

Hall Ticket No:

Question Paper Code: 16MCA107

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCA (2Y) I Year I Semester (R16) Supplementary End Semester Examinations – June 2019

(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) Explain the usage of Variables, Expressions and Statements in Python Program. 5M
ii) Explain the various types of keywords available in Python. 5M
OR
- Q.1(B) Explain about the following with examples 10M
i) Interactive Mode
ii) Scripting Mode
iii) Lambda function
-
- Q.2(A) i) Define a Data Structure. Explain the Types of Data Structures. 5M
ii) Write a python code using multilevel inheritance. 5M
OR
- Q.2(B) i) Write a python code for class and object include various class members. 5M
ii) Write a python code with constructors and destructors. 5M
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- Q.3(A) Write an algorithm for reverse a stack using recursion. 5M
Write an algorithm for two stack implementation. 5M
OR
- Q.3(B) Write an algorithm to convert infix notations to postfix notations with suitable example. 10M
-
- Q.4(A) i) Define a queue. Explain the queue operations. 5M
ii) Write a python program for queue operations. 5M
OR
- Q.4(B) Write a python code to insert, delete and display nodes in a single linked list. 10M
-
- Q.5(A) Write a python code for heap sort and bubble sort. 10M
OR
- Q.5(B) Write short notes on: 5M
i. AVL Trees 5M
ii. Red-Black Tree

*** 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) Define Multiplexing in data communication. 2M
Describe the Circuit Switching, Packet Switching and ATM in detail. 8M
OR
- Q.1(B) Define the term Reference Model. 2M
Compare the OSI model and TCP/IP model. 8M
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- Q.2(A) Define Error Detection and Correction with example. 4M
Compare the Guided and Unguided medium with proper technical details. 6M
OR
- Q.2(B) Define Circuit Switching. 2M
Compare the Analog and Digital Communication with proper technical details. 8M
-
- Q.3(A) Differentiate Static Routing and Dynamic Routing. 5M
Differentiate the IPv4 and IPv6 protocols in detail. 5M
OR
- Q.3(B) Explain the routing protocols available for data communication. 10M
-
- Q.4(A) State the role of Port No. and Protocol in Application Layer. 5M
Identify the Application layer protocols and describe it in detail. 5M
OR
- Q.4(B) Differentiate HTTP and HTTPS. 2M
Discuss about the Unicast and Multicasting in detail. 8M
-
- Q.5(A) Explain about the different types of Fire walls with advantages and disadvantages. 10M
OR
- Q.5(B) Explain the Symmetric Key and Asymmetric key cryptography functionalities in detail. 10M

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MCA(2Y) I Year I Semester (R16) Supplementary End Semester Examinations – June 2019

(Regulations: R16)

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) Discuss the essence and principles of software engineering practice. 10M

OR

Q.1(B) Explain in detail about Extreme Programming (XP) process. 10M

Q.2(A) Differentiate functional and non-functional requirements. 10M

OR

Q.2(B) With neat diagram, explain the importance of software architecture and its design. 10M

Q.3(A) How golden rules are useful in designing the user interface. Give an example. 10M

OR

Q.3(B) What is design pattern? Illustrate different kinds of patterns that are in existence. 10M

Q.4(A) How do you perform unit testing and integration testing in the context of object oriented software with an example? 10M

OR

Q.4(B) Explain various testing methods that are applicable at the class level in detail. 10M

Q.5(A) Explain the procedure of integrating metrics within the software process. 10M

OR

Q.5(B) Discuss reverse engineering in detail. 10M

***** END*****

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MCA(2Y) I Year I Semester (R16) Supplementary End Semester Examinations – June 2019
(Regulations: R16)

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) Sort the given set of elements using heap sort and Explain the process in detail 10M
12,24,8,71,4,23,6,89,56.

OR

Q.1(B) What are the Asymptotic notations? And give its properties with examples. 10M

Q.2(A) State the Greedy Knapsack? Find an optimal solution to the Knapsack instance $n=3$, $m=20$, $(P_1, P_2, P_3) = (25, 24, 15)$ and $(W_1, W_2, W_3) = (18, 15, 10)$. 10M

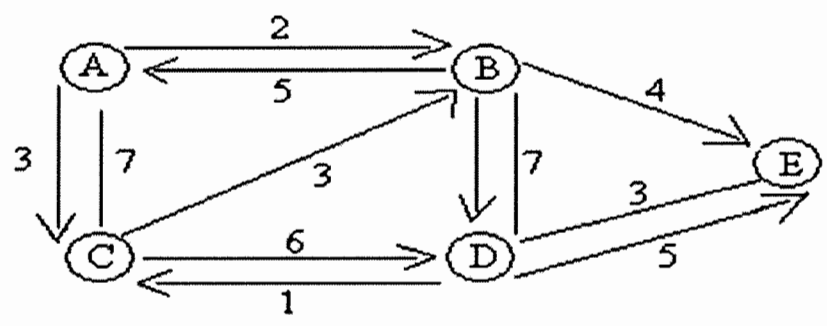
OR

Q.2(B) Explain Prim's Minimum cost spanning tree algorithm with suitable example. 10M

Q.3(A) Write a short note on 10M
i. Bi connected Components
ii. BFS

OR

Q.3(B) Find the shortest path b/w all pairs of nodes in the following graph and explain with the suitable algorithm 10M



Q.4(A) Write an algorithm to determine the Hamiltonian cycle in a give graph using backtracking. 10M

OR

Q.4(B) Solve the Travelling Salesman problem using branch and bound algorithms. 10M

Q.5(A) i. Discuss in detail on Node cover decision problem 10M
ii. State and Explain the Cook's theorem.

