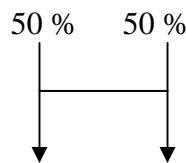


# LAMPIRAN

## Lampiran 1 Perhitungan Angka Ekuivalen

Distribusi beban tiap jenis kendaraan seperti pada Tabel 2.3, dihitung sebagai berikut :

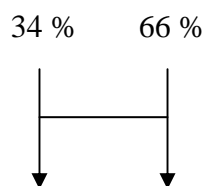
1. Untuk jenis kendaraan pribadi dengan berat 2 ton, distribusi sumbu beban sebagai berikut :



Perhitungan dengan menggunakan Persamaan 2.2 sebagai berikut :

$$\begin{aligned}
 E \text{ kend. pribadi} &= \left( \frac{0,50 \times 2}{8,16} \right)^4 + \left( \frac{0,50 \times 2}{8,16} \right)^4 \\
 &= 0,0002 + 0,0002 \\
 &= 0,0004
 \end{aligned}$$

2. Untuk jenis bis kecil dengan berat 9 ton, truk kecil dengan berat 8 ton dan kendaraan GOL IIA dengan berat 18 ton, distribusi sumbu beban sebagai berikut :



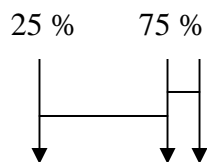
Perhitungan dengan menggunakan Persamaan 2.2 sebagai berikut :

$$\begin{aligned}
 E \text{ bis kecil} &= \left( \frac{0,34 \times 9}{8,16} \right)^4 + \left( \frac{0,66 \times 9}{8,16} \right)^4 \\
 &= 0,0198 + 0,2808 \\
 &= 0,3006
 \end{aligned}$$

$$\begin{aligned}
 E \text{ truk kecil} &= \left( \frac{0,34 \times 8}{8,16} \right)^4 + \left( \frac{0,66 \times 8}{8,16} \right)^4 \\
 &= 0,0123 + 0,1753 \\
 &= 0,1876
 \end{aligned}$$

$$\begin{aligned}
 E \text{ GOL IIA} &= \left( \frac{0,34 \times 18}{8,16} \right)^4 + \left( \frac{0,66 \times 18}{8,16} \right)^4 \\
 &= 0,3164 + 4,4927 \\
 &= 4,8091
 \end{aligned}$$

3. Untuk jenis kendaraan GOL IIB dengan berat 30 ton, distribusi sumbu beban sebagai berikut :



$$\begin{aligned}
 E \text{ GOL IIB} &= \left( \frac{0,25 \times 30}{8,16} \right)^4 + 0,086 \left( \frac{0,75 \times 30}{8,16} \right)^4 \\
 &= 0,7136 + 4,9713 \\
 &= 5,6849
 \end{aligned}$$

## Lampiran 2 Perhitungan Lintas Harian Rata-rata

Berikut ini adalah contoh perhitungan  $LHR_o$ ,  $LHR_t$ , LEP, LEA, LET, LER :

1. Perhitungan  $LHR_o$  dengan menggunakan Persamaan 4.1 adalah sebagai berikut :

$$\begin{aligned} LHR_o \text{ kend.pribadi} &= (1 + 0,078)^{0,8} \times 19.794,6 \\ &= 21.020,44 \end{aligned}$$

2. Perhitungan  $LHR_t$  dengan menggunakan Persamaan 4.2 adalah sebagai berikut :

$$\begin{aligned} LHR_t \text{ kend.pribadi} &= (1 + 0,078)^{15} \times 21.020,44 \\ &= 64.851,98 \end{aligned}$$

3. Perhitungan LEP dengan menggunakan Persamaan 2.5 adalah sebagai berikut :

$$\begin{aligned} LEP \text{ kend. pribadi} &= 0,40 \times 0,0004 \times 21.020,44 \\ &= 3,36 \end{aligned}$$

4. Perhitungan LEA dengan menggunakan Persamaan 2.6 adalah sebagai berikut :

$$\begin{aligned} LEA \text{ kend. pribadi} &= 0,40 \times 0,0004 \times 64.851,98 \\ &= 10,38 \end{aligned}$$

5. Perhitungan LET, sebelumnya menghitung LEP dan LEA semua jenis kendaraan, kemudian didapatkan nilai LET setengah dari jumlah LEP ditambah dengan jumlah LEA, perhitungannya sebagai berikut :

$$\begin{aligned} LET &= (LEP + LEA)/2 \\ &= (8.980,93 + 27.706,79)/2 \\ &= 18.343,86 \end{aligned}$$

