

**MCA (INTEGRATED)**  
**(SEM I) THEORY EXAMINATION 2022-23**  
**PROGRAMMING IN C**

**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 is the meaning of prototype of a function?
- (b) Explain the difference between the statement `a=10` and `a==10` in 'C' programming.
- (c) Explain the features of a good algorithm.
- (d) Explain the types of softwares.
- (e) Explain the goto statement in C programming.
- (f) What are header files? Why are they important?
- (g) Define the term recursion in 'C' programming.

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

- (a) What is computer? Draw the block diagram of a computer and also explain the components of computer?
- (b) Explain the standard input / output function in 'C' programming.
- (c) Explain the various types of operators used in 'C' programming with the help of example.
- (d) Write a program to find division of a student. (I div if percentage  $\geq 60\%$ , II div if percentage  $\geq 45\%$  & less than  $60\%$ , III div  $\geq 33\%$  & less than  $45\%$  and else fail).
- (e) What is a function? Why programmers use functions in 'C' programming?

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

- (a) Write a program to find whether a given number is prime or not.
- (b) What is type conversion? Explain the types of type conversion with an example.

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

- (a) Explain the difference between break and continue statement with an example.
- (b) Write a program to print Fibonacci series up to n numbers.

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

- (a) Explain the difference between 'else-if ladder' and 'switch-case' statements with appropriate program.
- (b) Explain the various problem solving techniques.

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

- (a) What are different conditional statements in C programming? Explain with proper example of each.
- (b) Define flowchart and draw a flowchart to find largest among three numbers.

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

- (a) What is storage class? Explain the various storage classes used in 'C' programming.
- (b) Explain the differences between `getch()`, `getche()` and `getchar()` with proper example.

**MCA (INTEGRATED)**  
**(SEM. I) THEORY EXAMINATION 2022-23**  
**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. What is Icon?
- b. How can you create a watermark in a document in MS Word?
- c. How to add foot-note & end note in word?
- d. In word how you can insert a column break?
- e. Explain IF condition in Excel.
- f. What is Ribbon, and where does it appear?
- g. What is meant by data redundancy?

**SECTION B**

2. Attempt any three of the following:

7 x 3 = 21

- a. Write short notes on  
 (i) File Manager (ii) Clipart (iii) Recycle Bin (iv) Control Panel
- b. Define a word processor. What are the most prominent features of MS Word?
- c. (i) Explain the difference between SUBSTITUTE and REPLACE function in MS-Excel?  
 (ii) How will you write the formula for the following? - Multiply the value in cell A1 by 10, add the result by 5, and divide it by 2.
- d. What is template? Explain the use of templates in Power Point.
- e. Explain how you can create a form in MS-Access?

**SECTION C**

3. Attempt any one part of the following:

7 x 1 = 7

- (a) Explain the scope of computer in Modern day in detail.
- (b) Write short notes on  
 (i) Start button (ii) Task Bar (iii) Status Bar

4. Attempt any one part of the following:

7 x 1 = 7

- (a) How to create and format a table in MS-Word?
- (b) Explain the mail-merge in detail with an example.

5. Attempt any one part of the following:

7 x 1 = 7

- (a) What is Microsoft Excel? What are the advantages of MS-Excel ?
- (b) What is function? Write the syntax and purpose of the following functions:  
 a) SUMIF ( ) b) MIN ( ) c) INT ( ) d) FACT ( )

6. Attempt any one part of the following:

7 x 1 = 7

- (a) Give the steps of the following :  
 (i) How do you change the background color of a slide?  
 (ii) How can you add a border or fill it in PowerPoint?
- (b) What do you mean by a multimedia presentation? What is meant by motion path?

7. Attempt any one part of the following:

7 x 1 = 7

- (a) Describe MS-Access. Explain main components of MS-Access.
- (b) What is Database? How will you create a database in Access?

**MCA INTEGRATED  
(SEM I) THEORY EXAMINATION 2022-23  
FUNDAMENTALS OF COMPUTER**

**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.****7 x 2 = 14**

- (a) Define Computer?
- (b) What do you understand by hardware?
- (c) Define memory?
- (d) Define LAN?
- (e) What do you understand by algorithm?
- (f) Define internet?
- (g) What do you understand by time complexity?

**SECTION B**

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

- (a) Explain CPU and its components with suitable diagram.
- (b) Explain primary and secondary memory with its types.
- (c) Explain operating systems and its types.
- (d) Explain flowcharts and various symbol used in it.
- (e) What do you understand by web browser, web services and what are the uses of internet?

**SECTION C**

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

- (a) Explain the various types of computer?
- (b) Explain various generations of computer?

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

- (a) Explain the various storage devices?
- (b) Explain cache and virtual memory?

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

- (a) What do you understand by computer networks and what are its various types?
- (b) Explain GUI and its components?

