

ANNEXURE 1**EXAMINATION NOTES AND DEVIATION CARD**

1. All relevant working must be shown in your answer book.
2. All work done on the chart must be done lightly, using a 2B pencil.
3. Corrections applicable to courses and bearings must be calculated correct to the nearest 1° and plotted to a similar accuracy.

DEVIATION CARD

Mag. Head	Dev.	Comp. Head	Mag. Head	Dev.	Comp. Head
000	4° E	356	180	3° E	177
010	5° E	005	190	4° E	186
020	4° E	016	200	5° E	195
030	3° E	027	210	4° E	206
040	2° E	038	220	3° E	217
050	1° E	049	230	2° E	228
060	1° W	061	240	1° E	239
070	2° W	072	250	0°	250
080	3° W	083	260	1° W	261
090	4° W	094	270	2° W	272
100	5° W	105	280	3° W	283
110	4° W	114	290	4° W	294
120	3° W	123	300	5° W	305
130	2° W	132	310	4° W	314
140	1° W	141	320	3° W	323
150	0°	150	330	2° W	332
160	1° E	159	340	1° W	341
170	2° E	168	350	2° E	348

ANNEXURE 2

PREDICTED HOURLY HEIGHTS in METRES																									
WALVIS BAY NOVEMBER 2001																									
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Thur	1	0.86	1.19	1.47	1.61	1.57	1.39	1.11	0.78	0.50	0.37	0.41	0.59	0.86	1.17	1.46	1.62	1.60	1.43	1.14	0.78	0.44	0.25	0.26	0.42
Fri	2	0.69	1.02	1.34	1.56	1.61	1.50	1.27	0.96	0.63	0.41	0.36	0.48	0.70	0.99	1.30	1.54	1.62	1.53	1.30	0.98	0.62	0.34	0.24	0.32
Sat	3	0.54	0.83	1.16	1.44	1.59	1.57	1.41	1.14	0.81	0.52	0.37	0.41	0.57	0.81	1.11	1.38	1.55	1.58	1.42	1.17	0.84	0.51	0.30	0.29
Sun	4	0.43	0.67	0.96	1.26	1.49	1.56	1.49	1.30	1.02	0.70	0.47	0.40	0.49	0.67	0.91	1.18	1.40	1.50	1.47	1.31	1.06	0.74	0.47	0.35
Mon	5	0.40	0.56	0.78	1.05	1.31	1.46	1.49	1.40	1.20	0.92	0.64	0.48	0.48	0.58	0.75	0.96	1.19	1.36	1.42	1.37	1.23	0.99	0.70	0.5
Tues	6	0.44	0.51	0.66	0.86	1.09	1.28	1.40	1.41	1.32	1.14	0.88	0.66	0.55	0.57	0.85	0.78	0.97	1.15	1.28	1.33	1.31	1.18	0.97	0.73
Wed	7	0.59	0.56	0.61	0.71	0.88	1.08	1.24	1.33	1.35	1.29	1.12	0.90	0.72	0.64	0.64	0.67	0.77	0.92	1.08	1.20	1.27	1.28	1.19	1.01
Thur	8	0.81	0.70	0.65	0.65	0.71	0.85	1.02	1.17	1.26	1.33	1.30	1.16	0.96	0.81	0.71	0.65	0.64	0.70	0.84	0.99	1.14	1.28	1.32	1.25
Fri	9	1.09	0.92	0.78	0.69	0.63	0.67	0.80	0.96	1.12	1.27	1.37	1.36	1.23	1.05	0.88	0.72	0.60	0.55	0.61	0.75	0.93	1.12	1.30	1.39
Sat	10	1.34	1.19	1.00	0.82	0.66	0.57	0.60	0.74	0.92	1.12	1.32	1.46	1.46	1.32	1.12	0.89	0.67	0.49	0.43	0.52	0.68	0.91	1.16	1.4
Sun	11	1.50	1.44	1.27	1.04	0.79	0.58	0.48	0.54	0.70	0.92	1.17	1.42	1.58	1.56	1.39	1.14	0.84	0.55	0.36	0.33	0.44	0.65	0.94	1.26
