Printed Pages: Sub Code:RCAI-301

Paper Id: 231040 Roll No. 2100050060020

MCA INTEGRATED
(SEM III) THEORY EXAMINATION 2022-23
OBJECT ORIENTED PROGRAMMING IN C++

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

(a) Give the difference between abstract class and abstraction?
(b) Define string and pointer? WAP for string function in C++?
(c) What do you meant by New, Delete operator?
(d) WAP in C++ for class declaration?
(e) Define Static and Dynamic Binding with example?
(f) WAP for Scope Resolution Operator in C++?
(g) Define data types in C++?

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

(a) Explain the concept function overloading with proper example?
(b) WAP for Hybrid Inheritance in C++?
(c) Explain the various concepts of OOPs?
(d) What do you meant by virtual function? WAP for call by value in C++?
(e) Define Array of Object? WAP for array of object in C++?

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Give the difference between Procedural programming and Object Oriented Programming?
(b) Explain Aggregation and Association? WAP for multiple inheritance in C++?

4. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Explain C++ garbage collection in C++ with example?
(b) What do you meant by Constructor and its uses? WAP for Copy Constructor in C++?

5. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Explain Private, Protected and Public Modifiers? WAP for Binary Operator Overloading with example?
(b) What do you meant by Constructor Overloading? WAP for constructor overloading in C++?

6. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Explain the concept of Template? WAP for template in C++?

(b) What do you meant by Polymorphism? WAP for Unary Operator Overloading in C++?

7. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) What do you mean by Exception Handling? Explain the various streams classes of C++?

(b) How friend function differ from inline function? WAP for friend function in C++?

Printed Pages:02 Sub Code:RCAI-302

Paper Id: 2 3 1 1 3 4 Roll No. 2 1 0 0 5 0 0 6 0 120

MCA (Integrated)
(SEM III) THEORY EXAMINATION 2022-23
INTRODUCTION TO WEB DESIGNING

Time: 3 Hours *Total Marks: 70*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

(a) What are the Data Transmission Modes in a network?
(b) Differentiate the Internet and Intranet.
(c) List the popular terms of Internet.
(d) How do you write a file name in HTML?
(e) List the attributes used for body tag.
(f) Define the frameset in HTML.
(g) What is a DTD in XML?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

(a) What are the different types of networks? Explain any two with examples.
(b) Summarize the History and Evolution of the Internet.
(c) Illustrate how HTML has changed over time?
(d) Write a code in HTML to show the img tag with explanation of all possible attributes.
(e) What are the basic rules while writing XML? Show the needed code also.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain about network topology and types of network topology.
(b) Illustrate differentiation between TCP and UDP.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) "Internet can play a lead role in higher education", Justify the statement with proper example.
(b) Demonstrate the parts of Internet Explorer.

5. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Express how you write an HTML program?
(b) Demonstrate the following-
  (i) Heading tag in HTML
  (ii) Marquee tab in HTML

6. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Write a code in HTML to show your class time-table.
(b) Write a code in HTML to show the use of different types of anchor tags.

7. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Express the difference between HTML and XML with suitable examples.
(b) Write a short note on following-
  (i) XML Element
  (ii) XML Schema

Printed Pages: 01

Sub Code:RCAI-303

Paper Id: 231218

Roll No. 2 1 0 0 0 5 0 0 6 0 0 2 0

MCA (Integrated)
(SEM III) THEORY EXAMINATION 2022-23
ACCOUNTING AND FINANCIAL MANAGEMENT

Time: 3 Hours

Total Marks: 70

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

(a) Define cash flow statement.
(b) What do you understand by balance sheet?
(c) Define accounting equation.
(d) What do you mean by the term journal?
(e) Define patents.
(f) Explain current ratio.
(g) Define accountancy.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

(a) Discuss the various advantages of cash flow statement.
(b) Clearly draw format of schedule of changes in working capital.
(c) Explain the concept of gross and networking capital.
(d) Differentiate between bookkeeping and accounting.
(e) What do you understand by Solvency ratios? Explain the various solvency ratios

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you understand by the term fund flow statement? Discuss its advantages.
(b) Clearly draw a format of cash flow statement.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain the various accounting concepts.
(b) Discuss the various accounting conventions along with their need.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) Discuss the various limitations of ratio analysis.
(b) Explain the concept of Comparative balance sheet and trend analysis.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) Discuss the various rules of Journalizing a transaction.
(b) Clearly draw a format of trading and profit and loss accounts.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) Differentiate between fund flow and cash flow statement.
(b) Explain the concept assets and liabilities with examples.

