

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous College U/s UGC Act 1956)

B.Tech. SEMESTER-I, SEMESTER END EXAMINATION - WINTER 2024

Subject Code: 1IT101

Date: 16-12-2024

Subject Name: FUNDAMENTALS OF COMPUTER PROGRAMMING

Time: 11:00 AM to 01:30 PM

Total Marks: 70

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

	Marks	BL	CO
Q.1 Objective-Type Questions	[05]		
(a) Which one is a step-by-step procedure for solving a mathematical problem?	1	R	1
(i) Flowchart			
(ii) Algorithm			
(iii) Operators			
(iv) Data Types			
(b) The value obtained in the function is given back to main by using _____ keyword.	1	U	4
(i) struct			
(ii) new			
(iii) pointer			
(iv) return			
(c) Which operators are used for assigning value to a variable?	1	U	1
(i) Logical Operator			
(ii) Relational Operator			
(iii) Arithmetic Operator			
(iv) Assignment operator			
(d) Which file handling function is used to read a character from a file?	1	R	5
(i) fseek()			
(ii) ftell()			
(iii) fgetc()			
(iv) fputc()			

- (e) How do you access members of a structure? 1 U 4
- (i) Using the dot operator (.) (ii) Using the arrow operator (->)
- (iii) Using brackets ([]) (iv) Both (i) and (ii)

Q.2 Attempt Any Two [10]

- (a) Explain basic structure of a C Programs and highlight usual sections of main function. 5 U 1
- (b) List out all the operators and explain any four operators in detail. 5 R 1
- (c) Define Flowchart. Describe various symbols used for preparing flowchart. 5 U/A 1
Draw the flowchart to check whether the entered number is Even or Odd.

Q.3 Attempt Any Two [10]

- (a) Explain categories of User defined function with an example. 5 U 4
- (b) Differentiate between call by value and call by reference. 5 R 4
- (c) What is Recursion? Explain the concept of recursion with an example. 5 U 4

Q.4 Attempt Any Two [10]

- (a) What is structure? How it is different from union? Explain structure with example. 5 R 4
- (b) List down and briefly explain methods for Dynamic Memory Allocation. 5 U 5
- (c) What is Pointer in C and how to initialize it? Also give the output of following C code. 5 R/A 5

```
int main(){
int val=20, *p;
p = &val;
printf(“%d %d %d”, val, *p, sizeof(p));
return 0;
}
```

SECTION B

	Marks	BL	CO
Q.5 Objective-Type Questions	[05]		
(a) What is the output of the following statement: <pre>#include<stdio.h> void main() { printf("%c", 65); }</pre>	1	U	1
(i) A			
(ii) a			
(iii) Error			
(iv) X			
(b) Evaluate the following expression and select the correct option where a=4 and b=2. Expression: $a + b * (a - b)$	1	N	1
(i) 4			
(ii) 8			
(iii) 12			
(iv) 0			
(c) What is the associativity of the assignment operator (=) in C?	1	R	1
(i) Left to Right			
(ii) Right to Left			
(iii) No associativity			
(iv) Depends on the context			
(d) What type of conversion occurs in the following code snippet? <pre>#include <stdio.h> void main() { char ch = 'Z'; int num = ch + 1; printf("%d\n", num); }</pre>	1	U	1
(i) Explicit conversion			
(ii) Implicit conversion (type promotion)			
(iii) No conversion occurs			
(iv) Runtime conversion			

- (e) What will be the result of the following C expression? 1 U 1
- ```
#include <stdio.h>
void main() {
int x = 10;
int y = 20;
int z = x-- + y;
printf("%d", z);
}
```
- (i) 30 (ii) 29  
 (iii) 31 (iv) Compilation Error

**Q.6 Attempt Any Two** [10]

- (a) Explain “conditional operator” and “ladder if...else” in C programming. 5 U 2
- (b) Write a C program to print the following pattern: 5 A 2
- ```
*****
****
***
**
*
```
- (c) Write a C program that takes an integer input between 1 and 7 and prints the corresponding day of the week using a switch statement. Consider that the week starts on Monday. 5 A 2

Q.7 Attempt Any Two [10]

- (a) Write a short note on the entry control and exit control loop. 5 U 2
- (b) Explain break and continue statements with a suitable C program. 5 U 2
- (c) What is an array? Write a C program that sorts 5 integer numbers in ascending order. 5 R,A 3

Q.8 Attempt Any Two [10]

- (a) Define a string. Explain following functions of <string.h> library with its syntax. 5 R,U 3
- | | |
|---------------|--------------|
| i. strlen() | ii. strcmp() |
| iii. strcpy() | iv. strcat() |
- (b) Write a C program that performs matrix multiplication of two 2x2 arrays. 5 A 3
- (c) Describe the various modes for file management of text files in C programming. 5 R 3