Mon	12	1.51	1.61	1.52	1.30	1.02	0.71	0.47	0.40	0.50	0.69	0.96	1.27	1.55	1.68	1.62	1.41	1.10	0.73	0.41	0.23	0.25	0.41	0.66	1.02
Tues	13	1.38	1.63	1.66	1.55	1.29	0.94	0.60	0.37	0.35	0.48	0.72	1.04	1.39	1.66	1.75	1.64	1.37	1.00	0.60	0.28	0.16	0.23	0.44	0.75
Wed	14	1.14	1.50	1.71	1.71	1.53	1.21	0.82	0.48	0.30	0.33	0.51	0.79	1.14	1.49	1.73	1.78	1.59	1.28	0.87	0.46	0.19	0.14	0.26	0.52
Thur	15	0.87	1.27	1.59	1.74	1.68	1.46	1.10	0.70	0.38	0.28	0.36	0.57	0.88	1.24	1.58	1.73	1.70	1.50	1.16	0.74	0.37	0.17	0.19	0.35
Fri	16	0.64	1.00	1.38	1.64	1.72	1.61	1.35	0.97	0.59	0.34	0.30	0.42	0.66	0.97	1.31	1.58	1.67	1.60	1.37	1.02	0.62	0.33	0.22	0.29
Sat	17	0.49	0.78	1.13	1.44	1.63	1.65	1.50	1.22	0.84	0.51	0.34	0.36	0.51	0.75	1.06	1.35	1.53	1.57	1.47	1.23	0.89	0.56	0.35	0.32
Sun	18	0.43	0.63	0.91	1.22	1.46	1.57	1.54	1.38	1.08	0.74	0.49	0.40	0.46	0.61	0.84	1.11	1.33	1.45	1.45	1.33	1.10	0.80	0.55	0.43
Mon	19	0.45	0.57	0.77	1.02	1.26	1.43	1.49	1.43	1.25	0.98	0.70	0.52	0.49	0.56	0.71	0.91	1.12	1.28	1.35	1.33	1.22	1.01	0.76	0.59
Tues	20	0.54	0.58	0.70	0.87	1.08	1.26	1.37	1.40	1.33	1.16	0.91	0.70	0.59	0.59	0.65	0.78	0.94	1.10	1.21	1.26	1.24	1.13	0.96	0.78
Wed	21	0.67	0.65	0.69	0.78	0.93	1.08	1.23	1.30	1.32	1.26	1.10	0.90	0.75	0.68	0.67	0.71	0.81	0.94	1.06	1.15	1.19	1.18	1.10	0.96
Thur	22	0.83	0.75	0.73	0.75	0.82	0.94	1.07	1.18	1.25	1.28	1.22	1.09	0.93	0.81	0.74	0.70	0.72	0.80	0.91	1.02	1.11	1.17	1.18	1.11
Fri	23	1.00	0.90	0.82	0.77	0.76	0.81	0.92	1.04	1.15	1.24	1.28	1.23	1.12	0.98	0.86	0.75	0.69	0.69	0.77	0.88	1.00	1.11	1.20	1.21
Sat	24	1.16	1.06	0.95	0.84	0.75	0.73	0.78	0.89	1.02	1.15	1.26	1.31	1.27	1.15	1.01	0.86	0.71	0.63	0.64	0.73	0.86	1.01	1.16	1.26
Sun	25	1.28	1.21	1.10	0.96	0.81	0.70	0.68	0.76	0.88	1.03	1.20	1.33	1.37	1.31	1.17	0.99	0.79	0.62	0.55	0.59	0.71	0.88	1.07	1.25
Mon	26	1.35	1.35	1.25	1.10	0.92	0.74	0.63	0.63	0.73	0.89	1.09	1.28	1.41	1.43	1.33	1.15	0.91	0.68	0.51	0.47	0.55	0.72	0.94	1.17
Tues	27	1.36	1.44	1.39	1.28	1.06	0.83	0.64	0.56	0.61	0.75	0.95	1.19	1.39	1.48	1.46	1.30	1.06	0.78	0.54	0.40	0.42	0.58	0.78	1.05
Wed	28	1.30	1.47	1.50	1.40	1.21	0.96	0.70	0.53	0.51	0.61	0.79	1.04	1.31	1.50	1.55	1.45	1.23	0.94	0.63	0.40	0.33	0.41	0.61	0.88
Thur	29	1.19	1.44	1.56	1.53	1.37	1.12	0.82	0.57	0.45	0.48	0.64	0.88	1.16	1.43	1.58	1.56	1.40	1.12	0.78	0.48	0.30	0.30	0.45	0.7
Fri	30	1.02	1.33	1.55	1.61	1.51	1.29	0.99	0.67	0.46	0.40	0.50	0.70	0.98	1.29	1.52	1.61	1.53	1.31	0.99	0.63	0.36	0.25	0.32	0.52

