

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025 (Make-UP)

B.Tech-I Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 25B11CI112 (3)

MAX. MARKS: 25

COURSE NAME: Software Development Fundamentals – I

COURSE INSTRUCTORS: PKG, AKJ, KKK, AMN, MNK, MGD, FSL, PLK

MAX. TIME: 1.5 Hours

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.

Q.No	Question	CO	Marks																
Q1	Assume that an integer is stored in 16 bits. Given $x = 8$ and $y = 12$. Compute the value of z where $z = \sim x \wedge x \wedge y$.	2	1																
Q2	Write a program to swap two numbers without arithmetic operators.	3	2																
Q3	Write the code for extracting the lower triangular matrix of a 3 by 3 matrix and find its determinant.	5	3																
Q4	Write a program that defines a function <code>void sq_cube(int)</code> , which is called from <code>main()</code> to compute square and cube of number passed to <code>sq_cube()</code> and answer is reflected in <code>main()</code> .	5	2																
Q5	For the array <code>ARR[7]</code> beginning at address 400 with content 7,1,2,3,6,4,5. Draw the memory map of the array assuming integers occupy 2 Bytes. What will be the output of the following: <code>printf("%p %p %p", 0[ARR], &ARR[0], &ARR+1);</code>	5	4																
Q6	Give the pseudocode for Bubble Sort. Mention the maximum number of steps required to sort an array of size n . Identify the best and worst permutations of data for Bubble Sort. Apply Bubble Sort on <code>ARR[7]</code> (as mentioned in Q3) and show the contents of <code>ARR</code> after each pass.	5	5																
Q7	Give two integers pointers <code>A</code> and <code>B</code> (<code>int *A, *B, b=0; A=&b;</code>) stored at memory location 401 and 399 respectively. Given <code>sizeof(int)</code> evaluates to 2. Fill in the entries of the table below. Write NA if not valid operation.	5	2																
<table border="1"> <thead> <tr> <th>A+B</th> <th>A-B</th> <th>A%B</th> <th>A/B</th> <th>A+1</th> <th>1-B</th> <th>A++</th> <th>*B</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				A+B	A-B	A%B	A/B	A+1	1-B	A++	*B								
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Q8	Apply Binary search procedure to the following array. Item to be searched is (CASE 1: Binary Search) 17 (CASE 2: Linear Search) 20.	4	4										
	<table border="1"><tr><td>10</td><td>11</td><td>12</td><td>15</td><td>17</td><td>17</td><td>19</td><td>21</td><td>27</td><td>35</td></tr></table>	10	11	12	15	17	17	19	21	27	35		
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	Report the value of <i>lower</i> , <i>upper</i> and <i>mid</i> variables for both case CASE 1 and CASE 2 till the search reaches conclusion.												
Q9	Predict the output of the following code snippets, or write the name of the error if they don't compile. Assume that the code will work fine without the return 0 statement and int prefixed to main().	4	4										
	<table border="1"><tr><td>A) main() { float f=6.25; printf("%.4f", f); }</td><td>B) main() { ;;;;;; /* 11 */ printf("%d", 2>3>1); }</td></tr><tr><td>C) main() { printf(" %d-%d", printf("0"), printf("1")); printf("%d", 1,2,3); }</td><td>D) main() { printf("%d", 6%2.0); printf("%d", 6%8.5); }</td></tr><tr><td>E) main() { int arr[5]={1,2,3,4,5,6}; int *ptr1=arr+3-2; int *ptr2=arr+3; printf("%d",ptr2-ptr1); }</td><td>F) main() { int arr[]={1,2,3}; arr[0,1,2]=(1,2,3); printf("%d %d",arr[1],arr[2]); }</td></tr><tr><td>G) main() { int arr [2]={1,2,3,4,5,6}; int i; for(i=0;i<6;i++) printf("%d ",arr[i]); }</td><td>H)main() { int *ptr=0; printf("%p",*ptr); }</td></tr></table>	A) main() { float f=6.25; printf("%.4f", f); }	B) main() { ;;;;;; /* 11 */ printf("%d", 2>3>1); }	C) main() { printf(" %d-%d", printf("0"), printf("1")); printf("%d", 1,2,3); }	D) main() { printf("%d", 6%2.0); printf("%d", 6%8.5); }	E) main() { int arr[5]={1,2,3,4,5,6}; int *ptr1=arr+3-2; int *ptr2=arr+3; printf("%d",ptr2-ptr1); }	F) main() { int arr[]={1,2,3}; arr[0,1,2]=(1,2,3); printf("%d %d",arr[1],arr[2]); }	G) main() { int arr [2]={1,2,3,4,5,6}; int i; for(i=0;i<6;i++) printf("%d ",arr[i]); }	H)main() { int *ptr=0; printf("%p",*ptr); }				
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