

MCA (INT.)  
(SEM-I) THEORY EXAMINATION 2020-21  
MATHEMATICS FOR MCA

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. | If $A = \begin{bmatrix} 2 & 3-4i \\ 3+4i & 2 \end{bmatrix}$ , then $A^\theta = ?$                                   |
| b. | Define the Transpose Matrix?  |
| c. | If $y = \cos 5x$ then find $dy/dx$ .  |
| d. | State the Euler's Theorem for Homogeneous Functions.  |
| e. | Find the characteristic roots of the matrix $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -1 \\ 0 & 0 & 3 \end{bmatrix}$ . |
| f. | Solve: $\frac{d^2y}{dx^2} - 7\frac{dy}{dx} + 12y = 0$ .   |
| g. | Write down the Particular Integral of: $(D^2 + 9)y = \sin 4x$ .   |

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

- |    |   |
|----|---|
| a. | Evaluate $A^2 - 4A + 9I$ where $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$ . |
| b. | Find the $n$ th derivative of $e^{ax} \cdot \cos(bx + c)$ .   |
| c. | Solve the differential equation: $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = xe^x \sin x$ .                   |
| d. | Find the Laplace Transform of function: $f(t) = t^2 \cdot e^t \cdot \sin 4t$ .                              |
| e. | If $x = u^2 - v^2$ and $y = 2uv$ . Find the Jacobian with respect to $u$ and $v$ .                          |

SECTION C

3. Attempt any one part of the following:

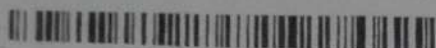
7 x 1 = 7

- |     |   |
|-----|---|
| (a) | Find the inverse of $A = \begin{bmatrix} -2 & 1 & 3 \\ 0 & -1 & 1 \\ 1 & 2 & 0 \end{bmatrix}$ using elementary row operations.      |
| (b) | Reduce given matrix to normal form. Also find the rank $A = \begin{bmatrix} 3 & -1 & 2 \\ -6 & 2 & 4 \\ -3 & 1 & 2 \end{bmatrix}$ . |

4. Attempt any one part of the following:

7 x 1 = 7

- |     |   |
|-----|---|
| (a) | Find the $n$ th derivatives of $y = x^6 e^x$ ?  |
| (b) | If $u = (x^{\frac{1}{4}} + y^{\frac{1}{4}})(x^{\frac{1}{5}} + y^{\frac{1}{5}})$ apply Euler's theorem to find the values of $x \frac{dy}{dx} + y \frac{dy}{dy}$ . |



PAPER ID-311196

Subject Code: RAS107

Roll No:

2000050060054

5. Attempt any one part of the following:

7 x 1 = 7

(a)	Solve $\frac{d^3y}{dx^3} - 3\frac{d^2y}{dx^2} + 4\frac{dy}{dx} - 2y = e^x + \cos x$ .	4
(b)	Solve the following simultaneous differential equation: $\frac{dx}{dt} = 3x + 2y, \frac{dy}{dt} = 5x + 3y$ .	0

6. Attempt any one part of the following:

7 x 1 = 7

(a)	Find the Laplace Transform of $t^7 e^{-3t}$ .
(b)	Find the Laplace Transform of $te^{-t} \cos 2t$ .

7. Attempt any one part of the following:

7 x 1 = 7

(a)	Find the inverse Laplace Transform $\frac{s+1}{s^2+s+1}$ .
(b)	Find the inverse Laplace Transform $\frac{2s+1}{s^2-4}$ .

AKTU\_QP20E001

19-Mar-2021 08:59:07 | 103.94.108.120





PAPER ID-310874

Printed Page: 1 of 1

Subject Code: RCAI101

Roll No: 2000050060054

MCA (INT.)  
(SEM-I) THEORY EXAMINATION 2020-21  
PROGRAMMING IN C

Time: 3 Hours

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

Total Marks: 70

SECTION A

1. Attempt all questions in brief.

2 x 7 = 14

a.	Discuss functionality of computer in brief.
b.	Write a short note on structured programming.
c.	What are the elements of character set of C language?
d.	Briefly discuss various logical operators with proper example.
e.	What do you mean by a header file? Briefly explain with example.
f.	What are the components of a user-defined function? Explain in brief
g.	State any four features of C language.

