

Roll No. : ...58950.....

Total No. of Pages : 4

MCA-T 101

M.C.A. (First Semester) Examination, 2022-23

WEB TECHNOLOGIES

Paper- MCA-T101

Time Allowed : Three hours

Maximum Marks : 80

Part-A

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each). Selecting one from each Unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) HTML stands for?

(ii) Define Heading Tags in HTML with an example.

(iii) What is JavaScript.

- (iv) Define DHTML.
- (v) What do you mean by CSS.
- (vi) List the types of styles sheets.
- (vii) Difference between GET and POST.
- (viii) Define Cookies.
- (ix) Difference between HTML and PHP.
- (x) What do you mean by Client Side Scripting?

Part-B

Unit-I

- 2. Define the structure of HTML web page with an example.
- 3. Define Table tag and their attributes with suitable example.

Unit-II

- 4. What is the need of scripting languages in Web Technologies? Describe.
- 5. Build an Java Script program to convert temperature from degree celcius to forenheit.

Unit-III

6. Explain how to insert CSS in a HTML document. Give suitable example.
7. What is box model. Explain how to create a box with relevant example.

Unit-IV

8. Define Form. Write a HTML code for creating a registration form by covering all the input.
9. Explain Database operations with PHP.

Unit-V

10. Design a PHP program to print reverse of any number.
11. Write short note on :
 - (a) PHP operators
 - (b) PHP functions

Part-C

12. (a) Write HTML code to display an image on Web Page.
(b) How to create unordered list in HTML? Explain with an example.
13. Explain various operators and data types available in JavaScript with suitable example.

14. (a) Define font styles in CSS.
(b) Describe Background and colour gradients in CSS.
15. (a) How can we create and delete a Cookie? How can we retrieve cookie value?
(b) How to validate user input in PHP? Explain with an example.
16. (a) Explain conditional statement of PHP.
(b) Explain any five string functions.

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MCA-T 102

MCA (I Semester) Examination, 2022-23

OPERATING SYSTEM

Time Allowed : Three Hours

Maximum Marks : 80

Part-B

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each), selecting one from each unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) Define distribution system.
(ii) What is hardware protection?
(iii) What is Process Concept?
(iv) Define Thread.
(v) Define scheduling criteria.

(1)

P.T.O.

- (vi) Define Deadlock.
- (vii) Define Swapping.
- (viii) What is segmentation?
- (ix) Define access matrix.
- (x) Define cryptography.

Part-B

Unit-I

- 2. Describe real time systems with example.
- 3. Differentiate between system programmes and system calls.

Unit-II

- 4. Explain co-operating processes with example.
- 5. Describe Multithreading models with examples.

Unit-III

- 6. Explain the scheduling criteria with example.
- 7. Describe the deadlock avoidance and deadlock prevention with example.

Unit-IV

8. Explain contiguous memory allocation with example.
9. Describe the Demand Paging with example.

Unit-V

10. Describe the Goals of protection.
11. Explain any two cryptography method with example.

PART-C

12. Explain the operating system structures with example.
13. Explain the Inter-process communication with example.
14. Describe the process synchronization with example.
15. Explain the page replacement with example.
16. Describe the domain of protection with example.

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MCA-T103

M.C.A. (I SEMESTER) EXAMINATION, 2022-23

DATA BASE MANAGEMENT SYSTEM

(Paper : III)

Time Allowed : Three Hours

Maximum Marks : 80

PART-A

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

PART-B

[Marks : 40]

Note: Answer five questions (250 words each). Selecting one from each unit. All questions carry equal marks.

PART-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

PART-A

1. (i) List significant differences between structured and unstructured data.
- (ii) Explain the difference between physical and logical data independence.
- (iii) Explain the difference between referenced and referencing relation with an example.

- (iv) What is the use of the symbols underscore(...) and % in sql ? Give example.
- (v) Differentiate between B and B+ tree.
- (vi) What is the role of indexing in SQL ?
- (vii) What is the meaning of C in ACID properties ?
- (viii) Differentiate between consistency and concurrency with an example.
- (ix) What is OODB Model? Draw a diagram of OODB.
- (x) How generalization is different from specialization?

PART-B

UNIT-I

- 2. Give some eight symbols in ER Diagram.
- 3. What is the Role and responsibilities of DBA ?

UNIT-II

- 4. Explain relational data model. Consider the relational database of a company where primary keys are person-name and company-name.

employee (person-name, street, city)

works (person-name, company-name, salary)

company (company-name, city)

manages (person-name, manager-name)

Give an expression in the relational algebra to express each of the following queries :

- (a) Find the name of all employees who work for First Bank Corporation.
 - (b) Find the names and cities of residence of all employees who work for First Bank Corporation.
 - (c) Find the names, street address, and cities of residence of all employees who work for First Bank Corporation and earn more than \$10,000 per annum.
 - (d) Find the names of all employees in this database who live in the same city as the company for which they work.
5. Explain the concept of Keys with Venn Diagram (at least 3 Keys) with a suitable example of each of them.

