



# Motilal Nehru National Institute of Technology Allahabad

Prayagraj-211004 [India]

Department of Computer Science & Engineering

Mid Semester (Odd) Examination 2022-23

Programme Name: B.Tech

Max. Marks: 20

Semester: I

Course Name: Computer Programming

Duration: 90 Minutes

Student Reg.No.

|   |   |   |   |   |   |   |   |
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| 2 | 0 | 2 | 2 | 3 | 0 | 3 | 5 |
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Note: Attempt all questions.

| S. No. | Questions  | Marks |
|--------|--|-------|
| 1.     | a. Write distinguish between Compiler and Interpreter?<br>b. What are the stages in compilation process in C? Explain with suitable example.   | 2+2   |
| 2.     | a. What are the important components of Digital Computer ? Explain briefly.<br>b. Define operating system? What are the functions and types of operating systems?  | 2+2   |
| 3.     | Write a C program to print following pattern using control statements:<br><br>1<br><br>2 6<br><br>3 7 10<br><br>4 8 11 13<br><br>5 9 12 14 15  | 2     |
| 4.     | a. What do you mean by type conversion? Also discuss type casting with an example.<br>b. Explain the following operators in "C" with the help of suitable example.<br>i.) arithmetic ii.) relational iii.) logical iv.) conditional  | 1+2   |
| 5.     | <b>Draw a program flowchart to depict the below process from customer sign in to automatic sign off.</b><br>AuditorForum allows its customers to access their blood test reports through Internet. At the time of payment the system creates a unique user ID and password which is printed on the payment receipt. The customer is allowed to log on to Auditor Forum's website on or after the specified date, to access the report. After logging on to the website the customer is required to input his email address after which the system automatically sends the test report to that email address. After sending the email, the system automatically signs off the customer and displays the message: "Your report has been sent to your email address."<br>If the customer tries to log on before the report receiving date, the system displays the message: "Your report would be available on the date specified on your payment receipt." | 2     |

|    |   |   |
|----|---|---|
|    | The user ID and password is valid only for fifteen days after the date on which the report becomes available.   |   |
| 6. | <p>What is the output printed by the following segments of C code? Justify your answer.</p> <div> <pre>#include&lt;stdio.h&gt; int main() {     int a = 4, b = 2;     printf("a^b = %d", a^b);     return 0; }</pre> </div> <div> <p>What does the following program do when the input is unsigned 16-bit integer?</p> <pre>#include &lt;stdio.h&gt; main( ) {     unsigned int num;     int i;     scanf ("%u", &amp;num);     for ( i = 0; i&lt;16; i++)     {         printf ("%d", (num &lt;&lt; i &amp; 1 &lt;&lt; 15 ) ? 1:0);     } }</pre> </div>   | 2 |
| 7. | <p>Assume the following tree structure of file system.</p> <pre>       / (root)               -----                       /bin /usr /tmp               -----                           /public /misc /academics /students                           -----   -----                                   /Departments /Faculty /Quarters /Subjects /Sports     </pre> <p>Also, assume <b>you are currently in Departments</b>. Write Linux commands for the following.</p> <ol style="list-style-type: none"> <li>Create a directory "Hobbies" inside the directory of students.</li> <li>Copy the Subjects directory inside the Faculty directory.</li> <li>Create a file CSED.c in Departments directory.</li> <li>Change the permissions of the file CSED.c into read, write and executable for user and group and read only for others.</li> <li>Give the detailed long list the files and directories in academics.</li> <li>Remove the directory Departments.</li> </ol> | 3 |