تقویم ۳۳۸ سالهٔ شمسی و ۱۶۹ سالهٔ میلادی

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چکیده :

گاهشماری، علمی است که در خصوص طرز احتساب زمان (روز، ماه، سال) و مبدأ تاریخ بحث می‌کند، و از جمله مهمترین مسایل روش تحقیق تاریخ است، که سابقه شناخت آن در جهان به بیش از ده هزار سال قبل می‌رسد.

برای اندازه‌گیری زمان، آنچه در درجه اوّل اهمیّت قرار دارد، تعیین مبداء یا نقطه آغاز و اتکاء به یک واقعه مهم، و در مرحله دوّم انتخاب واحد اندازه‌گیری و در مرحله سوّم قیاس یا تعیین گذشت زمان نسبت به واقعهٔ مورد نظر است.

مهمترین مبدأ گاهشماری، میلاد حضرت مسیح (ع) و هجرت حضرت محمّد(ص) از مکّه به مدینه می‌باشد، که براساس آن تقویم میلادی و هجری شکل گرفته است.

در زمان حاضر تقویم‌های مختلفی در اختیار داریم که با مراجعه به آنها می‌توان تاریخ روز و ماه و سال مورد نظر در هر یک از ماههای ایرانی و اسلامی و مسیحی را بدست آورد.

نگارنده، با توجّه به قوانین حاکم بر سیر متناوب ماههای سال و تکرار مدخل سال‌ها (اولین روز سال)، جدولی برای استخراج تقویم ۳۳۸ سالهٔ هجری شمسی و ۱۶۹ سالهٔ میلادی تنظیم کرده است که در این مقاله از نظر می‌گذرد.

واژه‌های کلیدی: کرونولوژی، تقویم، هجری شمسی و قمری، میلادی، تقویم گرگورین.

مقدمه:

INTRODUCTION

The word "calendar" refers to tabular presentations inwhich days, weeks, months and year are measured on the basis of the movements of the earth around the sun and the moon around the earth.

The word "calendar" is derived from "calandrium" or "calandae" in Latin. Time has been measured on the basis of the revolution of the earth around the sun and the revolution of the moon around the earth, as well as the recurrence of the earth's days and nights.

As we all know, every different religion and nation have calendars to suit their own use. Each kind of calendar has two basic characteristics: the first relates to its original date and the second concerns the principles on the basis of which its months are fixed. The foundations of calendar-making lie in astronomy, religion, national or racial back-ground history, as well as the motions of the earth and the moon.

The most important foundation of chronology is religion. In the case of the Christian Calendar it is the birth of Jesus Christ that forms its basis. In the Persian language it is called "Taqveeme Miladi".

The Islamic Calendar, too, is religion-oriented, based as it is on the date of migration of the Holy Prophet from Makkah to Madina. Both the A.H (Solar) and the A.H. (Lunar) Calendars begin from the same date. From what is mentioned above we can identify three major types of calendars: (1) A.H. (Solar), (2) A.H. (Lunar) and (3) A.D. (Christian) Calendars, as discussed below:

(1) The Anne Hijri (Solar) Calendar :

The A.H. (Solar) Calendar is calculated on the basis of the revolution of the planet earth around the sun. The revolution is estimated to take 365.2422 days or 365 days, 5 hours, 48 minutes and 46 seconds. The relevant chronology begins on Nowroz, which marks the apparent turn of the year from the time of Spring Equinox (in the northern hemisphere) according to the Jalali Calendar. It represents the natural beginning of the solar year.(Bitashk, A., 1367)

The A.H. (Solar) Calendar's earlier deficiencies were removed in the year 454 A.H. (Solar) / 1075 A.D., during the time of Jalal-al-Deen Malekshah, the Seljuq king and his wise prime minister, Nizam-ul-Mulk. An eight-member research council's work resulted in the formulation of the Jalali Calendar, which has a margin of error of one day only in 141,000 years, as compared to the astronomical passage of time.(Birashk, A., 1367)

The Jalali Calendar's leap-year calculations show all the more exactness and divisibility by four and five years.

(2) A.H. (Lunar) Calendar:

This is based on the revolution of the moon around the earth. The lunar year consists of twelve lunar months of 29 days, 12 hours and 44 minutes, or 29.531 days (on the average). The A.H. (Lunar) year has 354 days, 18 hours and 48 minutes, which shows a difference from the solar year of eleven days.

(3) A.D. (Christian) Calendar:

Europeans and Christians in the past followed the Julian Calendar, which was derived from the traditional Roman Calendar.

The Christian Calendar has 365.25 days in a year, which is 0.0078 day longer than the actual solar year. This amounts to a difference of one day in 128 years. In view of the possibility that there could be gradual variance from the actual seasons, reformation of this calendar was considered necessary.(Abdollahy, R. 1375)

Detailed investigations towards reformation of the Julian Calendar resulted ultimately in identification of a difference of eleven days from the astronomical calendar in February, 1582 (A.D.). The Pope of the time issued an edict by which 4 October, 1582 was treated as 15 October, 1582; Thus covering the aforesaid difference of eleven days between the Julian and the astronomical calendars. This reform is known in history as Gregorian Reform.(Achelis, E., 1943)

The Gregorian Calendar continues to be used in the Christian world. Its year has 365.2425 days, a difference of 0.0003 day, despite which it has come to be accepted for use throughout the Christian world.(Naba´i, A. 1366)

DERIVATIONS FROM A.H. (SOLAR) AND A.D. CALENDARS

For specifying the occurrence in time of a historical event it is necessary to determine the day of the week, the date of the month, the month and the year according to the given calendar.

