List of Calendar Functions

1.1	**rd**	*page* 12	1.57	**thursday**	33
1.3	**jd-epoch**	18	1.58	**friday**	33
1.4	**moment-from-jd**	18	1.59	**saturday**	33
1.5	**jd-from-moment**	18	1.60	**day-of-week-from-fixed**	33
1.6	**mjd-epoch**	19	1.62	**kday-on-or-before**	34
1.7	**fixed-from-mjd**	19	1.65	**kday-on-or-after**	34
1.8	**mjd-from-fixed**	19	1.66	**kday-nearest**	34
1.9	**unix-epoch**	19	1.67	**kday-before**	34
1.10	**moment-from-unix**	19	1.68	**kday-after**	34
1.11	**unix-from-moment**	19	1.76	**akan-day-name**	38
1.12	**fixed-from-moment**	20	1.77	**akan-name-difference**	38
1.13	**fixed-from-jd**	20	1.78	**akan-day-name-epoch**	38
1.14	**jd-from-fixed**	20	1.79	**akan-name-from-fixed**	38
1.16	**sign**	20	1.80	**akan-day-name-on-or-before**	38
1.18	**time-from-moment**	21			
1.37	**list-of-fixed-from-moments**	26	2.3	**gregorian-epoch**	58
1.40	**positions-in-range**	27	2.4	**january**	59
1.43	**time-from-clock**	28	2.5	**february**	59
1.44	**clock-from-moment**	28	2.6	**march**	59
1.45	**angle-from-degrees**	29	2.7	**april**	59
1.46	**egyptian-epoch**	30	2.8	**may**	59
1.47	**fixed-from-egyptian**	30	2.9	**june**	59
1.48	**alt-fixed-from-egyptian**	31	2.10	**july**	59
1.49	**egyptian-from-fixed**	31	2.11	**august**	59
1.50	**armenian-epoch**	31	2.12	**september**	59
1.51	**fixed-from-armenian**	31	2.13	**october**	59
1.52	**armenian-from-fixed**	31	2.14	**november**	59
1.53	**sunday**	33	2.15	**december**	59
1.54	**monday**	33	2.16	**gregorian-leap-year?**	59
1.55	**tuesday**	33	2.17	**fixed-from-gregorian**	60
1.56	**wednesday**	33	2.18	**gregorian-new-year**	60

Published online by Cambridge University Press

2.19 **gregorian-year-end** 60
2.20 **gregorian-year-range** 60
2.21 **gregorian-year-from-fixed** 61
2.23 **gregorian-from-fixed** 62
2.24 **gregorian-date-difference** 62
2.25 **day-number** 62
2.26 **days-remaining** 63
2.27 **last-day-of-gregorian-month** 63
2.28 **alt-fixed-from-gregorian** 66
2.29 **alt-gregorian-from-fixed** 66
2.30 **alt-gregorian-year-from-fixed** 67
2.32 **independence-day** 69
2.33 **nth-kday** 69
2.34 **first-kday** 69
2.35 **last-kday** 69
2.36 **labor-day** 69
2.37 **memorial-day** 70
2.38 **election-day** 70
2.39 **daylight-saving-start** 70
2.40 **daylight-saving-end** 70
2.41 **christmas** 70
2.42 **advent** 71
2.43 **epiphany** 71
2.44 **unlucky-fridays-in-range** 71
2.45 **unlucky-fridays** 71

3.1 **julian-leap-year?** 75
3.2 **julian-epoch** 76
3.3 **fixed-from-julian** 76
3.4 **julian-from-fixed** 77
3.5 **kalends** 77
3.6 **nones** 77
3.7 **ides** 77
3.8 **ides-of-month** 77
3.9 **nones-of-month** 78
3.10 **fixed-from-roman** 80
3.11 **roman-from-fixed** 81
3.12 **year-rome-founded** 81
3.13 **julian-year-from-auc** 81
3.14 **auc-year-from-julian** 81
3.15 **olympiad-start** 82
3.16 **julian-year-from-olympiad** 82
3.17 **olympiad-from-julian-year** 82
3.18 **spring** 83
3.19 **summer** 83
3.20 **autumn** 83
3.21 **winter** 83
3.22 **cycle-in-gregorian** 83
3.23 **julian-season-in-gregorian** 84
3.24 **julian-in-gregorian** 85
3.25 **eastern-orthodox-christmas** 85

4.1 **coptic-epoch** 90
4.2 **coptic-leap-year?** 90
4.3 **fixed-from-coptic** 90
4.4 **coptic-from-fixed** 91
4.5 **ethiopic-epoch** 92
4.6 **fixed-from-ethiopic** 92
4.7 **ethiopic-from-fixed** 92
4.8 **coptic-in-gregorian** 93
4.9 **coptic-christmas** 93

