

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCA(2Yrs) I Year I Semester (R16) Regular & Supplementary End Semester Examinations – Dec 2017

(Regulations: R16)

DATA STRUCTURES THROUGH PYTHON

Time: 3Hrs

Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part-A or B only

- Q.1(A) i) Write a python program to reverse the string 5M
ii) What is bitwise operator? Write a Python program to implement bitwise operators 1M+4M
- OR**
- Q.1(B) i) What is updating variable? Write different ways to update variable value 1M+4M
ii) Write a python program to find the sum of given numbered elements of Fibonacci series 5M
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- Q.2(A) i) Define dynamic memory allocation and deallocation? 2M+4M
Write implementation of dynamic memory allocation and deallocation in python
ii) What is operator overloading? Which operators are supported and not supported to operator overloading concept 1M+3M
- OR**
- Q.2(B) i) What is data structure? Write its classification 1M+4M
ii) Describe the except clause with multiple exceptions and try finally clause. 5M
-
- Q.3(A) i) What is array? Write a program to find the difference of two matrices 1M+4M
ii) Explain array operations 5M
- OR**
- Q.3(B) i) What is stack? Explain representations of stack 1M+3M
ii) Write the infix, prefix and postfix notations for the expression $\frac{22}{7} r^2 h$. 6M
-
- Q.4(A) i) What is queue? Write a python program to implement operations of queue 1M+4M
ii) What is priority queue? Explain array implementation of a priority queue 1M+4M
- OR**
- Q.4(B) i) What is circular list? Explain insertion and deletion of node in circular list 1M+4M
ii) Write the dissimilarities and similarities between stack and queue 5M
-
- Q.5(A) i) Define tree traversal? Write different tree traversal techniques 1M+4M
ii) Define binary search tree? Write its basic operations 1M+4M
- OR**
- Q.5(B) i) Define algorithmic notation? Explain different algorithmic notations 1M+4M
ii) What is merge sorting? Describe merge sort with suitable example 1M+4M

*** END***

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COMPUTER NETWORKS**Time: 3Hrs****Max Marks: 50**

Attempt all the questions. All parts of the question must be answered in one place only.

In Q.no 1 to 5 answer either Part-A or B only

Q.1(A) What are the protocols of the TCP/IP protocol suite? Mention the purpose of each of them. 10M

OR

Q.1(B) Why we need for Network Protocol Architecture. Explain with example. 10M

Q.2(A) List three types of transmission impairment? Explain with an example 10M

OR

Q.2(B) i. What are the differences between error detection and error correction? 5M
ii. Explain about routing algorithms in network communication. 5M

Q.3(A) Explain Wireless LAN requirements and Transmission Issues. 10M

OR

Q.3(B) i. Write and explain the IPV6 header format. 5M
ii. Explain routing in internet by using the BGP protocol. 5M

Q.4(A) Write short notes on the following 10M
i. DNS ii. WWW iii. FTP

OR

Q.4(B) Describe e-mail architecture and services. 10M

Q.5(A) i. Differentiate between Active attacks and Passive attacks. 4M
ii. Explain about Firewall and its types. 6M

OR

Q.5(B) Describe the functionalities of symmetric and asymmetric key encryptions. 10M

***** END*****

Hall Ticket No:

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Question Paper Code: 16MCA109

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SOFTWARE ENGINEERING

Time: 3Hrs

Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part-A or B only

Q.1(A) Describe Software Engineering. Explain the nature of web apps. 10M

OR

Q.1(B) Explain any 5 process models. 10M

Q.2(A) With an example, explain SRS. 10M

OR

Q.2(B) Explain the mechanism of software project estimation techniques. 10M

Q.3(A) Write about golden rules. 10M

OR

Q.3(B) Write about architectural patterns and Component level design patterns. 10M

Q.4(A) What is the need of software testing? Explain the process of validation testing. 10M

OR

Q.4(B) Write about whitebox testing and blackbox testing. 10M

Q.5(A) What are metrics? Explain the metrics for small organization. 10M

OR

Q.5(B) What is a business process? Explain the process of re-engineering. 10M

*** END***

Hall Ticket No:

Question Paper Code: 16MCA110

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DESIGN AND ANALYSIS OF ALGORITHMS

Time: 3Hrs

Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part-A or B only

- Q.1(A) i. Discuss about asymptotic notations. 5M
ii. Explain how analysis of linear search is done with a suitable illustration. 5M

OR

- Q.1(B) Explain heap sort algorithm with suitable example. Also discuss the time and space complexity of the algorithm. 10M

- Q.2(A) What is divide and conquer strategy and explain the binary search with suitable example problem. 10M

OR

- Q.2(B) Distinguish between Quick sort and Merge sort, and arrange the following numbers in increasing order using merge sort. (18, 29, 68, 32, 43, 37, 87, 24, 47, 50) 10M

- Q.3(A) Write and explain traveling salesman problem? 10M

OR

- Q.3(B) Describe all pairs shortest path problem and write procedure to compute lengths of shortest path. 10M

- Q.4(A) How does backtracking work on the 8 queen problem with suitable example? 10M

OR

- Q.4(B) What is Hamiltonian problem? Explain with an example using backtracking. 10M

- Q.5(A) Differentiate between NP-Complete and NP-hard problems. Give example for both. 10M

OR

- Q.5(B) Discuss about cook's theorem. 4M
Explain the Clique decision problem in detail. 6M

*** END***

Hall Ticket No:

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Question Paper Code: 16MBA108

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MANAGEMENT INFORMATION SYSTEM

Time: 3Hrs

Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part-A or B only

- Q.1(A) How will you process operations and take decisions using information system? 10M
- OR
- Q.1(B) Write in detail about the contemporary approaches to Information Systems 10M
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- Q.2(A) Discuss the various types of Information systems 10M
- OR
- Q.2(B) How databases improve business performance and decision making by Managing data Resources. 10M
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- Q.3(A) What is meant by system analysis? Briefly describe the main objectives of system analysis. 10M
- OR
- Q.3(B) Describe in detail about the various phases of System Life cycle method. 10M
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- Q.4(A) Explain briefly how computer based information systems can enhance marketing function in an organization. 10M
- OR
- Q.4(B) Describe the models of Decision Support systems. 10M
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- Q.5(A) Define Software Quality Assurance. Explain its objectives and metrics. 10M
- OR
- Q.5(B) Describe the various types of input validation methods. 10M

*** END***