6. Perhitungan LER, sebelumnya dihitung Faktor Penyesuaian (FP) yaitu Umur Rencana (UR) dibagi 10, perhitungannya sebagai berikut :

$$FP = UR/10$$

$$= 15/10$$

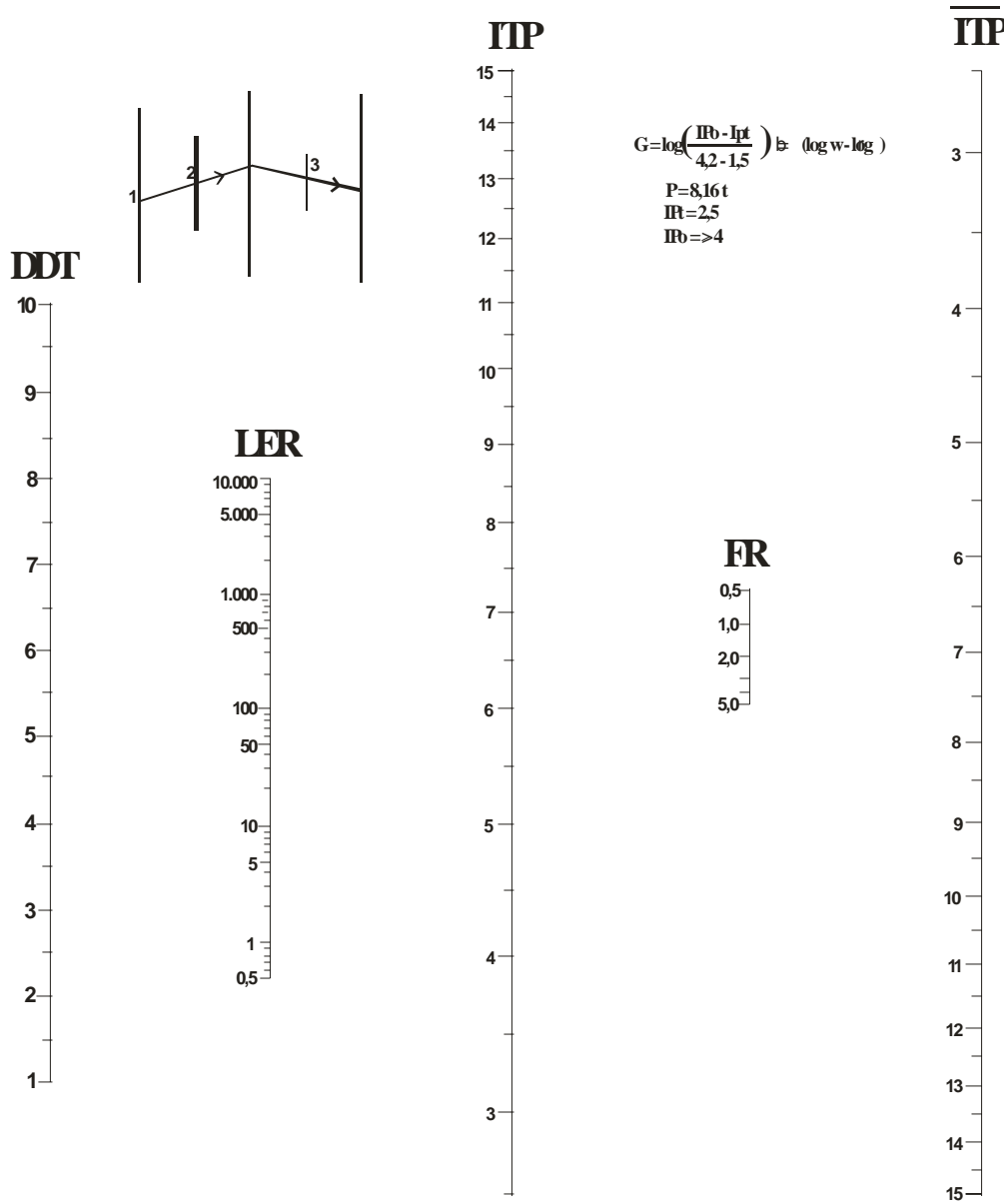
$$= 1,5$$

$$LER = LET \times FP$$

$$= 18.343,86 \times 1,5$$

$$= 27.515,79$$

### Lampiran 3 Nomogram Untuk Mencari ITP



## Lampiran 4 List Program

unit perkerasan;

interface

uses

Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,  
Dialogs, ComCtrls, Menus, StdCtrls, ExtCtrls, Math;