UNIT-III

6. List reasons why we need to do query optimization for every query.
7. Differentiate among different types of hashing.

UNIT-IV

8. What is a schedule ? Draw the hierarchy of schedules.

9. Check whether the given schedule S is conflict serializable or not -

S : R₁(A), R₂(A), R₁(B), R₂(B), R₃(B), W₁(A), W₂(B)

UNIT-V

10. What is the difference in ODBC and JDBC connectivity's ?
11. List some object hierarchies and differentiate among all of them.

PART-C

12. Draw the neat and labelled diagram of Database System structure. Explain its all components their inner details also.
13. Define DDL, DML, DCL, TCL. Give at least two commands in each category with example.
14. Explain the problems/disadvantages in indexed-sequential files. How they are solved by B-Tree ? List the advantage and disadvantages of B+-tree index files.
15. How the log-based recovery works ? Discuss in details the approaches used for modifying database with the help of appropriate example.
16. Explain the concept of Aggregation with a suitable example and diagram.

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MCA-T104

M.C.A. (First Semester) Examination, 2022-23

MIS & E-COMMERCE

Time Allowed : Three hours

Maximum Marks : 80

Part-A

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each). Selecting one from each Unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) What are the three functions of Information Systems?
(ii) How MIS is an instrument for Organizational change?
(iii) What is Herbert Simon's Model?
(iv) What are the five attributes of information?
(v) What is E-Commerce?
(vi) What is the Value Chain Model?
(vii) What is the use of hypertext links in Internet access?

- (viii) What are the advantages and disadvantages of a Smart Card?
- (ix) What is e-advertising?
- (x) How does a digital signature add more security?

Part-B

Unit-I

- 2. What is called MIS? Define its importance.
- 3. How do management decisions can be taken?

Unit-II

- 4. What is the first step in the classical decision-making model?
- 5. Define Decision support system with example.

Unit-III

- 6. Discuss commercial uses of Internet.
- 7. Discuss B2B2C and C2B2C Model by giving proper example.

Unit-IV

- 8. Define Electronic Data Interchange. What are the components of Electronic Data Interchange?
- 9. The public is highly concerned with the safety of e-payment. What are the specific measures put forward in the guidance in this respect?

Unit-V

- 10. What are the drawbacks of Digital Marketing?
- 11. How does Digital Certificate works?

Part-C

12. Discuss the role of MIS in organizational change.
13. How do Executive Support systems help senior managers in making better decisions?
14. Discuss the security requirement of Internet and E-Commerce applications and how these requirements fulfilled by various hardware and software systems?
15. Describe the functional requirements for Online Selling.
16. The small publishing company you work for wants to create a new database for storing information about all of their books. What factors under security mechanism will influence and how you will design the database keeping security mechanisms aspects into consideration.

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MCA-T105

MCA (I Semester) Examination, 2022-23

PYTHON PROGRAMMING

Paper-I

Time Allowed : Three Hours

Maximum Marks : 80

Part-B

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each), selecting one from each unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) List the errors that are detected by Python.
- (ii) Discuss any three key features of Python.
- (iii) What are Lambda Function and its use?
- (iv) Discuss in brief any four operations on Strings.
- (v) What are Python namespaces and its significance?

(1)

P.T.O.

- (vi) What is _____ init _____ ?
- (vii) What is the use of with statement?
- (viii) Discuss the modes in which Files are created.
- (ix) What do you understand by unit tests in Python?
- (x) How GUI can be created in Python.

Part-B

Unit-I

- 2. What is the difference between Tuple and Set. When should they can be used?
- 3. What are negative indexes and why are they used?

Unit-II

- 4. Compare Dict and List Comprehension. Discuss with the help of example.
- 5. Give an example of string slicing.

Unit-III

- 6. What are decorators and Iterators in Python, illustrate their significance?
- 7. What are global, protected and private attributes in Python?

Unit-IV

- 8. Discuss how the reading and writing take place in text files.
- 9. What types of error occurs in files and how one can deal with them?

Unit-V

10. Why Pickle Module is used in Python. Also give the use of dump () and load () function?
11. What is Django framework used for? Explain Django architecture.

PART-C

12. Explain Dictionary and its significance by comparing it with tuple and list. Also consider the below code and write down the final values of A0,A1 ... A6.

```
A0=dict(zip(['a','b','c','d','e'],(1,2,3,4,5)))
```

```
A1=range(10)
```

```
A2=sorted([I for I in A1 if I in A0])
```

```
A3=sorted([A0[s]for s in A0])
```

```
A4=[I for I in A1 if I in A3]
```

```
A5={i:i*I for I in A1}
```

```
A6=[[I,i*i] for I in A1]
```

```
print(A0,A1,A2,A3,A4,A5,A6)
```

13. Explain local variables and global variables with the help of suitable example? Also state the significance of pass and Scope resolution.
14. How are classes created in Python? Write a Python class named student with two attribute student_id, student_name. Add a new attributes student_class in Derived class and function to display all attributes and their values using object of the same.