OR

Q.5(B) i. Explain a NP-Hard Scheduling problem 10M
ii. Draw and Explain the relationship between P, NP, NP complete and NP-hard

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Hall Ticket No:

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Question Paper Code: 16HUM403

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)MCA(2Y) I Year I Semester (R16) Supplementary End Semester Examinations – June 2019
(Regulations: R16)**FINANCIAL ACCOUNTING FOR MANAGERS**

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) Distinguish between
- | | |
|--|----|
| (i) Book-keeping and Accounting | 5M |
| (ii) Single entry and double entry system of accounting. | 5M |

OR

- Q.1(B) Define accounting. Give the broad classification of accounts with suitable examples. 10M

-
- Q.2(A) What are the subsidiary books? Explain any five in detail. 10M

OR

- Q.2(B) The following is the Trial Balance of ABC & Co. as on 31st March 2018 10M

Particulars	Dr. (Rs)	Particulars	Cr (Rs)
Purchases	1,40,000	Sales	2,88,000
Opening Stock	1,30,000	Sundry Creditors	1,15,000
Plant & Machinery	80,000	Commission received	10,000
Cash in Hand	20,000	Bills payables	1,20,000
Sundry debtors	1,50,000	Capital	2,50,000
Salaries	48,000	Interest-Received	8,000
Insurance	12,000	Bank overdraft	34,000
Land and buildings	1,50,000		
Wages	30,000		
Printing and Stationery	17,000		
Factory rent	3,000		
Furniture	5,000		
Goodwill	40,000		
	8,25,000		8,25,000

Adjustment: a) Closing Stock Rs.1,20,000

You are required to prepare Trading and Profit and Loss Account for the year ending 31st March 2019 and Balance Sheet as on that date.

Q.3(A) What is goodwill? Explain the valuation methods of goodwill. 10M

OR

Q.3(B) The following are the details regarding the receipts and issues of material X in respect of a firm. 10M

Receipts:

Jan. 1 Balance 50 units @ 4 per unit
Jan. 5 Purchases 40 units @ 3 per unit
Jan. 8 Purchases 30 units @ 4 per unit
Jan. 15 Purchases 20 units @ 5 per unit
Jan. 26 Purchases 40 units @ 3 per unit

Issues:

Jan. 10 Issues 70 units
Jan. 12 Issues 10 units
Jan. 20 Issues 20 units
Jan. 24 Issues 10 units
Jan. 31 Shortage 5 units

The firm follows the perpetual inventory system for maintaining its stores records. You are required to calculate the value of inventory on Jan. 31 according to **FIFO** method

Q.4(A) Explain the objectives and preparation of cash flow statement. 10M

OR

Q.4(B) From the following Balance Sheet of X Ltd. as on 31st December 2005 and 2006. You are required to prepare a schedule of changes in working capital and funds flow statement. 10M

Liabilities	2005	2006	Assets	2005	2006
Share Capital	1,00,000	1,00,000	Goodwill	12,000	12,000
General Reserve	14,000	18,000	Buildings	40,000	36,000
P& L Account	16,000	13,000	Plant	37,000	36,000
Sundry Creditors	8,000	5,400	Investments	10,000	11,400
Bills Payable	1,200	800	Stock	30,000	23,000
Provision for Taxation	16,000	18,000	Debtors	18,000	19,000
Provision for Doubtful Debts	400	600	Bills Receivables	2,000	3,200
			Cash Balance	6,600	15,200
	1,55,600	1,55,800		1,55,600	1,55,800

Q.5(A) What are the financial ratios? Discuss their significance. 10M

OR

Q.5(B) What is bank reconciliation statement? How would you prepare the BRS? Explain. 10M

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Question Paper Code: 16MBA108

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

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MCA(2Y) I Year I Semester (R16) Supplementary End Semester Examinations – June 2019

(Regulations: R16)

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) Define the term MIS. Explain the role of information system in day-to-day business. 10M

OR

Q.1(B) Discuss the contemporary approaches to information systems. 10M

Q.2(A) Explain the different business process in an organization and how information system is related to it. 10M

OR

Q.2(B) Describe the various types of information systems. 10M

Q.3(A) Explain the system engineering methodology for MIS problem solving. 10M

OR

Q.3(B) What are the stages of system development life cycle? Discuss. 10M

Q.4(A) Define expert system. Explain its components. 10M

OR

Q.4(B) What are the technologies and tools that are opted by an organization to protect information resources? 10M

Q.5(A) Discuss the threats and ethical issues of MIS. 10M

OR

Q.5(B) Explain the role of software quality assurance in software development. 10M

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