3405_6=X_3$	**6M+ 6M**
	OR	
Q.1(II)	a) Draw a flowchart for reading an array of numbers and then sorting and printing the numbers. b) Solve for X in the following examples: i) $1234_{16}=X_2$ ii) $4CD5_{16}=X_8$ iii) $3405_8=X_4$	**6M+ 6M**
Q.2(I)	a) Write a function slope(x1, y1, x2, y2) in Python that returns the slope of the line through the points (x1,y1) and (x2, y2). b) Write a function num_digits(n) in Python that returns the number of digits in n.	**6M+ 6M**
	OR	
Q.2(II)	a) Write a function, is_prime, which takes a single integer argument and returns **True** when the argument is a prime number and **False** otherwise. b) Write briefly on String operations and control structures in Python.	**6M+ 6M**
Q.3(I)	Write in detail on Strings, Dictionaries, Lists and Tuples.	**12M**
	OR	
Q.3II)	a) Write a function that removes all occurrences of a string from another string. b) Write a Python program to reverse copy a file onto another file by copying the first byte to the last and the last to the first.	**6M+ 6M**
Q.4(I)	Write a Python program to implement a simple calculator.	**12M**
	OR	
Q.4(II)	Write in detail on event handling, key and mouse events with an example Python program.	**12M**
Q.5(I)	Write a Python class to implement a stack using Python lists.	**12M**
	OR	
Q.5(II)	Write a Python class to implement a priority queue using Python lists.	**12M**

***** END*****

Course Code: 14MCA11T04

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

MCA I Year I Semester (R14) Supplementary End Semester Examinations Aug- 2015

COMPUTER ORGANIZATION

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

- Attempt all the questions.
- **In Q.no 1 to 5 answer either I or II only.**

Q.1(I)	What is a decoder? Construct 2-to-4 line decoder with NAND gates. Explain its operation with the truth table.	**12M**
	OR	
Q.1(II)	Discuss four condition code flags in detail.	**12M**
Q.2(I)	Describe the characteristics of RISC. Also list the differences between RISC and CISC.	**12M**
	OR	
Q.2(II)	Explain the steps to execute an instruction.	**12M**
Q.3(I)	Briefly explain various hazards that cause performance degradation in pipelining.	**12M**
	OR	
Q.3(II)	a. Discuss the operation of a 4-stage pipeline in detail. b. Differentiate between static branch prediction and dynamic branch prediction.	**6M** **6M**
Q.4(I)	Explain various cache memory mapping techniques.	**12M**
	OR	
Q.4(II)	With a neat sketch, explain address translation scheme using virtual memory.	**12M**
Q.5(I)	Explain the two approaches to bus arbitration.	**12M**
	OR	
Q.5(II)	Give a note on PCI bus and SCSI bus.	**12M**

***** END*****