PERHITUNGAN TINGKAT KEANDALAN KOMPONEN

$F(1) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(1-10{,}5)^2}{2(4{,}9)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-90{,}25}{49{,}2032}]$

$= 0{,}08043 exp[-1{,}834423]$

$= 0{,}012848$

$F(2) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(1-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-72{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-1{,}46840]$

$= 0{,}018523$

$F(3) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(3-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{56{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-1{,}14322]$

$= 0{,}025640$

$F(4) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(4-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-42{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}85868]$

$= 0{,}034080$

$F(5) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(5-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-30{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}61480]$

$= 0{,}043493$

F(6) = $\frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(6-10{,}5)^2}{2(4{,}96)^2}]$

= $\frac{1}{12{,}432} exp.\ [\frac{-20{,}25}{49{,}2023}]$

= 0,08043*exp*[-0,41156]

= 0,053294

F(7) = $\frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(7-10{,}5)^2}{2(4{,}96)^2}]$

= $\frac{1}{12{,}432} exp.\ [\frac{-12{,}25}{49{,}2023}]$

= 0,08043*exp*[-0,24897]

= 0,062704

F(8) = $\frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(8-10{,}5)^2}{2(4{,}96)^2}]$

= $\frac{1}{12{,}432} exp.\ [\frac{-6{,}25}{49{,}2023}]$

= 0,08043*exp*[-1,8]

= 0,070836

F(9) = $\frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(9-10{,}5)^2}{2(4{,}96)^2}]$

= $\frac{1}{12{,}432} exp.\ [\frac{-2{,}25}{49{,}2023}]$

= 0,08043*exp*[-0,04573]

= 0,076835

F(10) = $\frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(10-10{,}5)^2}{2(4{,}96)^2}]$

= $\frac{1}{12{,}432} exp.\ [\frac{-0{,}25}{49{,}2023}]$

= 0,08043*exp*[-0,00508]

= 0,080022

$F(11) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(11-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-0{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}00508]$

$= 0{,}080022$

$F(12) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(12-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-2{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}04573]$

$= 0{,}076835$

$F(13) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(13-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-6{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}12702]$

$= 0{,}070836$

$F(14) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(14-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-12{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}24897]$

$= 0{,}062704$

$F(15) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(15-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-20{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}41156]$

$= 0{,}053294$

$F(16) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(16-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-30{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}61480]$

$= 0{,}043493$

$F(17) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(17-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-42{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-0{,}85868]$

$= 0{,}034080$

$F(18) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(18-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-56{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-1{,}14322]$

$= 0{,}025640$

$F(19) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(19-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-72{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-1{,}46840]$

$= 0{,}018523$

$F(20) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(20-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-90{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-1{,}83423]$

$= 0{,}012848$

$F(21) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(21-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-110{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-2{,}24071]$

$= 0{,}008556$

$F(22) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(22-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-132{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-2{,}68783]$

$= 0{,}005472$

$F(23) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(23-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-156{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-3{,}17561]$

$= 0{,}003359$

$F(24) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(24-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-182{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-3{,}70403]$

$= 0{,}001981$

$F(25) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(25-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-210{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-4{,}27310]$

$= 0{,}001121$

$F(26) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(26-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-240{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-4{,}88281]$

$= 0{,}000609$

$F(27) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(27-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-272{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-5{,}53318]$

$= 0{,}000318$

$F(28) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(28-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-306{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-6{,}22419]$

$= 0{,}000159$

$F(29) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(29-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-342{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-6{,}95585]$

$= 0{,}000077$

$F(30) = \frac{1}{4{,}96\sqrt{2x3{,}14}} exp.\ [\frac{-(30-10{,}5)^2}{2(4{,}96)^2}]$

$= \frac{1}{12{,}432} exp.\ [\frac{-380{,}25}{49{,}2023}]$

$= 0{,}08043 exp[-7{,}72816]$

$= 0{,}000035$

PERHITUNGAN FUNGSI PADAT PROBABILITAS

R(1) = 1-ϕ[$\frac{1-10,5}{4,96}$]

= 1-ϕ[-1,9153]

= 1-0,0281

= 0,9719

R(2) = 1-ϕ[$\frac{2-10,5}{4,96}$]

= 1-ϕ[-1,7137]

= 1-0,0436

= 0,9564

R(3) = 1-ϕ[$\frac{3-10,5}{4,96}$]

= 1-ϕ[-1,5121]

= 1-0,0655

= 0,9345

R(4) = 1-ϕ[$\frac{4-10,5}{4,96}$]

= 1-ϕ[-1,3105]

= 1-0,0951

= 0,9049

R(5) = 1-ϕ[$\frac{5-10,5}{4,96}$]

= 1-ϕ[-1,1089]

= 1-0,1335

= 0,8665

R(6) = 1-ϕ[$\frac{6-10,5}{4,96}$]

= 1-ϕ[-0,9073]