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Sub Code:RCAI304

Paper Id: 231632

Roll No. 2 1 0 0 0 5 0 0 6 0 0 2 0

MCA (INTEGRATED)
(SEM III) THEORY EXAMINATION 2022-23
INFORMATION SYSTEMS

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Explain the term "Information "and "Data".
b. What are the advantages of Control Processes?
c. What do you understand by EDP?
d. Explain the nature of Planning.
e. What are Un-Structured decisions?
f. Explain the term Internet, Intranet and extranet.
g. Explain the role of database in Information System.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Explain why information systems are so important for business today.
b. Explain how the decision-making process works.
c. What do you mean by planning? Explain its types.
d. How do you understand the Cyber Crimes? How can the prevented? Discuss.
e. Describe the Customer Relationship Management and it processes.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you understand by Information? What are the characteristics of Information?
(b) What do you understand by System? Discuss the types and characteristics of System?

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) Describe different types of decisions with examples.
(b) Discuss the objectives and characteristics of MIS.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) Discuss the role of Planning in modern business organization.
(b) Explain the Controlling Process in details.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you mean by E-commerce and How E-commerce helps the organization?
(b) Describe the key differences between E-commerce and E-business.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) State the challenges of managing information systems in today's business environment.
(b) Describe the ERP Architecture in details.

Printed Pages:02 Sub Code: RAS-307

Paper Id: 231438 Roll No. | | | | | | | | | | |

MCA (INTEGRATED)
(SEM III) THEORY EXAMINATION 2022-23
APPLIED LINEAR ALGEBRA

Time: 3 Hours *Total Marks: 70*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

(a) What do you mean by Ring with Zero divisors?
(b) Define the Vector Spaces. Give axioms.
(c) What do you mean by Linear Independence of vector?
(d) Define the Linear Transformation.
(e) Define the term Linear Span?
(f) What do you mean by Orthogonal set of vectors?
(g) Write down the properties of Linear functional.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

(a) Show that: $(2,-5,4)$ *can not be* expressed as a linear combination of $(1,-3,2)$ *and* $(2,-1,1)$ *in* $V_3(R)$.

(b) Find the Matrix of Linear Transformation T in the Basis set $\{(1,0,1),(-1,2,1),(2,1,1)\}$? Where linear transformation $T: R^3 \to R^3$ defined by $T(x,y,z) = (3x+z, -2x+y, -x+2y+4z)$.

(c) Prove that "The relation of isomorphism in any set of vector spaces over a field *F is an equivalence relation.*"

(d) In an inner product space $V(F)$, Prove that: $(a\alpha - b\beta, \gamma) = \bar{a}(\alpha,\gamma) - \bar{b}(\alpha,\beta)$

(e) If $U(F)$ be a vector space over F and $T: U \to F$ defined as: $T(\alpha) = 0,\ \forall\ \alpha \in V$, *then show that* T is linear functional.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Prove that: A commutative ring R with unity is an Integral domain, if and only if, for a no-zero element $\in R$.

(b) Show that the set of vectors $\{(1,2,0),(0,3,0),(-1,0,1)\}$ in $V_3(R)$ are linearly independent.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you mean by Rang and kernel of Linear Transformation.If $T: R^2 \to R^3$ defined by $T(x,y) = (x-y, y, x+y)$.Then find Range and Kernel of linear transformation.

(b) Prove that: If $U(F)$ and $V(F)$ are two vector spaces and T is linear transformation from U into V, then range of T is sub-space of V.

5. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Describe explicitly the linear transformation $T: R^2 \rightarrow R^2$ such that: $T(2,3) = (4,5)$ and $T(1,0) = (0,0)$.

(b) If T is an Invertible linear transformation on a vector space $V(F)$. Then Prove that T possesses unique inverse.

6. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) If α, β are vectors in an inner product space, then show that:

$$\|\alpha + \beta\|^2 + \|\alpha - \beta\|^2 = 2\|\alpha\|^2 + 2\|\beta\|^2$$

(b) If $\alpha = (x_1, y_1)$, $\beta = (x_2, y_2) \in V_2(R) defined by \langle\alpha|\beta\rangle = (x_1y_1 - x_2y_1 - x_1y_2 + 2x_2y_2)$, then prove that $V_2(R)$ is an inner product space with the inner product $\langle\alpha|\beta\rangle$.

7. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Find the character equation of the matrix: $A = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \\ 0 & 0 & 1 \end{bmatrix}$,

Also find the eigen values.

(b) Prove that: The Dual space of an $n-dimensional$ vector space is $n-dimensional$.