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1 Code 1:
2
3 clc;clear;close;
4 NA=input("enter numerical aperture: ");
5 delta=input("enter RRID: ");
6 n1=NA/sqrt(2*delta);
7 disp("RI of core: ",n1);
8 n2=sqrt(n1^2-NA^2);
9 disp("RI of cladding: ",n2)
10
11 Output:
12
13 enter numerical aperture: 0.35
14
15 enter RRID: 0.01
16
17 "RI of core: "
18
19 2.4748737
20
21 "RI of cladding: "
22
23 2.45
24
25 Code 2:
26
27 clc;clear;close;
28 Theta=input("enter value of acceptance angle: ");
29 ThetaA=Theta*pi/180;
30 delta=input("enter RRID: ");
31 NA=sin(ThetaA);
32 disp("NA:",NA);
33 n1=NA/sqrt(2*delta);
34 n2=sqrt(n1^2-NA^2);
35 disp("n1 and n2 are:",n1,n2)
36 PhiC=(asin(n2/n1));
37 disp("PhiC: ",PhiC*180/pi)
38
39 Output:
40
41 enter value of acceptance angle: 22
42
43 enter RRID: 0.03
44
45 "NA:"
46
47 0.3746066
48
49 "n1 and n2 are:"
50
51 1.5293250
52
53 1.4827356
54
55 "PhiC: "
56
57 75.821182
58
59 Code 3:
60 clc;clear;close;
61 V=input("enter the velocity of light in core:");
62 C=input("enter the velocity of light:");
63 n=C/V;
64 Phi=input("enter the critical angle:");
65 PhiC=Phi*pi/180
66 n2=sin(PhiC)*n;
67 NA=sqrt(n^2-n2^2);
68 disp("NA:",NA);
69 ThetaA=asin(NA);

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70 disp("angle of acceptance:",ThetaA*180/%pi);
71
72 Output:
73
74 enter the velocity of light in core:2.01*10^8
75
76 enter the velocity of light:3*10^8
77
78 enter the critical angle:80
79
80     "NA:"
81
82     0.2591764
83
84     "angle of acceptance:"
85
86     15.021197
87
88 Code 4:
89 clc;clear;close;
90 n1=input("enter the value of n1:");
91 n2=input("enter the value of n2:");
92 PhiC=asin(n2/n1);
93 disp("critical angle:",PhiC*180/%pi);
94 NA=sqrt(n1^2-n2^2);
95 disp("Numerical Aperture:",NA);
96 ThetaA=asin(NA/1);
97 disp("acceptance angle:",ThetaA*180/%pi);
98
99 Output:
100
101 enter the value of n1:1.498
102
103 enter the value of n2:1.465
104
105
106     "critical angle:"
107
108     77.951327
109
110     "Numerical Aperture:"
111
112     0.3126963
113
114     "acceptance angle:"
115
116     18.221800

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