= 1-0,1660

= 0,8340

$R(7) = 1-\phi[\frac{7-10,5}{4,96}]$

$= 1-\phi[-0,7056]$

$= 1-0,2420$

$= 0,7580$

$R(8) = 1-\phi[\frac{8-10,5}{4,96}]$

$= 1-\phi[-0,5040]$

$= 1-0,3085$

$= 0,6915$

$R(9) = 1-\phi[\frac{9-10,5}{4,96}]$

$= 1-\phi[-0,3024]$

$= 1-0,3821$

$= 0,6179$

$R(10) = 1-\phi[\frac{10-10,5}{4,96}]$

$= 1-\phi[0,1008]$

$= 1-0,4562$

$= 0,5438$

$R(11) = 1-\phi[\frac{11-10,5}{4,96}]$

$= 1-\phi[0,1008]$

$= 1-0,5398$

$= 0,4602$

$R(12) = 1-\phi[\frac{12-10,5}{4,96}]$

$= 1-\phi[0,3024]$

$= 1-6179$

$= 0,3821$

$R(13) = 1-\phi[\frac{13-10,5}{4,96}]$

$= 1-\phi[0,5040]$

$= 1-0,6915$

$= 0,3085$

$R(14) = 1-\phi[\frac{14-10,5}{4,96}]$

$= 1-\phi[0,7056]$

$= 1-0,7580$

$= 0,2420$

$R(15) = 1-\phi[\frac{15-10,5}{4,96}]$

$= 1-\phi[0,9073]$

$= 1-0,8186$

$= 0,1814$

$R(16) = 1-\phi[\frac{16-10,5}{4,96}]$

$= 1-\phi[1,089]$

$= 1-0,8665$

$= 0,1335$

$R(17) = 1-\phi[\frac{17-10,5}{4,96}]$

$= 1-\phi[1,3105]$

$= 1-9049$

$= 0,0951$

$R(18) = 1-\phi[\frac{18-10,5}{4,96}]$

$= 1-\phi[1,5121]$

$= 1-0,9345$

$= 0,0655$

$R(19) = 1-\phi[\frac{19-10,5}{4,96}]$

$= 1-\phi[-1,7137]$

$= 1-0,9563$

$= 0,0437$

$R(20) = 1-\phi[\frac{20-10,5}{4,96}]$

$= 1-\phi[1,9153]$

$= 1-0,9719$

$= 0,0281$

$R(21) = 1-\phi[\frac{21-10,5}{4,96}]$

$= 1-\phi[2,1169]$

$= 1-0,9830$

$= 0,0170$

$R(22) = 1-\phi[\frac{22-10,5}{4,96}]$

$= 1-\phi[2,3185]$

$= 1-0,9898$

$= 0,0102$

$R(23) = 1-\phi[\frac{23-10,5}{4,96}]$

$= 1-\phi[2,5202]$

$= 1-0,9941$

$= 0,0059$

$R(24) = 1-\phi[\frac{24-10,5}{4,96}]$

$= 1-\phi[2,7218]$

$= 1-0,9967$

$= 0,0033$

R(25) = 1-ϕ[$\frac{25-10,5}{4,96}$]

= 1-ϕ[2,9234]

= 1-0,9983

= 0,0017

R(26) = 1-ϕ[$\frac{26-10,5}{4,96}$]

= 1-ϕ[3,1250]

= 1-0,9991

= 0,00043

R(27) = 1-ϕ[$\frac{27-10,5}{4,96}$]

= 1-ϕ[3,3266]

= 1-0,9996

= 0,00043

R(28) = 1-ϕ[$\frac{28-10,5}{4,96}$]

= 1-ϕ[3,5282]

= 1-0,9998

= 0,00021

R(29) = 1-ϕ[$\frac{29-10,5}{4,96}$]

= 1-ϕ[3,7298]

= 1-0,9999

= 0,00015

R(30) = 1-ϕ[$\frac{30-10,5}{4,96}$]

= 1-ϕ[3,9315]

= 1-0,9999

= 0,00007

PERHITUNGAN TOTAL COST PEMELIHRAAN PENCEGAHAN

$$C(1) = \frac{(CpxR(tp))+Cf[1-R(tp)]}{tpxR(tp)+Tf[1-R(tp)]}$$

Cp = Rp.870.000

Cf = Rp.2.200.000

$$C(1) = \frac{(870.000x0.9719)+2.200.000([1-0.9719)}{(1\ x\ 0.9719)+10.5(1-0.9719)}$$

=Rp. 716.186,95

$$C(2) = \frac{(870.000x0.9564)+2.200.000([1-0.9564)}{(2\ x\ 0.9564)+10.5(1-0.9564)}$$

=Rp.391.457,01

$$C(3) = \frac{(870.000x0.9345)+2.200.000([1-0.9345)}{(3\ x\ 0.9345)+10.5(1-0.9345)}$$

= Rp.274.146,79

$$C(4) = \frac{(870.000x0.9049)+2.200.000([1-0.9049)}{(4x\ 0.9049)+10.5(1-0.9049)}$$