type

TForm1 = class(TForm)  
  TAB: TPageControl;  
  LHR: TTabSheet;  
  PARAMETER: TTabSheet;  
  MATERIAL: TTabSheet;  
  Image2: TImage;  
  Image3: TImage;  
  Image4: TImage;  
  Image5: TImage;  
  Image6: TImage;  
  Image7: TImage;  
  Image8: TImage;  
  Label1: TLabel;  
  Label2: TLabel;  
  Label3: TLabel;  
  Label4: TLabel;  
  Label5: TLabel;  
  Label6: TLabel;  
  Label7: TLabel;  
  Image1: TImage;  
  Label8: TLabel;  
  mp: TEdit;  
  bus: TEdit;  
  tr1: TEdit;  
  tr2: TEdit;  
  tr3: TEdit;  
  tr4: TEdit;  
  tr5: TEdit;  
  tr6: TEdit;  
  tr7: TEdit;  
  c1txt: TEdit;  
  c2txt: TEdit;  
  c3txt: TEdit;  
  c4txt: TEdit;  
  c5txt: TEdit;  
  c6txt: TEdit;  
  c7txt: TEdit;

**Lampiran 4 List Program (Lanjutan)**

c8txt: TEdit;  
c9txt: TEdit;  
b1txt: TEdit;  
b2txt: TEdit;  
b3txt: TEdit;  
b4txt: TEdit;  
b5txt: TEdit;  
b6txt: TEdit;  
Label10: TLabel;  
Label11: TLabel;  
Label12: TLabel;  
Label9: TLabel;  
Label13: TLabel;  
Label14: TLabel;  
Label15: TLabel;  
Label16: TLabel;  
Label17: TLabel;  
Label18: TLabel;  
Label19: TLabel;  
Label20: TLabel;  
lajurtxt: TEdit;  
arahtxt: TEdit;  
cbtxt: TEdit;  
urtxt: TEdit;  
frtxt: TEdit;  
GroupBox1: TGroupBox;  
Label21: TLabel;  
Label22: TLabel;  
ipotxt: TEdit;  
ipttxt: TEdit;  
waktutxt: TEdit;  
Label23: TLabel;  
Label24: TLabel;  
Label25: TLabel;  
LE: TTabSheet;  
Label26: TLabel;  
Label27: TLabel;  
Label28: TLabel;  
Label29: TLabel;  
Label30: TLabel;  
Label31: TLabel;  
Label32: TLabel;  
Label33: TLabel;  
Label34: TLabel;  
Label35: TLabel;  
Label36: TLabel;



**Lampiran 4 List Program (Lanjutan)**

```
Label37: TLabel;
leptxt: TEdit;
leatxt: TEdit;
lettxt: TEdit;
lertxt: TEdit;
ddtxt: TEdit;
itptxt: TEdit;
d1txt: TEdit;
d2txt: TEdit;
a1txt: TEdit;
a2txt: TEdit;
a3txt: TEdit;
JenisBahan: TGroupBox;
RadioButton1: TRadioButton;
ComboBox1: TComboBox;
RadioButton2: TRadioButton;
RadioButton3: TRadioButton;
RadioButton4: TRadioButton;
RadioButton5: TRadioButton;
RadioButton6: TRadioButton;
GroupBox2: TGroupBox;
GroupBox3: TGroupBox;
ComboBox2: TComboBox;
ComboBox3: TComboBox;
ComboBox4: TComboBox;
ComboBox5: TComboBox;
ComboBox6: TComboBox;
RadioButton7: TRadioButton;
RadioButton8: TRadioButton;
RadioButton9: TRadioButton;
RadioButton10: TRadioButton;
RadioButton11: TRadioButton;
RadioButton12: TRadioButton;
RadioButton13: TRadioButton;
RadioButton14: TRadioButton;
RadioButton15: TRadioButton;
RadioButton16: TRadioButton;
ComboBox7: TComboBox;
ComboBox8: TComboBox;
ComboBox9: TComboBox;
ComboBox10: TComboBox;
ComboBox11: TComboBox;
ComboBox12: TComboBox;
ComboBox13: TComboBox;
ComboBox14: TComboBox;
ComboBox15: TComboBox;
```

