Printed page: 03 **Subject Code: AMCA0101**

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MASTER OF COMPUTER APPLICATIONS (MCA)

(SEM: First Theory Examination) (2020-2021)

FUNDAMENTAL OF COMPUTERS & PROGRAMMING IN C

Time: 3 Hours **Max. Marks:100**

General Instructions:

- All questions are compulsory. Answers should be brief and to the point.
- This Question paper consists of 03.....pages & ...8.....questions.
- It comprises of three Sections, A, B, and C. You are to attempt all the sections.
- Section A -Question No- 1 is objective type questions carrying 1 mark each, Question No- 2 is very short answer type carrying 2 mark each. You are expected to answer them as directed.
- Section B - Question No-3 is Long answer type -I questions with external choice carrying 6 marks each. You need to attempt any five out of seven questions given.
- Section C - Question No. 4-8 are Long answer type –II (within unit choice) questions carrying 10 marks each. You need to attempt any one part *a* or *b*.
- Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
- No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION – A

1. Answer all the parts- **[10×1=10]** **CO**

a. What is required in each C program? **(1)** **CO2**

a) The program must have at least one function.
b) The program does not require any function.
c) Input data
d) Output data

b. What is the output of this statement "printf ("%d", (a++))"? **(1)** **CO2**

a) The value of (a + 1)
b) The current value of a
c) Error message
d) Garbage

c. The generation based on VLSI microprocessor. **(1)** **CO1**

a) 1^{st}
b) 2^{nd}
c) 3^{rd}
d) 4^{th}

d. A program that reads each of the instructions in mnemonic form and translates it into the machine-language equivalent. **(1)** **CO1**

a) Machine language
b) Assembler

c) Interpreter
d) C program

e. Decision Control Statement in C can be implemented using **(1)** **CO3**
a) If
b) If-else
c) Conditional operator
d) All the Above

f. For loop in a C program, if the condition is missing **(1)** **CO3**
a) it is assumed to be present and taken to be false
b) it is assumed to be present and taken to the true
c) it results in a syntax error
d) execution will be terminated abruptly

g. How many times will the following loop be executed if the input data item is 0 1 2 3 4? **(1)** **CO4**

```
while (c = getchar ()! = 0)
{ }
```

a) Infinitely
b) Never
c) Once
d) None of these

h. The following program fragment **(1)** **CO4**

```
for (i = 1; i< 5; ++ i )
if ( i == 3) continue;
else printf( " %d " i );
```

results in the printing of
a) 1 2 4 5
b) 1 2 4
c) 2 4 5
d) None of the above

i. The function fopen("filename", "r") returns **(1)** **CO5**
a) Nothing
b) A value 0 or 1 depending on whether the file could be opened or not.
c) A pointer to FILE filename, if it exits
d) A pointer to a new file after creating it.

j. Which of the following header files must necessarily be included to use dynamic memory allocation functions? **(1)** **CO5**
a) stdlib.h
b) stdio.h
c) memory.h
d) dos.h

2. Answer <u>all</u> the parts- **[5×2=10]** **CO**

a. Explain Primary and Auxiliary Memory. **(2)** **CO1**
b. What is type conversion in C Language? **(2)** **CO2**
c. How do you use extern variables? **(2)** **CO3**

d.	Define Pointers.	**(2)**	**CO4**
e.	What is #include in C?	**(2)**	**CO5**

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SECTION – B

3.	**Answer any five of the following-**	**[5×6=30]**	**CO**
a.	Compare and Contrast Assembler, Compiler and Interpreter.	**(6)**	**CO1**
b.	Write structure of C Program. Also write a program to convert centigrade temperature into Fahrenheit.	**(6)**	**CO2**
c.	Explain recursion and its types.	**(6)**	**CO3**
d.	Write a program to swap two numbers using pointers.	**(6)**	**CO4**
e.	Write syntax and use of the following: a) malloc () b) calloc () c) free ()	**(6)**	**CO5**
f.	Explain the various file handling function with examples.	**(6)**	**CO5**
g.	Distinguish between the following a) Actual and Formal parameter b) Auto and static variable c) Global and Extern Variable	**(6)**	**CO3**

SECTION – C

CO

4	**Answer any one of the following-**	**[5×10=50]**	
a.	Explain different generations of computer.	**(10)**	**CO1**
b.	Explain different generation of Languages. What are characteristics of a good program?	**(10)**	**CO1**
5.	**Answer any one of the following-**		
a.	Differentiate between a) Top down and bottom up design b) Testing and debugging **c)** Flow chart and algorithm	**(10)**	**CO2**
b.	Write short notes on Type Conversion and type casting.	**(10)**	**CO2**
6.	**Answer any one of the following-**		
a.	What is function. Explain its types. Also write a C program that implements a function max which takes three numbers as input and gives the largest of them as output.	**(10)**	**CO3**
b.	What is difference between while and do-while loop? Also write a program to find the factorial of the given number.	**(10)**	**CO3**
7.	**Answer any one of the following-**		
a.	Twenty numbers are entered from keyboard into an array. Write a program to find how many of them are positive, negative, even or odd numbers.	**(10)**	**CO4**
b.	Differentiate- a) Call by Value and Call by Reference? b) Structure and Union.	**(10)**	**CO4**
8.	**Answer any one of the following-**		
a.	What are pre-processor directives? Write the difference between following two #include directives. a) #include “conio.h” b) #include <conio.h>	**(10)**	**CO5**

b. Explain any five File handling functions with example. **(10)** **CO5**