JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATIONS-2023
B.Tech-VI Semester (CS/IT)

COURSE CODE (CREDITS): 18B11CI612 (3)

MAX. MARKS: 35

COURSE NAME: Compiler Design

COURSE INSTRUCTORS: Yugal Kumar, Himanshu Jindal,

MAX. TIME: 2 Hour

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Note: All questions are compulsory. Marks are indicated against each question in brackets.

Q.1 [CO6] Generate the Control Flow Graph for the following Code Segment. (6)

```
for (i=100; i>1; i--) {
    for (j=0; j<i-1; j++) {
        if (a[j] > a[j+1]) {
            temp = a[j];
            a[j+1] = a[j];
            a[j] = temp;
        }
    }
}
```

Q.2 [CO6] Design the DAG for the following statements. (6)

$$a = 10$$
$$b = 4 * a$$
$$c = i * j + b$$
$$d = 15 * a * c$$
$$e = i$$
$$c = e * j + i * a$$

Q.3 [CO7] Compute the Dependence Graph for the CGF and also determine the attribute evaluation order for the string aabbcc. (6)

$$S \to ABC$$
$$A \to aA \mid a$$
$$B \to bB \mid b$$
$$C \to cC \mid c$$

Q.4 [CO5] Consider the following statement (6)

$$a+b*c-d/(b*c)$$

Construct the three address code, quadruples, triples and syntax tree.

Q.5 [CO7] Design the Symbol Table for the following code fragment. (6)

```
int f1( float p1, int p2){
  float v1; int v2;
  ...
  { int v3; float v4;
    ....
  }
  ...
  { float v5,v6;
    ....
    { char v7,v8;
      ...
    }
  }
} /* end of f1 */
void f2 (char p3){
  int v3; float v4;
  ...
}
```

Q.6 [CO5] Generate the three address code notations for the following statement. (5)

if ((a+b < c+d) || ((e==f) && (g > h+k))) A1; else A2; A3;