**Lampiran 4 List Program (Lanjutan)**

ComboBox16: TComboBox;  
RadioButton17: TRadioButton;  
RadioButton18: TRadioButton;  
RadioButton19: TRadioButton;  
ComboBox17: TComboBox;  
ComboBox18: TComboBox;  
ComboBox19: TComboBox;  
RadioButton20: TRadioButton;  
ComboBox20: TComboBox;  
Image9: TImage;  
Image10: TImage;  
Image11: TImage;  
Image12: TImage;  
L1TXT: TEdit;  
L2TXT: TEdit;  
L3TXT: TEdit;  
Button2: TButton;  
HITUNG: TButton;  
Label38: TLabel;  
Label39: TLabel;  
Label40: TLabel;  
Label41: TLabel;  
Label42: TLabel;  
Label43: TLabel;  
Label44: TLabel;  
Label45: TLabel;  
Label46: TLabel;  
Label47: TLabel;  
Image13: TImage;  
b7txt: TEdit;  
b8txt: TEdit;  
b9txt: TEdit;  
ipetxt: TEdit;  
iurtxt: TEdit;  
Label48: TLabel;  
d3txt: TEdit;  
procedure HITUNGClick(Sender: TObject);  
procedure Button2Click(Sender: TObject);  
procedure LESHOW(Sender: TObject);  
procedure FormCreate(Sender: TObject);  
procedure RadioButton1Click(Sender: TObject);  
procedure RadioButton5Click(Sender: TObject);  
procedure RadioButton17Click(Sender: TObject);  
procedure RadioButton7Click(Sender: TObject);  
procedure RadioButton14Click(Sender: TObject);  
procedure RadioButton2Click(Sender: TObject);

#### Lampiran 4 List Program (Lanjutan)

```

procedure RadioButton3Click(Sender: TObject);
procedure RadioButton4Click(Sender: TObject);
procedure RadioButton6Click(Sender: TObject);
procedure RadioButton8Click(Sender: TObject);
procedure RadioButton9Click(Sender: TObject);
procedure RadioButton10Click(Sender: TObject);
procedure RadioButton11Click(Sender: TObject);
procedure RadioButton12Click(Sender: TObject);
procedure RadioButton13Click(Sender: TObject);
procedure RadioButton15Click(Sender: TObject);
procedure RadioButton16Click(Sender: TObject);
procedure RadioButton18Click(Sender: TObject);
procedure RadioButton19Click(Sender: TObject);
procedure RadioButton20Click(Sender: TObject);
procedure ComboBox1Change(Sender: TObject);
procedure ComboBox2Change(Sender: TObject);
procedure ComboBox3Change(Sender: TObject);
procedure ComboBox4Change(Sender: TObject);
procedure ComboBox5Change(Sender: TObject);
procedure ComboBox6Change(Sender: TObject);
procedure ComboBox7Change(Sender: TObject);
procedure ComboBox8Change(Sender: TObject);
procedure ComboBox9Change(Sender: TObject);
procedure ComboBox10Change(Sender: TObject);
procedure ComboBox11Change(Sender: TObject);
procedure ComboBox12Change(Sender: TObject);
procedure ComboBox13Change(Sender: TObject);
procedure ComboBox14Change(Sender: TObject);
procedure ComboBox15Change(Sender: TObject);
procedure ComboBox16Change(Sender: TObject);
procedure ComboBox17Change(Sender: TObject);
procedure ComboBox18Change(Sender: TObject);
procedure ComboBox19Change(Sender: TObject);
procedure ComboBox20Change(Sender: TObject);
private
  { Private declarations }
public
  Lapis1: string;
  Lapis2: string;
  Lapis3: string;
  AppPath: string;
  procedure GambarLapisan(D1:real;D2:real;D3:real);
  procedure SetLapis1(s: string);
  procedure SetLapis2(s: string);
  procedure SetLapis3(s: string);
  { Public declarations }

```

#### Lampiran 4 List Program (Lanjutan)

```

end;

var
  Form1: TForm1;

implementation

{$R *.dfm}

function FindITP(LER:real;FR:real;GT:Real;DDT:real):real;
var
  Awal, Tengah, Akhir:real;
  MaxLoop:integer;
  i:integer;
  LogWT18:real;
  Hasil:real;
  NilaiITPCoba:real;
begin
  MaxLoop:=200000;
  LogWT18:=Log10(LER*3650.0);
  NilaiITPCoba:=100000;
  Awal:=0;
  Akhir:=NilaiITPCoba;
  Tengah:=Akhir;
  i:=0;
  Hasil:=9.36* Log10(NilaiITPCoba/2.54+1.0)-0.20+
    Gt/(0.40+1094/power((NilaiITPCoba/2.54+1),5.19))+
    Log10(1/FR)+0.372*(DDT-3.0);

  while (abs(LogWT18-Hasil)>=0.1) and (i<=MaxLoop) do
  begin
    if(Hasil<LogWT18) then
    begin
      NilaiITPCoba:=(Akhir+Awal)/2;
      Awal:=NilaiITPCoba;
      Akhir:=Tengah;
    end
    else
    begin
      NilaiITPCoba:=(Akhir+Awal)/2;
      Tengah:=Akhir;
      Akhir:=NilaiITPCoba;
    end;

    Hasil:=9.36* Log10(NilaiITPCoba/2.54+1.0)-0.20+