= Rp.215.775,36

$$C(5) = \frac{(870.000x0.8665)+2.200.000([1-0.8665)}{(5\ x\ 0.8665)+10.5(1-0.8665)}$$

= Rp.182.683,87

$$C(6) = \frac{(870.000x0.8340)+2.200.000([1-0.8340)}{(6\ x\ 0.8340)+10.5(1-0.8340)}$$

= Rp.161.668,88

$$C(7) = \frac{(870.000x0.7580)+2.200.000([1-0.7580)}{(7\ x\ 0.7580)+10.5(1-0.7580)}$$

= Rp.151.887,34

$$C(8) = \frac{(870.000x0.6915)+2.200.000([1-0.6915)}{(8x\ 0.6915)+10.5(1-0.6915)}$$

= Rp.145.966,08

$$C(9) = \frac{(870.000x0.6179)+2.200.000([1-0.6179)}{(9\ x\ 0.6179)+10.5(1-0.6179)}$$

= Rp.143.964,4

$$C(10) = \frac{(870.000x0.5438)+2.200.000([1-0.5438)}{(10\ x\ 0.5438)+10.5(1-0.5438)}$$
= Rp.144.381,26

$$C(11) = \frac{(870.000x0.4602)+2.200.000([1-0.4602)}{(11\ x\ 0.4602)+10.5(1-0.4602)}$$
=Rp.147.988.74

$$C(12) = \frac{(870.000x0.3821)+2.200.000([1-0.3821)}{(12\ x\ 0.3821)+10.5(1-0.3821)}$$
=Rp.152.784,61

$$C(13) = \frac{(870.000x0.3085)+2.200.000([1-0.3085)}{(13\ x\ 0.3085)+10.5(1-0.3085)}$$
=Rp.158.784,07

$$C(14) = \frac{(870.000x0.2420)+2.200.000([1-0.2420)}{(14\ x\ 0.2420)+10.5(1-0.2420)}$$
=Rp.165.518,63

$$C(15) = \frac{(870.000x0.1814)+2.200.000([1-0.1814)}{(15\ x\ 0.1814)+10.5(1-0.1814)}$$
= Rp.173.089,96

$$C(16) = \frac{(870.000x0.1335)+2.200.000([1-0.1335)}{(16\ x\ 0.1335)+10.5(1-0.1335)}$$
= Rp.180.024,97

$$C(17) = \frac{(870.000x0.0951)+2.200.000([1-0.0951)}{(17\ x\ 0.0951)+10.5(1-0.0951)}$$
= Rp.186.498,38

$$C(18) = \frac{(870.000x0.0655)+2.200.000([1-0.0655)}{(18\ x\ 0.0655)+10.5(1-0.0655)}$$
= Rp.192.233,36

$$C(19) = \frac{(870.000x0.0437)+2.200.000([1-0.0437)}{(19\ x\ 0.0437)+10.5(1-0.0437)}$$
= Rp.197.018,70

$$C(20) = \frac{(870.000x0.0281)+2.200.000([1-0.0281)}{(20\ x\ 0.0281)+10.5(1-0.0281)}$$
= Rp.195.562,06

$$C(21) = \frac{(870.000x0.0170)+2.200.000([1-0.0170)}{(21\ x\ 0.0170)+10.5(1-0.0170)}$$
= Rp.203.904,10

$$C(22) = \frac{(870.000x0.0102)+2.200.000([1-0.0102)}{(22\ x\ 0.0102)+10.5(1-0.0102)}$$
= Rp.205.931,26

$$C(23) = \frac{(870.000x0.0059)+2.2200.000([1-0.0059)}{(23\ x\ 0.0059)+10.5(1-0.0059)}$$
= Rp.207.320,29

$$C(24) = \frac{(870.000x0.0033)+2.200.000([1-0.0033)}{(24\ x\ 0.0033)+10.5(1-0.0033)}$$
= Rp.208.223,14

$$C(25) = \frac{(870.000x0.0017)+2.200.000([1-0.0017)}{(25\ x\ 0.0017)+10.5(1-0.0017)}$$
= Rp.208.818,25

$$C(26) = \frac{(870.000x0.0009)+2.200.000([1-0.0009)}{(26\ x\ 0.0009)+10.5(1-0.0009)}$$
=Rp.209.131,96

$$C(27) = \frac{(870.000x0.00043)+2.200.000([1-0.00043)}{(27\ x\ 0.00043)+10.5(1-0.00043)}$$
= Rp.209.327,89

$$C(28) = \frac{(870.000x0.00021)+2.200.000([1-0.00021)}{(28\ x\ 0.00021)+10.5(1-0.00021)}$$
=Rp.209.390,41

$$C(29) = \frac{(870.000x0.00015)+2.200.000([1-0.00015)}{(29\ x\ 0.00015)+10.5(1-0.00015)}$$
=Rp.209.449,45

$$C(30) = \frac{(870.000x0.00007)+2.200.000([1-0.00007)}{(30\ x\ 0.00007)+10.5(1-0.00007)}$$
=Rp.209.487,70