

第 5 章语义分析与中间代码生成

1. 写出下列源程序经过编译后所生成的虚拟机代码，并填写其符号表。

```
const pi=3;
var r,s;
procedure area;
  var r1;
  begin
    r1:=r*r;s:=pi*r1
  end;
begin
  read(r);
  if r>10 then call area;
  write(s)
end.
```

2. 写出下列源程序经过编译后所生成的虚拟机代码，并填写其符号表。

```
const m=7,n=85;
var x,y,z;
procedure gcd;
  var f,g;
  begin
    f:=x;
    g:=y;
    while f#g do
      begin
        if f<g then
          g:=g-f;
        if g<f then
          f:=f-g;
      end;
    z:=f
  end;
begin
  x:=84;y:=36;call gcd;write(z)
end.
```

3. 写出下列源程序经过编译后所生成的虚拟机代码，并填写其符号表。

```
const m=7,n=85;
var x,y,z,q,r;
procedure multiply;
  var a,b;
  begin
    a:=x;
```

```

    b:=y;
    z:=0;
    while b>0 do
        begin
            if odd b then
                z:=z+a;
            a:=2*a;
            b:=b/2;
        end
    end;
end;

```

```

procedure divide;
var w;
begin
    r:=x;
    q:=0;
    w:=y;
    while w<=r do
        w:=2*w;
    while w>y do
        begin
            q:=2*q;
            w:=w/2;
            if w<=r then
                begin
                    r:=r-w;
                    q:=q+1
                end
            end
        end
    end;
end;

```

```

procedure gcd;
var f,g;
begin
    f:=x;
    g:=y;
    while f#g do
        begin
            if f<g then
                g:=g-f;
            if g<f then
                f:=f-g;
        end;
    z:=f
end;

```

end;

begin

 x:=m;y:=n;call multiply;write(z);

 x:=25;y:=3;call divide;write(q);

 x:=84;y:=36;call gcd;write(z)

end.