```

#### Lampiran 4 List Program (Lanjutan)

```

Gt/(0.40+1094/power((NilaiITPCoba/2.54+1),5.19))+Log10(1/FR)+0.372*(DDT-
3.0);
    inc(i);
end;

i:=0;
Awal:=Hasil;
Akhir:=Hasil;
while (abs(LogWT18-Hasil)>=0.001) and (i<=MaxLoop) do
begin

    if(Awal>=Hasil) then
        NilaiITPCoba:=NilaiITPCoba-0.0001
    else
        NilaiITPCoba:=NilaiITPCoba+0.0001;
    if((NilaiITPCoba/2.54+1.0)<0) then
        begin
            FindITP:=Akhir;
            Application.MessageBox(PChar('Tidak dapat mencari nilai ITP
terdekat'+#13+
                'Kemungkinan ada kesalahan parameter'+#13+#13+
                'Untuk ITP='+Format('% .4g',[Akhir])+#13+'Memiliki Selisih :'+
                Format('% .4g',[abs(LogWT18-Akhir)])),PChar('Warning'));
            exit;
        end;
        Awal:=Hasil; //untuk test kecenderungan menjadi naik atau turun?
        Hasil:=9.36* Log10(NilaiITPCoba/2.54+1.0)-0.20+
            Gt/(0.40+1094/power((NilaiITPCoba/2.54+1),5.19))+
            Log10(1/FR)+0.372*(DDT-3.0);
        inc(i);
    end;

    if(i>MaxLoop) then
        begin
            Application.MessageBox(PChar('Tidak Dapat Mencari ITP Terdekat:'+
                #13+'Selisih :'+Format('% .4g',[Abs(Hasil-LogWt18)])),PChar('Warning'));
        end;

        FindITP:=NilaiITPCoba;
    end;
function ToFloat(s:string):real;
var p:real;
begin
    try
        p:=StrToFloat(s);

```

#### Lampiran 4 List Program (Lanjutan)

```

    except
      p:=0;
    end;
    ToFloat:=p;
end;
function ToInt(s:string):integer;
var p:integer;
begin
  try
    p:=StrToInt(s);
  except
    p:=0;
  end;
  ToInt:=p;
end;

procedure TForm1.HITUNGClick(Sender: TObject);
var
  cbr, ddt,a,b,awal,akhir,mpawal,bsawal,t1awal,t2awal,t3awal,t4awal,t5awal,
  t6awal,mpakhir,bsakhir,t1akhir,t2akhir,t3akhir,t4akhir,t5akhir,
  t6akhir,c1,c2,c3,c4,c5,c6,c7,c8,c9,e1,e2,e3,e4,e5,e6,e7,e8,s1,s21,s22,s31,s32,
  s41,s42,s51,s52,s61,s62,s63,s71,s72,s81,s82,s83,lep1,lep2,lep3,lep4,lep5,
  lep6,lep7,lep8,lea1,lea2,lea3,lea4,lea5,lea6,lea7,lea8,lep,lea,let,ler,ipel,
  iur,pel,ur, cm,x,y,ITP,ipo,ipt,ip,a1,a2,a3,a4,a5: real;
  Gt,d1,d2,d3,fr,d,mp1,bs1,t1,t2,t3,t4,t5,t6,t7:real;
  b1,b2,b3,b4,b5,b6,b7,b8,b9:integer;

begin
  HITUNG.Enabled:=false;
  mp1:=ToFloat(mp.text);
  bs1:=ToFloat(bus.text);
  t1:=ToFloat(tr1.text);
  t2:=ToFloat(tr2.text);
  t3:=ToFloat(tr3.text);
  t4:=ToFloat(tr4.text);
  t5:=ToFloat(tr5.text);
  t6:=ToFloat(tr6.text);
  t7:=ToFloat(tr7.text);

  ipel:=ToFloat(ipeltxt.Text);
  iur:=ToFloat(iurtxt.Text);
  pel:=ToFloat(waktutxt.text);
  ur:=ToFloat(urtxt.text);
  a:=1+ipel/100;
  b:=1+iur/100;