5.1 **fixed-from-iso** 96
5.2 **iso-from-fixed** 96
5.3 **iso-long-year?** 97

6.1 **icelandic-epoch** 100
6.2 **icelandic-summer** 100
6.3 **icelandic-winter** 100
6.4 **fixed-from-icelandic** 101
6.5 **icelandic-from-fixed** 101
6.6 **icelandic-leap-year?** 101
6.7 **icelandic-month** 102

7.1 **islamic-epoch** 106
7.2 **islamic-leap-year?** 107
7.3 **fixed-from-islamic** 107
7.4 **islamic-from-fixed** 108
7.5 **islamic-in-gregorian** 109
7.6 **mawlid** 109

Published online by Cambridge University Press

8.1	**nisan**	114	8.41	**adda-season-in-gregorian**	133
8.2	**iyyar**	114	8.42	**hebrew-in-gregorian**	133
8.3	**sivan**	114	8.43	**hanukkah**	134
8.4	**tammuz**	114	8.44	**hebrew-birthday**	135
8.5	**av**	115	8.45	**hebrew-birthday-in-gregorian**	135
8.6	**elul**	115	8.46	**yahrzeit**	136
8.7	**tishri**	115	8.47	**yahrzeit-in-gregorian**	137
8.8	**marheshvan**	115	8.49	**shift-days**	138
8.9	**kislev**	115	8.50	**possible-hebrew-days**	139
8.10	**tevet**	115			
8.11	**shevat**	115	9.1	**orthodox-easter**	146
8.12	**adar**	115	9.2	**alt-orthodox-easter**	147
8.13	**adarii**	115	9.3	**easter**	148
8.14	**hebrew-leap-year?**	115	9.4	**pentecost**	152
8.15	**last-month-of-hebrew-year**	115			
8.16	**hebrew-sabbatical-year?**	115	10.1	**hindu-epoch**	156
8.17	**hebrew-epoch**	119	10.2	**hindu-day-count**	156
8.19	**molad**	120	10.3	**arya-solar-year**	157
8.20	**hebrew-calendar-elapsed-days**	121	10.4	**arya-jovian-period**	157
8.21	**hebrew-year-length-correction**	122	10.5	**jovian-year**	158
8.22	**hebrew-new-year**	122	10.6	**arya-solar-month**	158
8.23	**last-day-of-hebrew-month**	122	10.7	**fixed-from-old-hindu-solar**	158
8.24	**long-marheshvan?**	122	10.8	**old-hindu-solar-from-fixed**	159
8.25	**short-kislev?**	122	10.9	**arya-lunar-month**	160
8.26	**days-in-hebrew-year**	123	10.10	**arya-lunar-day**	162
8.27	**fixed-from-hebrew**	123	10.11	**old-hindu-lunar-leap-year?**	163
8.28	**hebrew-from-fixed**	123	10.13	**old-hindu-lunar-from-fixed**	165
8.29	**fixed-from-molad**	126	10.14	**fixed-from-old-hindu-lunar**	166
8.30	**yom-kippur**	128			
8.31	**passover**	129	11.1	**mayan-epoch**	171
8.32	**omer**	129	11.2	**fixed-from-mayan-long-count**	171
8.33	**purim**	129	11.3	**mayan-long-count-from-fixed**	171
8.34	**ta-anit-esther**	130	11.4	**mayan-haab-ordinal**	173
8.35	**tishah-be-av**	130	11.5	**mayan-haab-epoch**	173
8.36	**yom-ha-zikkaron**	131	11.6	**mayan-haab-from-fixed**	173
8.37	**sh-ela**	131			
8.38	**birkath-ha-hama**	132			
8.39	**samuel-season-in-gregorian**	132			
8.40	**alt-birkath-ha-hama**	132			

Published online by Cambridge University Press

11.7 **mayan-haab-on-or-before** 173
11.8 **mayan-tzolkin-epoch** 175
11.9 **mayan-tzolkin-from-fixed** 175
11.10 **mayan-tzolkin-ordinal** 175
11.11 **mayan-tzolkin-on-or-before** 176
11.12 **mayan-year-bearer-from-fixed** 176
11.13 **mayan-calendar-round-on-or-before** 177
11.14 **aztec-correlation** 177
11.15 **aztec-xihuitl-ordinal** 178
11.16 **aztec-xihuitl-correlation** 178
11.17 **aztec-xihuitl-from-fixed** 178
11.18 **aztec-xihuitl-on-or-before** 179
11.19 **aztec-tonalpohualli-ordinal** 179
11.20 **aztec-tonalpohualli-correlation** 179
11.21 **aztec-tonalpohualli-from-fixed** 180
11.22 **aztec-tonalpohualli-on-or-before** 180
11.23 **aztec-xiuhmolpilli-from-fixed** 180
11.24 **aztec-xihuitl-tonalpohualli-on-or-before** 181