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

a.	Discuss various symbols used in a flow chart. Draw flow chart to swap contents of two variables.
b.	Explain basic structure of a C program. Write a program to convert temperature from Fahrenheit to Celsius.
c.	Discuss following functions with example- <code>getc()</code> , <code>getchar()</code> , <code>putc()</code> and <code>putchar()</code>
d.	Explain the concept of for loop with proper example.
e.	Write a program to find roots of equation $ax^2 + bx + c = 0$ using function.

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

(a)	Discuss various generations of computer.
(b)	What is an algorithm? What are its advantages? Write algorithm to find maximum of three variables.

4. Attempt any one part of the following:

7 x 1 = 7

(a)	Define the term data type. Explain basic data types used in C language.
(b)	What is a token? Discuss various tokens with example.

5. Attempt any one part of the following:

7 x 1 = 7

(a)	Discuss any five format specifiers with proper example.
(b)	What do you mean by the term type conversion? Differentiate between implicit and explicit type conversion.

6. Attempt any one part of the following:

7 x 1 = 7

(a)	Write a program to print the following arrangement of numbers- 1 2 3 4 5 1 2 3 4 1 2 3 1 2 1
(b)	Discuss the concept of nested if-else statement with proper example.

7. Attempt any one part of the following:

7 x 1 = 7

(a)	Write a multi-function program to calculate area and perimeter of a square and rectangle.
(b)	Differentiate between auto, register and extern storage classes.

MCA (INT.)  
(SEM-I) THEORY EXAMINATION 2020-21  
OFFICE AUTOMATION

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.	Write the steps to copy a text from one file to another file.
b.	How can you change the desktop wallpaper?
c.	What is the difference between moving and copying a file?
d.	Define the tool used for finding synonyms and antonyms in Word.
e.	How can we use value in formula applied to a cell, in another worksheet within the same workbook?
f.	Define Primary Key with suitable example.
g.	In context of databases, differentiate between terms Field and Record.

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

a.	What do you mean by MS-WINDOWS? Describe the major benefits of using MS-WINDOWS.
b.	What do you mean by Table in MS-Word? Describe Moving, Resizing and Formatting a table in MS-Word.
c.	How are charts useful in Excel? Compare any five chart types available in Excel.
d.	Describe MS-PowerPoint and discuss various options presentation views of MS-PowerPoint.
e.	What do you mean by DBMS? Explain difference between DBMS and RDBMS.

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

(a)	What is text editor? Briefly explain any three text edit software in detail.
(b)	Differentiate between WordPad and Notepad in detail.

4. Attempt any one part of the following:

7 x 1 = 7

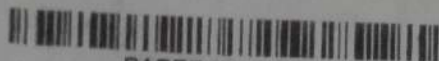
(a)	i. Explain the utility of Header and Footer in MS-Word. ii. How is a text box inserted in MS-Word of MS-Office?
(b)	Create a list of 10 friends. Create a thank you letter. Use Mail-Merge feature of MS-Word to create a thank you letter for each of your friends from the above two files.

5. Attempt any one part of the following:

7 x 1 = 7

(a)	Differentiate between relative and absolute cell referencing techniques with the help of sample data.
-----	---





PAPER ID-310991

Subject Code: RCA1102

Roll No: 2000050060054

- (b) Write formulas for the operations (i) – (iv) based on the spreadsheet given below along with the relevant cell address:

	A	B	C	D	E	F	G
1	S.NO	Name	Science	Maths	Computers	Total	Average
2	1	Kamal	70	80	87	--	--
3	2	Sharad	90	98	89	--	--
4	3	Divya	90	90	98	--	--
5	4	Ashu	60	76	79	--	--
6	5	Deepak	50	45	67	--	--
7	Max				--		
8	Total		--				

- To calculate the Total Marks as sum of Science, Math's & Computers for each student and display them in column F.
- To calculate the average marks for each student and display them in column G.
- To calculate the highest marks in Computers and display it in cell E7.
- To calculate the total number of students appearing for the Science test and display it in cell C8.