```

#### Lampiran 4 List Program (Lanjutan)

```

awal:=power(a,pel);
akhir:=power(b,ur);

mpawal:=mp1*awal;
bsawal:=bs1*awal;
t1awal:=t1*awal;
t2awal:=t2*awal;
t3awal:=t3*awal;
t4awal:=t4*awal;
t5awal:=t5*awal;
t6awal:=t6*awal;

mpakhir:=mpawal*akhir;
bsakhir:=bsawal*akhir;
t1akhir:=t1awal*akhir;
t2akhir:=t2awal*akhir;
t3akhir:=t3awal*akhir;
t4akhir:=t4awal*akhir;
t5akhir:=t5awal*akhir;
t6akhir:=t6awal*akhir;

b1:=ToInt(b1txt.Text);
b2:=ToInt(b2txt.Text);
b3:=ToInt(b3txt.Text);
b4:=ToInt(b4txt.Text);
b5:=ToInt(b5txt.Text);
b6:=ToInt(b6txt.Text);
b7:=ToInt(b7txt.Text);
b8:=ToInt(b8txt.Text);
b9:=ToInt(b9txt.Text);

c1:=ToFloat(c1txt.Text);
c2:=ToFloat(c2txt.Text);
c3:=ToFloat(c3txt.Text);
c4:=ToFloat(c4txt.Text);
c5:=ToFloat(c5txt.Text);
c6:=ToFloat(c6txt.Text);
c7:=ToFloat(c7txt.Text);
c8:=ToFloat(c8txt.Text);
c9:=ToFloat(c9txt.Text);

s1:=(0.5*b1/8.16);
s21:=(0.34*b2/8.16);
s22:=(0.66*b2/8.16);
s31:=(0.34*b3/8.16);
s32:=(0.66*b3/8.16);

```

#### Lampiran 4 List Program (Lanjutan)

```

s41:=(0.34*b4/8.16);
s42:=(0.66*b4/8.16);
s51:=(0.25*b5/8.16);
s52:=(0.75*b5/8.16);
s61:=(0.17*b6/8.16);
s62:=(0.35*b6/8.16);
s63:=(0.24*b6/8.16);
s71:=(0.18*b7/8.16);
s72:=(0.41*b7/8.16);
s81:=(0.18*b8/8.16);
s82:=(0.28*b8/8.16);
s83:=(0.54*b8/8.16);

e1:=power(s1,4)+power(s1,4);
e2:=power(s21,4)+power(s22,4);
e3:=power(s31,4)+power(s32,4);
e4:=power(s41,4)+power(s42,4);
e5:=power(s51,4)+0.086*power(s52,4);
e6:=power(s61,4)+power(s62,4)+2*power(s63,4);
e7:=power(s71,4)+2*power(s72,4);
e8:=power(s81,4)+power(s82,4)+0.086*power(s83,4);

lep1:=c1*mpawal*e1;
lep2:=c2*bsawal*e2;
lep3:=c3*t1awal*e3;
lep4:=c4*t2awal*e4;
lep5:=c5*t3awal*e5;
lep6:=c6*t4awal*e6;
lep7:=c7*t5awal*e7;
lep8:=c8*t6awal*e8;
lep:=lep1+lep2+lep3+lep4+lep5+lep6+lep7+lep8;
LEPTXT.Text:=FloatTOSTR(LEP);

lea1:=c1*mpakhir*e1;
lea2:=c2*bsakhir*e2;
lea3:=c3*t1akhir*e3;
lea4:=c4*t2akhir*e4;
lea5:=c5*t3akhir*e5;
lea6:=c6*t4akhir*e6;
lea7:=c7*t5akhir*e7;
lea8:=c8*t6akhir*e8;
lea:=lea1+lea2+lea3+lea4+lea5+lea6+lea7+lea8;
LEATXT.Text:=FloatTOSTR(LEA);
//Format('% .6g',[lea]);

let:=0.5*(lep+lea);

```



#### Lampiran 4 List Program (Lanjutan)

```

LETTXT.Text:=FloatTOSTR(LET);
//Format('%.6g',[let]);

ler:=let*ur/10;
LERTXT.Text:=FloatTOSTR(LER);
//Format('%.6g',[ler]);

cbr := ToFloat(cbrtxt.text);
ddt:=4.3*log 10(cbr)+1.7;
DDTTXT.Text:=FloatTOSTR(DDT);
//Format('%.3g',[ddt]);

fr:=ToFloat(frtxt.text);
ipo:=ToFloat(ipotxt.text);
ipt:=ToFloat(iptxt.text);
ip:=ipo-ipt;
Gt:=log 10(ip/2.7);

ITPTXT.Text:=Format('%.6g',[FindITP(LER,FR,GT,DDT)]);

//a:=strtofloat(combobox1.text);
//edit2.text:=floattostr(a);

//if
//a1:=strtofloat(combobox1.text);
//then a1txt.text:=floattostr(a1);

//a12:=strtofloat(combobox1.text);
//a11:=strtofloat(combobox1.text);
//a2:=strtofloat(A2TXT.text);
//a3:=strtofloat(A3TXT.text);

//itp=a1d1+a2d2+a3d3

itp:=FindITP(LER,FR,GT,DDT);

d1:=ToFloat(D1TXT.text);
d2:=ToFloat(D2TXT.text);
a1:=ToFloat(a1TXT.text);
a2:=ToFloat(a2TXT.text);
a3:=ToFloat(a3TXT.text);
x:=(a1*d1)+(a2*d2);
y:=itp-x;
d3:=round(y/a3);

D3TXT.Text:=FloatToStr(d3);