12.1 **bali-pawukon-from-fixed** 187
12.2 **bali-epoch** 187
12.3 **bali-day-from-fixed** 187
12.4 **bali-triwara-from-fixed** 187
12.5 **bali-sadwara-from-fixed** 187
12.6 **bali-saptawara-from-fixed** 187
12.7 **bali-pancawara-from-fixed** 187
12.8 **bali-week-from-fixed** 187
12.9 **bali-dasawara-from-fixed** 188
12.10 **bali-dwiwara-from-fixed** 188
12.11 **bali-luang-from-fixed** 188
12.12 **bali-sangawara-from-fixed** 188
12.13 **bali-asatawara-from-fixed** 189
12.14 **bali-caturwara-from-fixed** 189
12.15 **bali-on-or-before** 189
12.16 **kajeng-keliwon** 190
12.17 **tumpek** 190

14.1 **urbana** 204
14.2 **greenwich** 204
14.3 **mecca** 204
14.4 **jerusalem** 204
14.5 **acre** 205
14.6 **direction** 205
14.7 **arctan** 205
14.8 **zone-from-longitude** 208
14.9 **universal-from-local** 208
14.10 **local-from-universal** 208
14.11 **standard-from-universal** 208
14.12 **universal-from-standard** 208
14.13 **standard-from-local** 208
14.14 **local-from-standard** 210
14.15 **ephemeris-correction** 212
14.16 **dynamical-from-universal** 212
14.17 **universal-from-dynamical** 212
14.18 **julian-centuries** 212
14.19 **j2000** 212
14.20 **equation-of-time** 217
14.21 **apparent-from-local** 218
14.22 **local-from-apparent** 218
14.23 **apparent-from-universal** 218
14.24 **universal-from-apparent** 218

Published online by Cambridge University Press

14.25 **midnight** 218
14.26 **midday** 218
14.27 **sidereal-from-moment** 219
14.28 **obliquity** 220
14.29 **declination** 220
14.30 **right-ascension** 220
14.31 **mean-tropical-year** 221
14.32 **mean-sidereal-year** 221
14.33 **solar-longitude** 223
14.34 **nutation** 223
14.35 **aberration** 223
14.36 **solar-longitude-after** 224
14.37 **season-in-gregorian** 225
14.38 **urbana-winter** 225
14.39 **precession** 225
14.40 **sidereal-solar-longitude** 225
14.41 **solar-altitude** 226
14.42 **estimate-prior-solar-longitude** 227
14.44 **mean-synodic-month** 227
14.45 **nth-new-moon** 230
14.46 **new-moon-before** 231
14.47 **new-moon-at-or-after** 232
14.48 **lunar-longitude** 232
14.49 **mean-lunar-longitude** 234
14.50 **lunar-elongation** 234
14.51 **solar-anomaly** 234
14.52 **lunar-anomaly** 234
14.53 **moon-node** 234
14.54 **lunar-node** 234
14.55 **sidereal-lunar-longitude** 234
14.56 **lunar-phase** 235
14.57 **lunar-phase-at-or-before** 235
14.58 **lunar-phase-at-or-after** 235
14.59 **new** 236
14.60 **first-quarter** 236
14.61 **full** 236
14.62 **last-quarter** 236
14.63 **lunar-latitude** 236
14.64 **lunar-altitude** 238
14.65 **lunar-distance** 238
14.66 **lunar-parallax** 239
14.67 **topocentric-lunar-altitude** 239
14.68 **approx-moment-of-depression** 240
14.69 **sine-offset** 241
14.70 **moment-of-depression** 241
14.71 **morning** 241
14.72 **dawn** 241
14.73 **evening** 242
14.74 **dusk** 242
14.75 **refraction** 242
14.76 **sunrise** 242
14.77 **sunset** 243
14.78 **urbana-sunset** 243
14.79 **cfs-alert** 243
14.80 **jewish-sabbath-ends** 243
14.81 **jewish-dusk** 243
14.82 **observed-lunar-altitude** 243
14.83 **moonrise** 245
14.84 **moonset** 245
14.85 **padua** 246
14.86 **local-zero-hour** 247
14.87 **local-from-italian** 247
14.88 **italian-from-local** 247
14.89 **daytime-temporal-hour** 247
14.90 **nighttime-temporal-hour** 248
14.91 **standard-from-sundial** 248
14.92 **jewish-morning-end** 248
14.93 **asr** 249
14.94 **alt-asr** 249
14.95 **arc-of-light** 250
14.96 **simple-best-view** 250
14.97 **shaukat-criterion** 250
14.98 **arc-of-vision** 251
14.99 **bruin-best-view** 251
14.100 **yallop-criterion** 251
14.101 **lunar-semi-diameter** 252
14.102 **lunar-diameter** 252
14.103 **visible-crescent** 252
14.104 **phasis-on-or-before** 252
14.105 **phasis-on-or-after** 253