ANNEXURE 3

ALTITUDE CORRECTION TABLES 10° - 90° - SUN, STARS, PLANETS

OCT.—MAR. SUN			APR.—SEPT.			STARS AND PLANETS				DIP				
App. Alt.	Lower Limb	Upper Limb	App. Alt.	Lower Limb	Upper Limb	App. Alt.	Corr ⁿ	App. Alt.	Additional Corr ⁿ	Ht. of Eye	Corr ⁿ	Ht. of Eye	Ht. of Eye	Corr ⁿ
9 34	+10.8	-21.5	9 39	+10.6	-21.2	9 56	-5.3			m		ft.		
9 45	+10.9	-21.4	9 51	+10.7	-21.1	10 08	-5.2			2.4	-2.8	8.0	1.0	1.8
9 56	+11.0	-21.3	10 03	+10.8	-21.0	10 20	-5.1			2.6	-2.9	8.6	1.5	2.2
10 08	+11.1	-21.2	10 15	+10.9	-20.9	10 33	-5.0			2.8	-3.0	9.2	2.0	2.5
10 21	+11.2	-21.1	10 27	+11.0	-20.8	10 46	-4.9			3.0	-3.1	9.8	2.5	2.8
10 34	+11.3	-21.0	10 40	+11.1	-20.7	11 00	-4.8			3.2	-3.2	10.5	3.0	3.0
10 47	+11.4	-20.9	10 54	+11.2	-20.6	11 14	-4.7			3.4	-3.3	11.2		See table
11 01	+11.5	-20.8	11 08	+11.3	-20.5	11 29	-4.6			3.6	-3.4	11.9		←
11 15	+11.6	-20.7	11 23	+11.4	-20.4	11 45	-4.5			3.8	-3.5	12.6	m	
11 30	+11.7	-20.6	11 38	+11.5	-20.3	12 01	-4.4			4.0	-3.6	13.3	20	7.9
11 46	+11.8	-20.5	11 54	+11.6	-20.2	12 18	-4.3			4.3	-3.7	14.1	22	8.3
12 02	+11.9	-20.4	12 10	+11.7	-20.1	12 35	-4.2			4.5	-3.8	14.9	24	8.6
12 19	+12.0	-20.3	12 28	+11.8	-20.0	12 54	-4.1			4.7	-3.9	15.7	26	9.0
12 37	+12.1	-20.2	12 46	+11.9	-19.9	13 13	-4.0			5.0	-4.0	16.5	28	9.3
12 55	+12.2	-20.1	13 05	+12.0	-19.8	13 33	-3.9			5.2	-4.1	17.4		
13 14	+12.3	-20.0	13 24	+12.1	-19.7	13 54	-3.8			5.5	-4.2	18.3	30	9.6
13 35	+12.4	-19.9	13 45	+12.2	-19.6	14 16	-3.7			5.8	-4.3	19.1	32	10.0
13 56	+12.5	-19.8	14 07	+12.3	-19.5	14 40	-3.6			6.1	-4.4	20.1	34	10.3
14 18	+12.6	-19.7	14 30	+12.4	-19.4	15 04	-3.5			6.3	-4.5	21.0	36	10.6
14 42	+12.7	-19.6	14 54	+12.5	-19.3	15 30	-3.4			6.6	-4.6	22.0	38	10.8
15 06	+12.8	-19.5	15 19	+12.6	-19.2	15 57	-3.3			6.9	-4.7	22.9		
15 32	+12.9	-19.4	15 46	+12.7	-19.1	16 26	-3.2			7.2	-4.8	23.9	40	11.1
15 59	+13.0	-19.3	16 14	+12.8	-19.0	16 56	-3.1			7.5	-4.9	24.9	42	11.4
16 28	+13.1	-19.2	16 44	+12.9	-18.9	17 28	-3.0			7.9	-5.0	26.0	44	11.7
16 59	+13.2	-19.1	17 15	+13.0	-18.8	18 02	-2.9			8.2	-5.1	27.1	46	11.9
17 32	+13.3	-19.0	17 48	+13.1	-18.7	18 38	-2.8			8.5	-5.2	28.1	48	12.2
18 06	+13.4	-18.9	18 24	+13.2	-18.6	19 17	-2.7			8.8	-5.3	29.2		ft.
18 42	+13.5	-18.8	19 01	+13.3	-18.5	19 58	-2.6			9.2	-5.4	30.4	2	1.4
19 21	+13.6	-18.7	19 42	+13.4	-18.4	20 42	-2.5			9.5	-5.5	31.5	4	1.9
20 03	+13.7	-18.6	20 25	+13.5	-18.3	21 28	-2.4			9.9	-5.6	32.7	6	2.4