```

#### Lampiran 4 List Program (Lanjutan)

```

//menggambar..
GambarLapisan(D1,D2,D3);
HITUNG.Enabled:=true;

end;

procedure TForm1.Button2Click(Sender: TObject);
begin
CLOSE;
end;

procedure TForm1.GambarLapisan(D1:real;D2:real;D3:real);
var
Pos1, Pos2, Pos3:integer; //posisi y dari Image
begin
Pos1:=296;
Image9.Height:=Round(100*D1/(D1+D2+D3));
Pos2:= Pos1+Image9.Height;
Image10.Height:=Round(100*D2/(D1+D2+D3));
Image10.Top:=Pos2;
Pos3:=Pos2+Image10.Height;
Image11.Height:=Round(100*D3/(D1+D2+D3));
Image11.Top:=Pos3;
{L1Txt.Top:=Pos1;
L2Txt.Top:=Pos2;
L3Txt.Top:=Pos3;}

end;

procedure TForm1.LEShow(Sender: TObject);
begin
try
Image9.Picture.LoadFromFile(Lapis1);
Image10.Picture.LoadFromFile(Lapis2);
Image11.Picture.LoadFromFile(Lapis3);
except
end;
end;

procedure TForm1.SetLapis1(s: string);
begin

end;

procedure TForm1.SetLapis2(s: string);

```

#### Lampiran 4 List Program (Lanjutan)

```

begin

end;

procedure TForm1.SetLapis3(s: string);
begin

end;

procedure TForm1.FormCreate(Sender: TObject);
//D:vin-ta\bm.exe
var i:integer;
    pos:integer;
begin
    AppPath:=Application.ExeName;
    pos:=Length(AppPath);
    for i:=length(AppPath) downto 1 do
    begin
        if AppPath[i]='\ ' then
        begin
            Pos:=i;
            break;
        end;
    end;
    AppPath:=Copy(AppPath,1,Pos);

end;

procedure TForm1.RadioButton1Click(Sender: TObject);
begin
Lapis1:=AppPath+'Lapisan\Laston.wmf';
L1TXT.Text:='LASTON'
end;

procedure TForm1.RadioButton5Click(Sender: TObject);
begin
lapis1:=AppPath+'Lapisan\Lapen.wmf';
L1TXT.Text:='LAPEN (mekanis)'
end;

procedure TForm1.RadioButton17Click(Sender: TObject);
begin
Lapis3:=AppPath+'Lapisan\Sirtu.wmf';
L3TXT.Text:='Sirtu/pitrun (kelas A)'
end;

```

**Lampiran 4 List Program (Lanjutan)**

```
procedure TForm1.RadioButton7Click(Sender: TObject);
begin
Lapis2:=AppPath+'Lapisan\LastonAtas.wmf';
L2TXT.Text:='LASTON ATAS'
end;
```

```
procedure TForm1.RadioButton14Click(Sender: TObject);
begin
Lapis2:=AppPath+'Lapisan\btpecah.wmf';
L2TXT.Text:='Batu Pecah (kelas A)'
end;
```

```
procedure TForm1.RadioButton2Click(Sender: TObject);
begin
L1TXT.Text:='Asbuton'
end;
```

```
procedure TForm1.RadioButton3Click(Sender: TObject);
begin
L1TXT.Text:='HRA'
end;
```

```
procedure TForm1.RadioButton4Click(Sender: TObject);
begin
L1TXT.Text:='Aspal Macadam'
end;
```

```
procedure TForm1.RadioButton6Click(Sender: TObject);
begin
L1TXT.Text:='LAPEN (manual)'
end;
```

```
procedure TForm1.RadioButton8Click(Sender: TObject);
begin
L2TXT.Text:='LAPEN (mekanis)'
end;
```

```
procedure TForm1.RadioButton9Click(Sender: TObject);
begin
L2TXT.Text:='LAPEN (manual)'
end;
```

```
procedure TForm1.RadioButton10Click(Sender: TObject);
begin
L2TXT.Text:='Stab. Tanah dengan Semen'
end;
```