15.1 **persian-epoch** 258

Published online by Cambridge University Press

15.2 **tehran** 259
15.3 **midday-in-tehran** 259
15.4 **persian-new-year-on-or-before** 259
15.5 **fixed-from-persian** 260
15.6 **persian-from-fixed** 260
15.7 **arithmetic-persian-leap-year?** 262
15.8 **fixed-from-arithmetic-persian** 262
15.9 **arithmetic-persian-year-from-fixed** 263
15.10 **arithmetic-persian-from-fixed** 264
15.11 **nowruz** 265

16.1 **ayyam-i-ha** 271
16.2 **bahai-epoch** 271
16.3 **fixed-from-bahai** 272
16.4 **bahai-from-fixed** 273
16.5 **bahai-location** 274
16.6 **bahai-sunset** 274
16.7 **astro-bahai-new-year-on-or-before** 274
16.8 **fixed-from-astro-bahai** 275
16.9 **astro-bahai-from-fixed** 276
16.10 **bahai-new-year** 277
16.11 **naw-ruz** 277
16.12 **feast-of-ridvan** 277
16.13 **birth-of-the-bab** 278

17.1 **paris** 283
17.2 **midnight-in-paris** 283
17.3 **french-new-year-on-or-before** 283
17.4 **french-epoch** 283
17.5 **fixed-from-french** 284
17.6 **french-from-fixed** 284
17.7 **french-leap-year?** 284
17.8 **arithmetic-french-leap-year?** 285
17.9 **fixed-from-arithmetic-french** 285
17.10 **arithmetic-french-from-fixed** 286

18.1 **moonlag** 290
18.2 **babylon** 290
18.3 **babylonian-criterion** 290
18.4 **babylonian-new-month-on-or-before** 291
18.5 **babylonian-epoch** 291
18.6 **babylonian-leap-year?** 291
18.7 **fixed-from-babylonian** 291
18.8 **babylonian-from-fixed** 292
18.9 **astronomical-easter** 293
18.10 **islamic-location** 293
18.11 **fixed-from-observational-islamic** 293
18.12 **observational-islamic-from-fixed** 294
18.13 **month-length** 294
18.14 **early-month?** 295
18.15 **alt-fixed-from-observational-islamic** 295
18.16 **alt-observational-islamic-from-fixed** 296
18.17 **saudi-criterion** 296
18.18 **saudi-new-month-on-or-before** 296
18.19 **fixed-from-saudi-islamic** 296
18.20 **saudi-islamic-from-fixed** 297
18.21 **hebrew-location** 297
18.22 **observational-hebrew-first-of-nisan** 298
18.23 **observational-hebrew-from-fixed** 298
18.24 **fixed-from-observational-hebrew** 298
18.25 **classical-passover-eve** 298
18.26 **alt-observational-hebrew-from-fixed** 299
18.27 **alt-fixed-from-observational-hebrew** 300
18.28 **samaritan-location** 300
18.29 **samaritan-noon** 300
18.30 **samaritan-new-moon-after** 300
18.31 **samaritan-new-moon-at-or-before** 300

Published online by Cambridge University Press

18.32 **samaritan-epoch** 301
18.33 **samaritan-new-year-on-or-before** 301
18.34 **fixed-from-samaritan** 301
18.35 **samaritan-from-fixed** 302