15. Compare and contrast text files with binary files. Also write a program for counting the number of every character of a given text file.
16. Discuss in details about Clickable Buttons and User input components of Python with suitable example.

QUESTION

Q1. Explain the difference between text and binary files.

(12, E, C, I), (C, D, S, J, R))qis)lab=0A

(0)PQWEP-IA

((0AniP) (AniI) (0I)barber=CA

((0Ani a n0l[a]0A)barber=CA

[EAanP) (AniI) (0I)=M,

{IAa(I)n0l[0]=CA

{IAanI) (0*)0D)=0A

(0A, CA, PA, EA, SA, IA, 0A)using

Q2. Explain the difference between text and binary files.

Q3. Explain the difference between text and binary files.

MCA-T106

MCA (I Semester) Examination, 2022-23

ADVANCED DATA STRUCTURES

Paper-VI

Time Allowed : Three Hours

Maximum Marks : 80

Part-B

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each), selecting one from each unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) What is mean by Graph traversal?
- (ii) Which data structure are used for DFS and BFS?
- (iii) What is a heap?
- (iv) Define priority Queue?
- (v) What is a Tree?

- (vi) Define Decision trees.
- (vii) Define Huffman Coding.
- (viii) What is a Hash Tables?
- (ix) Define Linear Probing.
- (x) What is mean by Rehashing?

Part-B

Unit-I

- 2. Discuss the Binary Heap with examples.
- 3. Discuss the Priority Queues with examples.

Unit-II

- 4. Discuss the Threaded tress and their advantages.
- 5. Write short notes on the following :
 - (a) Game Trees
 - (b) Red-Black Trees

Unit-III

- 6. Discuss the Floyd-Warshall's algorithm.
- 7. Explain single source shortest path Algorithms.

Unit-IV

- 8. Discuss the Longest Common Subsequence Problem (LCS).
- 9. Write short notes on the following :
 - (a) String Matching Algorithms
 - (b) Decision tables

Unit-V

10. Discuss the Smart Union and Path compression algorithm.
11. Write short notes on the following :
 - (a) Simple Union and Find algorithms
 - (d) Double Hashing and Rehashing

PART-C

12. Discuss the Basic Heap operations with appropriate examples.
13. Discuss the Basic Operations of 2-3 Trees with appropriate examples.
14. Discuss the BFS and DFS Graph Traversal algorithms.
15. Explain the Brute Force, Knuth-Morris-Pratt and Boyer-Moore strategies.
16. Write short notes on the following :
 - (a) Collision Resolution Techniques in Hashing
 - (b) Quadratic Probing and open Addressing

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MCA-B101

MCA (I Semester) Examination, 2022-23

DATA STRUCTURE

Time Allowed : Three Hours

Maximum Marks : 80

Part-B

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each), selecting one from each unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) What do you mean by Data Structure?
- (ii) What do you mean by abstract data type?
- (iii) Define Queue in Data structures.
- (iv) What is LIFO?
- (v) Define Linear Linked List.
- (vi) Define Node in Linked List.
- (vii) What do you mean by siblings in a Tree?
- (viii) Define Binary Trees.

MCA-B101

MCA (I Semester) Examination, 2022-23

DATA STRUCTURE

Time Allowed : Three Hours

Maximum Marks : 80

Part-B

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

Part-B

[Marks : 40]

Note: Answer any five questions (250 words each), selecting one from each unit. All questions carry equal marks.

Part-C

[Marks : 20]

Note: Answer any two questions (300 words each). All questions carry equal marks.

Part-A

1. (i) What do you mean by Data Structure?
- (ii) What do you mean by abstract data type?
- (iii) Define Queue in Data structures.
- (iv) What is LIFO?
- (v) Define Linear Linked List.
- (vi) Define Node in Linked List.
- (vii) What do you mean by siblings in a Tree?
- (viii) Define Binary Trees.

- (ix) What is Hashing?
(x) What do you mean by Binary Searching.

Part-B

Unit-I

2. What do you understand by the term algorithm? Explain space and time complexity with suitable example.
3. Explain Row-Major array representation with suitable example.

Unit-II

4. Write down the Queue Full and Queue Fempty conditions and explain with suitable example.
5. Explain all the operations of stack.

Unit-III

6. Show different components of Circular Linked List with suitable diagram.
7. Explain how a Polynomial can be represented using single Linked List.

Unit-IV

8. Explain all types of tree traversals with suitable examples.
9. (a) Differentiate between Ordinary tree and Binary Search Tree with an example.
(b) Write short note on N-ary trees representation.

Unit-V

10. Differentiate between Bubble sort and Insertion Sort with an example.

11. How Binary search is different from sequential Search Explain.

PART-C

12. Differentiate between Row-Major and Column-Major address calculation in Multidimensional arrays. Give suitable Illustrations and examples.
13. (a) Write down various applications of stack and Queue in real life.
(b) Write an algorithm to convert infix expression into postfix expression using stack.
14. Implement insert and delete operations in single Linked List. Write suitable code also.
15. Write inorder, preorder and post-order of the following tree. Explain the steps also.