6. Attempt any one part of the following:

7 x 1 = 7

- |     |   |
|-----|---|
| (a) | What are the differences between Animation and Transition? Which view can be used to insert and test the: <ol style="list-style-type: none"> <li>Animation effects and</li> <li>Transition effects</li> </ol> |
| (b) | <ol style="list-style-type: none"> <li>Discuss Record Narration in MS-PowerPoint.</li> <li>How Bulleted Lists can be used, in Power-Point?</li> </ol>   |

7. Attempt any one part of the following:

7 x 1 = 7

- |     |  |
|-----|--|
| (a) | Explain various features in manageable which help to quick track, report and share information for work properly in MS-Access. |
| (b) | Explain how Form wizard is helpful in using MS-Access.   |



PAPER ID-311322

Printed Page: 1 of 1

Subject Code: RCA1103

Roll No: 2000050060054

**MCA (INTEGRATED)**  
**(SEM I) THEORY EXAMINATION 2020-21**  
**FUNDAMENTALS OF COMPUTER**

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.	Discuss the use of RAM.
b.	Give some file formats for storing of video.
c.	What is the use of assembler?
d.	What is the use of flow chart?
e.	Write the functionality of modem.
f.	What is virtual memory?
g.	Write short notes on MICR.

**SECTION B**

2. Attempt any three of the following:

7 x 3 = 21

a.	Draw the block diagram of a computer and discuss its functional units.
b.	How magnetic storage devices are different from optical storage devices?
c.	What do you mean by multimedia? Discuss the multimedia components.
d.	How pseudo-code is different from algorithm? Write an algorithm to print the sum of first N natural numbers.
e.	"The execution of machine level language is faster than high level language". Why? List out the disadvantages of machine level language.

**SECTION C**

3. Attempt any one part of the following:

7 x 1 = 7

(a)	According to size classify the computers.
(b)	Differentiate between compiler and interpreter.

4. Attempt any one part of the following:

7 x 1 = 7

(a)	What are the symbols used in a flow chart? Draw a flow chart to find the area of a triangle, where three sides of the triangle is given.
-----	--

(b) *Ans. Find the difference between HDD, SSD and SSP, HDD*

5. Attempt any one part of the following:

7 x 1 = 7

(a)	Differentiate between static RAM and Dynamic RAM.
(b)	Define algorithm. Discuss the characteristics of a good algorithm.

6. Attempt any one part of the following:

7 x 1 = 7

(a)	Write a short note on PROM, EPROM, EEPROM
(b)	What do you mean by computer network? Discuss the characteristics of LAN, MAN and WAN.

7. Attempt any one part of the following:

7 x 1 = 7

(a)	Write short notes on i) Search Engine ii) Telnet
(b)	What is Internet? What are the basic services provided by Internet? Discuss the utility of Internet in today's world?





PAPER ID-311085

Printed Page: 1 of 1

Subject Code: RCAI104

Roll No: 2000050660054

**MCA INTEGRATED**  
**(SEM -I) THEORY EXAMINATION 2020-21**  
**BUSINESS COMMUNICATION**

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.	Definition of Communication.
b.	Draft Resume Format.
c.	What is Group discussion?
d.	Define Press Conference.
e.	How many types of Reports? Write the name of reports.
f.	What is Complaint Letter?
g.	Electronic Writing process.

**SECTION B**

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

a.	What is Written communication? Explain Functions and importance of business Communication.
b.	Write a Memo to your employee a Cashier for being rude and rough with a customer while on duty, a written complaint has been lodged by three people Against him. You are Manager of ABC Bank at Railway Station Branch.
c.	"Language as tool of Communication". Comment.
d.	Explain the Two ways Process of Communication.
e.	Write a circular letter to their customers of janata Sahakari Bank Pune for shifting their Branch from Bajirao Road to Laxmi Road Pune.

**SECTION C**

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

(a)	What do you mean by Oral Communication? What are the Techniques of effective speech?
(b)	Why Feedback is important for sender in a business organisation.

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

(a)	Discuss 7C's of effective communication.
(b)	Write a job covering letter for the post of a manager in a reputed company.

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

(a)	What do you mean by report writing? Discuss the types of business report.
(b)	Explain the barriers to effective Listening in Communication.

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

(a)	What is formal and grapevine, how it can be made effective?
(b)	Define Order letter. Which factors should be kept in mind while preparing the order letter?

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

(a)	What do you mean by Technical Proposal? Discuss the types of Business Proposal.
(b)	Write a note on: - Closed Circuit T.V. Dictaphone.