**Lampiran 4 List Program (Lanjutan)**

```
procedure TForm1.RadioButton11Click(Sender: TObject);
begin
L2TXT.Text:='Stab. Tanah dengan Kapur'
end;
```

```
procedure TForm1.RadioButton12Click(Sender: TObject);
begin
L2TXT.Text:='Pondasi Macadam (basah)'
end;
```

```
procedure TForm1.RadioButton13Click(Sender: TObject);
begin
L2TXT.Text:='Pondasi Macadam (kering)'
end;
```

```
procedure TForm1.RadioButton15Click(Sender: TObject);
begin
L2TXT.Text:='Batu Pecah (kelas B)'
end;
```

```
procedure TForm1.RadioButton16Click(Sender: TObject);
begin
L2TXT.Text:='Batu Pecah (kelas C)'
end;
```

```
procedure TForm1.RadioButton18Click(Sender: TObject);
begin
L3TXT.Text:='Sirtu/pitrun (kelas B)'
end;
```

```
procedure TForm1.RadioButton19Click(Sender: TObject);
begin
L3TXT.Text:='Sirtu/pitrun (kelas C)'
end;
```

```
procedure TForm1.RadioButton20Click(Sender: TObject);
begin
L3TXT.Text:='Tanah/Lempung Kepasiran'
end;
```

```
procedure TForm1.ComboBox1Change(Sender: TObject);
var a1:real;
begin
a1:=strtofloat(combobox1.text);
a1TXT.Text:=floattostr(a1);
```

**Lampiran 4 List Program (Lanjutan)**

end;

```
procedure TForm1.ComboBox2Change(Sender: TObject);
var a1:real;
begin
a1:=strtofloat(combobox2.text);
a1TXT.Text:=floattostr(a1);
end;
```

```
procedure TForm1.ComboBox3Change(Sender: TObject);
var a1:real;
begin
a1:=strtofloat(combobox3.text);
a1TXT.Text:=floattostr(a1);
```

end;

```
procedure TForm1.ComboBox4Change(Sender: TObject);
var a1:real;
begin
a1:=strtofloat(combobox4.text);
a1TXT.Text:=floattostr(a1);
end;
```

```
procedure TForm1.ComboBox5Change(Sender: TObject);
var a1:real;
begin
a1:=strtofloat(combobox5.text);
a1TXT.Text:=floattostr(a1);
```

end;

```
procedure TForm1.ComboBox6Change(Sender: TObject);
var a1:real;
begin
a1:=strtofloat(combobox6.text);
a1TXT.Text:=floattostr(a1);
```

end;

```
procedure TForm1.ComboBox7Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox7.text);
a2TXT.Text:=floattostr(a2);
```

**Lampiran 4 List Program (Lanjutan)**

end;

```
procedure TForm1.ComboBox8Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox8.text);
a2TXT.Text:=floattostr(a2);
end;
```

```
procedure TForm1.ComboBox9Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox9.text);
a2TXT.Text:=floattostr(a2);
end;
```

```
procedure TForm1.ComboBox10Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox10.text);
a2TXT.Text:=floattostr(a2);
```

end;

```
procedure TForm1.ComboBox11Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox11.text);
a2TXT.Text:=floattostr(a2);
```

end;

```
procedure TForm1.ComboBox12Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox12.text);
a2TXT.Text:=floattostr(a2);
end;
```

```
procedure TForm1.ComboBox13Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox13.text);
a2TXT.Text:=floattostr(a2);
end;
```

**Lampiran 4 List Program (Lanjutan)**

```
procedure TForm1.ComboBox14Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox14.text);
a2TXT.Text:=floattostr(a2);

end;
```

```
procedure TForm1.ComboBox15Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox15.text);
a2TXT.Text:=floattostr(a2);

end;
```

```
procedure TForm1.ComboBox16Change(Sender: TObject);
var a2:real;
begin
a2:=strtofloat(combobox16.text);
a2TXT.Text:=floattostr(a2);

end;
```

```
procedure TForm1.ComboBox17Change(Sender: TObject);
var a3:real;
begin
a3:=strtofloat(combobox17.text);
a1TXT.Text:=floattostr(a3);

end;
```

```
procedure TForm1.ComboBox18Change(Sender: TObject);
var a3:real;
begin
a3:=strtofloat(combobox18.text);
a3TXT.Text:=floattostr(a3);

end;
```

```
procedure TForm1.ComboBox19Change(Sender: TObject);
var a3:real;
begin
a3:=strtofloat(combobox19.text);
a3TXT.Text:=floattostr(a3);
```



**Lampiran 4 List Program (Lanjutan)**

end;

```
procedure TForm1.ComboBox20Change(Sender: TObject);
```

```
var a3:real;
```

```
begin
```

```
a3:=strtofloat(combobox20.text);
```

```
a3TXT.Text:=floattostr(a3);
```

end;

end.