



MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY
END SEMESTER EXAMINATION

SIST/MCA /SEM-1st /MCAC101/2022-23

FEBRUARY – 2023

PAPER NAME: PROGRAMMING FOR PROBLEM SOLVING

PAPER CODE: MCAC 101

SEMESTER: 1st

Time : 3 Hours]

[Full Marks : 70

The figures in the margin indicate full marks.
 Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1	Choose the correct alternatives of the following: Any ten	10 *1 = 10			
		MARKS	CO	PO	BL
i)	What is the output of the program given below? <pre>#include<stdio.h> int main() { int i = 6, *j, k; j = &i; printf("%d\n", i * *j * i + *j); return 0; }</pre>	1	1,2	1	5
a.	216				
b.	222				
c.	Error				
d.	Segmentation fault.				
ii)	What is the output of the program given below? <pre>#include<stdio.h> void main() { if(printf("hello")){} }</pre>	1	1,2	1	4
a.	Syntax error				
b.	Infinite loop				
c.	hello				
d.	1				
iii)	What is the output of the program given below? <pre>#include<stdio.h> int fl() {</pre>	1	1,2	1	4

	<pre> static int x=1; x++; return x; } void main() { printf("%d", f1()); printf("\t%d", f1()); } </pre>				
a.	2 3				
b.	2 2				
c.	1 1				
d.	1 2				
iv)	Which of the following statements should be used to obtain a remainder after dividing 3.14 by 2.1 ?	1	1,3	2,5	2
a.	rem = 3.14 % 2.1;				
b.	rem = modf(3.14, 2.1);				
c.	rem = fmod(3.14, 2.1);				
d.	Remainder cannot be obtained in floating point division.				
v)	Which of the following special symbol allowed in a variable name?	1	1,2	2,6	1
a.	* (asterisk)				
b.	(pipeline)				
c.	- (hyphen)				
d.	_ (underscore)				
vi)	Is there any difference between following declarations? 1. extern int fun(); 2. int fun();	1	2,3	1,5	1
a.	Both are identical				
b.	No difference, except extern int fun(); is probably in another file				
c.	int fun(); is overridden with extern int fun();				
d.	None of these				
vii)	Is the following statement a declaration or definition? extern int i;	1	1,2	2,6	2
a.	Declaration				
b.	Definition				
c.	Function				
d.	Error				
viii)	By default, a real number is treated as a	1	1	1	1
a.	float				
b.	double				
c.	long double				
d.	far double				

ix)	What is the output of the program given below? <pre>#include<stdio.h> int main() { enum status { pass, fail, atkt}; enum status stud1, stud2, stud3; stud1 = pass; stud2 = atkt; stud3 = fail; printf("%d, %d, %d\n", stud1, stud2, stud3); return 0; }</pre>	1	1,2	1,5	3
a.	0, 1, 2				
b.	1, 2, 3				
c.	0, 2, 1				
d.	1, 3, 2				
x)	What is the output of the program given below? <pre>#include<stdio.h> int X=40; int main() { int X=20; printf("%d\n", X); return 0; }</pre>	1	1	1	4
a.	20				
b.	40				
c.	Error				
d.	No output				
xi)	What is the output of the program <pre>#include<stdio.h> int main() { int x = 10, y = 20, z = 5, i; i = x < y < z; printf("%d\n", i); return 0; }</pre>	1	3,4	2,6	4
a.	0				
b.	1				
c.	Error				
d.	None of these.				
GROUP – B					

(Short Answer Type Questions)

Answer the following.		3 * 5 = 15			
		MARKS	CO	PO	BL
2.a.	Can you store 32768 in an int data type in C language?	2	1,2	5,6	4
	Can you create a customized header file with C programming language?	2	1		2
	State different storage classes used in C?	1	1		1
OR					
2.b.	Write a C program to calculate the sum of digits of a given number.	4	3,4	2,4	6
	What is Preprocessor in C?	1	1	1	1
OR					
3.a.	Explain typecasting in C with a suitable example.	3	2,3	1,5	2
	Explain R-value and L-value in C.	2	1,2	5,6	1
OR					
3.b.	What is the difference between #include "..." and #include <...>?	2	1	1	1
	What is the difference between 'c' and "c" in C?	2	1,2	5,6	4
	Can we compile a program without main() function?	1	4,5	3,4	2
4.a.	What is the use of a semicolon (;) at the end of every program statement?	2	5	3,6	2
	What are the types of linkages?	1	1	1	1
	Suppose a global variable and local variable have the same name. Is it possible to access a global variable from a block where local variables are defined?	2	2,3	1,5	3
OR					
4.b.	Write a C program to print the Fibonacci series within a given range.	5	3,4	2,4	6

GROUP – C**(Long Answer Type Questions)**

Answer the following.		3 * 15 = 45			
		MARKS	CO	PO	BL
5.a.i.	What will be the output of the program if the array begins at address 65486? int arr[] = {12, 14, 15, 23, 45}; printf("%u, %u\n", arr, &arr);	2	3,4	2,4	3
ii.	What is dangling pointer? State with example.	3	2,3	1,5	4
iii.	Write a C program to calculate the sum of five integers stored in an array where the numbers will be accessed by a pointer to the array.	5	3,4	2,4	6
iv.	Write a C program to reverse the elements of an array.	5	3,4	2,4	6
v.					
vi.					

OR

5.b.i.	Write a C program to check whether a given number is Armstrong number or not.	5	3,4	2,4	6
ii.	What is a sequential access file?	2	5	3,6	1
iii.	Describe the modifier in C?	3	1,2	5,6	1
iv.	What are the key features in C programming language?	2	1	1	1
v.	What is the process to generate random numbers in C programming language?	1	2,3	1,5	2
vi.	When should we use the register storage specifier?	2	1,2	5,6	3
6.a.i.	Write a C program to implement string copy function without using <string.h> header file.	5	3,4	2,4	6
ii.	Write a C program to calculate a given string length without using <string.h> header file.	5	3,4	2,4	6
iii.	Write a C program to check whether a given string is palindrome or not.	5	3,4	2,4	6
iv.					
v.					
vi.					
OR					
6.b.i.	What is dynamic memory allocation? Give suitable example.	3	4	2,4	1
ii.	Differentiate between calloc() and malloc() library functions.	4	4	2,4	2
iii.	Write a C program to add two given matrices.	5	3,4	2,4	6
iv.	How can you store a negative integer in C?	3	1,2	5,6	2
v.					
vi.					
7.a.i.	State the difference between Structure and Union.	3	4	2,4	2
ii.	Write a C program to store and display Employee details using structure.	5	4	2,4	6
iii.	What are reserved words with a programming language?	2	1,2	5,6	1
iv.	What are the valid places to have keyword "Break"?	2	2,3	1,5	3
v.	Write a C program to add first N numbers using while loop.	3	3,4	2,4	6
vi.					
OR					
7.b.i.	Write a C program to implement string concatenation without using <string.h> header.	5	3,4	2,4	6
ii.	Write a C program to arrange a list of given words in alphabetical order.	7	3,4	2,4	6
iii.	Discuss the use of static variable in C, using suitable example.	3	2,3	1,5	3