20 48	+13.8	-18.5	21 11	+13.6	-18.2	22 19	-2.3			10.3	-5.7	33.9	8	2.7
21 35	+13.9	-18.4	22 00	+13.7	-18.1	23 13	-2.2			10.6	-5.8	35.1	10	3.1
22 26	+14.0	-18.3	22 54	+13.8	-18.0	24 11	-2.1			11.0	-5.9	36.3		See table
23 22	+14.1	-18.2	23 51	+13.9	-17.9	25 14	-2.0			11.4	-6.0	37.6		←
24 21	+14.2	-18.1	24 53	+14.0	-17.8	26 22	-1.9			11.8	-6.1	38.9		ft.
25 26	+14.3	-18.0	26 00	+14.1	-17.7	27 36	-1.8			12.2	-6.2	40.1	ft.	
26 36	+14.4	-17.9	27 13	+14.2	-17.6	28 56	-1.7			12.6	-6.3	41.5	70	8.1
27 52	+14.5	-17.8	28 33	+14.3	-17.5	30 24	-1.6			13.0	-6.4	42.8	75	8.4
29 15	+14.6	-17.7	30 00	+14.4	-17.4	32 00	-1.5			13.4	-6.5	44.2	80	8.7
30 46	+14.7	-17.6	31 35	+14.5	-17.3	33 45	-1.4			13.8	-6.6	45.5	85	8.9
32 26	+14.8	-17.5	33 20	+14.6	-17.2	35 40	-1.3			14.2	-6.7	46.9	90	9.2
34 17	+14.9	-17.4	35 17	+14.7	-17.1	37 48	-1.2			14.7	-6.8	48.4	95	9.5
36 20	+15.0	-17.3	37 26	+14.8	-17.0	40 08	-1.1			15.1	-6.9	49.8		
38 36	+15.1	-17.2	39 50	+14.9	-16.9	42 44	-1.0			15.5	-7.0	51.3	100	9.7
41 08	+15.2	-17.1	42 31	+15.0	-16.8	45 36	-0.9			16.0	-7.1	52.8	105	9.9
43 59	+15.3	-17.0	45 31	+15.1	-16.7	48 47	-0.8			16.5	-7.2	54.3	110	10.2
47 10	+15.4	-16.9	48 55	+15.2	-16.6	52 18	-0.7			16.9	-7.3	55.8	115	10.4
50 46	+15.5	-16.8	52 44	+15.3	-16.5	56 11	-0.6			17.4	-7.4	57.4	120	10.6
54 49	+15.6	-16.7	57 02	+15.4	-16.4	60 28	-0.5			17.9	-7.5	58.9	125	10.8
59 23	+15.7	-16.6	61 51	+15.5	-16.3	65 08	-0.4			18.4	-7.6	60.5		
64 30	+15.8	-16.5	67 17	+15.6	-16.2	70 11	-0.3			18.8	-7.7	62.1	130	11.1
70 12	+15.9	-16.4	73 16	+15.7	-16.1	75 34	-0.2			19.3	-7.8	63.8	135	11.3
76 26	+16.0	-16.3	79 43	+15.8	-16.0	81 13	-0.1			19.8	-7.9	65.4	140	11.5
83 05	+16.1	-16.2	86 32	+15.9	-15.9	87 03	0.0			20.4	-8.0	67.1	145	11.7
90 00			90 00			90 00				20.9	-8.1	68.8	150	11.9
										21.4		70.5	155	12.1

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

ANNEXURE 4

CONVERSION OF ARC TO TIME

Table with 16 columns representing arc degrees (0°-59°, 60°-119°, 120°-179°, 180°-239°, 240°-299°, 300°-359°) and 4 columns representing time in hours, minutes, and seconds (0'-00, 0'-25, 0'-50, 0'-75). Rows are numbered from 0 to 59.

The above table is for converting expressions in arc to their equivalent in time; its main use in this Almanac is for the conversion of longitude for application to L.M.T. (added if west, subtracted if east) to give G.M.T. or vice versa.