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

- (a) What are the various characteristics of an algorithm? Write an algorithm for division of two numbers.
- (b) Explain various conditions in pseudo-code and why pseudo-code is important for algorithms.

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

- (a) Explain the various layers present in internet (TCP/ IP Model) with a suitable diagram.
- (b) Explain various multimedia components and multimedia applications?

**MCA (INTEGRATED)**  
**(SEM I) THEORY EXAMINATION 2022-23**  
**BUSINESS COMMUNICATION**

**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 is meant by Communication?
- (b) What is the concept of oral report?
- (c) Define writing.
- (d) What are non-routine reports?
- (e) Why are the letters important? Tell in brief.
- (f) Define electronic writing.
- (g) What do you mean by the term employment?

**SECTION B**

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

- (a) Explain the objectives of communication.
- (b) Explain the principles of effective Oral Communication.
- (c) What is the purpose of writing?
- (d) Give the layout of business letter with proper example.
- (e) Outline the contents of a Resume properly.

**SECTION C**

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

- (a) Explain the need for Communication in a modern business.
- (b) Explain the various types of 7C's of communication.

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

- (a) What are the techniques of effective speech?
- (b) How can you make your listening skills more effective?

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

- (a) What are the skills involved in effective writing?
- (b) Explain the effective writing technique.

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

- (a) What are the different types of report?
- (b) Give the proper layout of business letters.

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

- (a) How the enquiries and replies letter's created. Give a sample of it.
- (b) How the placing and fulfilling orders of the letters done.

**MCA (INTEGRATED)**  
**(SEM I) THEORY EXAMINATION 2022-23**  
**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.

7 x 2 = 14

- (a) Define the Symmetric and Skew-symmetric matrix with example.
- (b) State the Cayley-Hamilton Theorem.
- (c) Find the 10<sup>th</sup> derivative of  $x^{12}$ .
- (d) State the Euler's Theorem for Homogeneous Functions.
- (e) Solve the following:  $(D^2 - 5D + 6)y = 0$
- (f) Write down the Change of scale property of Laplace transformation.
- (g) State the Second Shifting property of Inverse Laplace Transformation.

**SECTION B**

2. Attempt any *three* of the following:

3 x 7 = 21

- (a) For which value of  $b$  the rank of the matrix  $A = \begin{bmatrix} 1 & 5 & 4 \\ 0 & 3 & 2 \\ b & 13 & 10 \end{bmatrix}$  is 2.
- (b)  $u = e^{xyz}$ , find the value of  $\frac{\partial^3 u}{\partial x \cdot \partial y \cdot \partial z}$ .
- (c) Solve the differential equation:  $\frac{d^2 y}{dx^2} - 2 \frac{dy}{dx} + y = x e^x \sin x$ .
- (d) State and prove the First Shifting property Laplace Transformation.
- (e) Find the Inverse Laplace transform of  $\frac{1}{s(s^2+4)}$

**SECTION C**

3. Attempt any *one* part of the following:

1 x 7 = 7

- (a) If  $A = \begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$ , find  $A^{-1}$ .
- (b) Test the consistency and hence, solve the following set of equations:  

$$\begin{aligned} 10y + 3z &= 0, \\ 3x + 3y + 2z &= 1, \\ 2x - 3y - z &= 5, \\ x + 2y &= 4. \end{aligned}$$

4. Attempt any *one* part of the following:

1 x 7 = 7

- (a) State the Leibnitz's Theorem and Find the  $n$ th derivative of  $e^x \log x$  .  
(b) If  $x = r \cos \theta$  ,  $y = r \sin \theta$  then find i)  $\left(\frac{\partial x}{\partial r}\right)_\theta$  ii)  $\left(\frac{\partial y}{\partial \theta}\right)_r$ .

5. Attempt any *one* part of the following:

1 x 7 = 7

- (a) Solve the following simultaneous differential equations:

$$\frac{dx}{dt} + 5x + y = e^t$$
$$\frac{dx}{dt} + x + 5y = e^{5t}$$

- (b) Solve:  $(D^2 + 9)y = \sin 3x$ .

6. Attempt any *one* part of the following:

1 x 7 = 7

- (a) Find the Laplace Transform of:  $f(t) = \frac{1}{t} (\cos at - \cos bt)$   
(b) Find the Laplace Transform of:  $f(t) = t^2 \cdot e^t \cdot \sin 4t$

7. Attempt any *one* part of the following:

1 x 7 = 7

- (a) Solve the following differential equations using Laplace transform  
 $(D^2 - 3D - 4)y = 16t e^{3t}$  where  $D \cong \frac{d}{dt}$  .  
(b) Find the Inverse Laplace transform of  $\frac{2as}{(s^2 + a^2)^2}$ .