19.1 **current-major-solar-term** 306
19.2 **chinese-location** 306
19.3 **chinese-solar-longitude-on-or-after** 308
19.4 **major-solar-term-on-or-after** 308
19.5 **current-minor-solar-term** 308
19.6 **minor-solar-term-on-or-after** 309
19.7 **midnight-in-china** 309
19.8 **chinese-winter-solstice-on-or-before** 309
19.9 **chinese-new-moon-on-or-after** 310
19.10 **chinese-new-moon-before** 310
19.11 **chinese-no-major-solar-term?** 313
19.12 **chinese-prior-leap-month?** 313
19.13 **chinese-new-year-in-sui** 316
19.14 **chinese-new-year-on-or-before** 316
19.15 **chinese-epoch** 316
19.16 **chinese-from-fixed** 317
19.17 **fixed-from-chinese** 318
19.18 **chinese-sexagesimal-name** 319
19.19 **chinese-name-difference** 319
19.20 **chinese-year-name** 320
19.21 **chinese-month-name-epoch** 320
19.22 **chinese-month-name** 320
19.23 **chinese-day-name-epoch** 320
19.24 **chinese-day-name** 320
19.25 **chinese-day-name-on-or-before** 320
19.26 **chinese-new-year** 322
19.27 **dragon-festival** 324
19.28 **qing-ming** 324
19.29 **chinese-age** 325
19.30 **double-bright** 325
19.31 **bright** 325
19.32 **blind** 325
19.33 **widow** 325
19.34 **chinese-year-marriage-augury** 326
19.35 **japanese-location** 326
19.36 **korean-location** 328
19.37 **korean-year** 328
19.38 **vietnamese-location** 329

20.1 **hindu-sidereal-year** 336
20.2 **hindu-sidereal-month** 336
20.3 **hindu-synodic-month** 336
20.4 **hindu-sine-table** 342
20.5 **hindu-sine** 343
20.6 **hindu-arcsin** 344
20.7 **hindu-mean-position** 344
20.8 **hindu-creation** 344
20.9 **hindu-anomalistic-year** 345
20.10 **hindu-anomalistic-month** 345
20.11 **hindu-true-position** 345
20.12 **hindu-solar-longitude** 345
20.13 **hindu-zodiac** 346
20.14 **hindu-lunar-longitude** 346
20.15 **hindu-lunar-phase** 346
20.16 **hindu-lunar-day-from-moment** 346
20.17 **hindu-new-moon-before** 346
20.18 **hindu-calendar-year** 347
20.19 **hindu-solar-era** 347
20.20 **hindu-solar-from-fixed** 348
20.21 **fixed-from-hindu-solar** 348
20.22 **hindu-lunar-era** 349
20.23 **hindu-lunar-from-fixed** 349

Published online by Cambridge University Press

20.24 **fixed-from-hindu-lunar** 351
20.25 **ujjain** 351
20.26 **hindu-location** 351
20.27 **hindu-ascensional-difference** 352
20.28 **hindu-tropical-longitude** 352
20.29 **hindu-solar-sidereal-difference** 352
20.30 **hindu-daily-motion** 353
20.31 **hindu-rising-sign** 353
20.32 **hindu-equation-of-time** 354
20.33 **hindu-sunrise** 354
20.34 **hindu-sunset** 355
20.35 **hindu-standard-from-sundial** 355
20.36 **hindu-fullmoon-from-fixed** 356
20.37 **fixed-from-hindu-fullmoon** 356
20.38 **hindu-expunged?** 356
20.39 **alt-hindu-sunrise** 357
20.40 **ayanamsha** 359
20.41 **sidereal-start** 359
20.42 **astro-hindu-sunset** 360
20.43 **sidereal-zodiac** 360
20.44 **astro-hindu-calendar-year** 360
20.45 **astro-hindu-solar-from-fixed** 360
20.46 **fixed-from-astro-hindu-solar** 361
20.47 **astro-lunar-day-from-moment** 361
20.48 **astro-hindu-lunar-from-fixed** 361
20.49 **fixed-from-astro-hindu-lunar** 362
20.50 **hindu-solar-longitude-at-or-after** 364
20.51 **mesha-samkranti** 364
20.52 **hindu-lunar-day-at-or-after** 365
20.53 **hindu-lunar-new-year** 366
20.54 **hindu-lunar-on-or-before?** 367
20.55 **hindu-date-occur** 367
20.56 **hindu-lunar-holiday** 368
20.57 **diwali** 368
20.58 **hindu-tithi-occur** 368
20.59 **hindu-lunar-event** 368
20.60 **shiva** 369
20.61 **rama** 369
20.62 **hindu-lunar-station** 369
20.63 **karana** 369
20.64 **yoga** 369
20.65 **sacred-wednesdays** 370
20.66 **sacred-wednesdays-in-range** 371

21.1 **tibetan-epoch** 377
21.2 **tibetan-sun-equation** 377
21.3 **tibetan-moon-equation** 377
21.4 **fixed-from-tibetan** 378
21.5 **tibetan-from-fixed** 379
21.6 **tibetan-leap-month?** 381
21.7 **tibetan-leap-day?** 381
21.8 **losar** 381
21.9 **tibetan-new-year** 381

Published online by Cambridge University Press