At present we have small calendars, pocket calendars, desk-top ones and also diaries for all the three major types of calendars, viz: Iranian, Islamic and the Christian ones. By referring to these we can pinpoint the date, the day, the month and the year.

Astronomers and mathematicians after many years of studies and research have established formulae and regulations governing the relationships of the day of the week and months of the year. As a result, these formulae and rules have come to be available for our use.

As we all know, week-days are repeated in every following week. For example, if the first day of a month falls on an Sunday, the eighth, the fifteenth, the twenty-second and the twenty-ninth day of the month, too, will be a Sunday, which repeats itself every seventh day.

Total number of days in the months of a A.H. (Solar) year varies as follows:

From the month of Farvardin up until Shahrivar the monthly total is 31 days. Every one of these first six months of A.H. (Solar) year has 3 more days than the 28 days of 4 weeks. Thus, the 15th of Farvardin, 1379 being Monday, the 15th day of the following month (Ordibehesht) fell on a Thursday, or the third day after Monday.

The subsequent five months of the A.H. (Solar) year, from Mehr to Bahman, have each a total of 30 days, which is two days more than 4 weeks or 28 days. Thus, 15th of Aban, 1379 being a Sunday, the 15th of Azar, 1379 will be a Tuesday, or the second day after Sunday.

On the other hand, the dates pertaining to the week-days of the A.H. (Solar) year's months from Farvardin to Esfand remain the same from year to year. This is because the difference in the monthly days total 28 days which is divisible by 7, as follows:

(6	×	3)	+	(5	×	2)	=	28
MONTHS (FARVARDIN TO SHAHRIVAR)		DIFFERENCE DAYS		MONTHS (MEHR TO BAHMAN)		DIFFERENCE DAYS		DAYS (DIVISIBLE BY 7)

Accordingly, the 20th of Farvardin, 1379 and the 20th of Esfand, 1379 are Saturdays both. These are paired months, as commonly known. The other paired months are: Ordibehesht + Day, Khordad + Aban, Mordad + Bahman, and Shahrivar + Azar. Their respective first days and week-days are the same, a characteristic exemplified above in the case of Farvardin and Esfand. This feature is not shared by the months of Tir and Mehr, which are called singular or exceptional months.

From the foregoing, it can also be inferred that the day-totals of all the months, except Esfand, do not change. In a leap-year, Esfand has a total of 30 days. In non-leap years, it has 29 days only. As compared to the four-week total of 28 days, the difference in the case of Esfand in a leap-year is 2, and in ordinary years 1 only. Thus, to illustrate this point, the 1st of Farvardin, 1378 (a non-leap year) was a Sunday, and the corresponding day of 1379 (a leap-year) was a Monday. The impact of 1379 being a leap-year will be evident from the fact that the 1st day of Farvardin, 1380 will be a Wednesday, i-e. the second day after Monday.

METHOD OF COMPUTAIION OF LEAP-YEAR(A.H.-SOLAR)

For determining occurrence of leap-years in 5-year and 4-year periods the famous Khayyam Table (reproduced below) will be helful.

TABLE-I: KHAYYAM TABLE

5- YEARLY LEAP-YEAR	4- YEARLY LEAP-YEAR						
1 **5**	2 **9**	3 **13**	4 **17**	5 **21**	6 **25**	7 **29**	
8 **34**	9 **38**	10 **42**	11 **46**	12 **50**	13 **54**	14 **58**	15 **62**
16 **67**	17 **71**	18 **75**	19 **79**	20 **83**	21 **87**	22 **91**	23 **95**
24 **100**	25 **104**	26 **108**	27 **112**	28 **116**	29 **120**	30 **124**	**0**

SOURCE: Naba'i, A."Taghveem wa Thaghveem Negari dar Tarikh", Astan Quds Razavi, Mashhad, Iran, 1366 (1987), P. 170.

The above Table can be used in the following manner:

- First we add 2346 to the given year,
- Then we divide the total by 2820, and
- We further divide the balance by 128.

The balance figure resulting from the second division mentioned above if found in the Khayyam Table, too, that will represent a leap-year. If it is not found in the Khayyam Table, the given year will then be treated as a non-leap year. If what is found in the Khayyam Table happens to be in its 4-yearly columns, then the given year will refer to a four-year periodicity of a leap-year. This means that the first three years of the four-year-period have had 365 days each and the fourth year would have 366 days.

Every 33 years, there would have been seven 4-yearly leap-years and one five-yearly leap-year.

In the abovementioned computations preliminary information about the first day of a month will be helpful. Of course, when a given year ends in 365 days, the first day of the following year will be a Saturday, which should repeat itself once in every seven years. But, then, the actual A.H. (Solar) year has a total of nearly 365.25 days. Therefore, the first day of the year can be expected to repeat itself in 28 years and not 7 years.**(Naba'i, A. 1366)**

PROCEDURE FOR ASCERTAINING WEEK-DAY OF FIRST FARVARDIN OR "NOWROZ" OF A HIJAR (SOLAR) YEAR

To ascertain week-day of first Farvardin (the first month) of a Hijri (Solar) new year, known as "Nowroz", the adoptable procedure is as follows:

(1) Add 2346 to the figure of the A.H. (Solar) year the week-day of "Nowroz" of which is to be ascertained.

(2) Divide the sum from (1) above by 2820, which may leave a residual fraction.

(3) Add 1 to the non-fractional result of (2) above and multiply the sum by 3. The result will be the first figure to be used in the final calculation (represented by the symbol "A").**(Naba'i,A. 1366)**

(4) Divide by 128 the fractional balance from the division as per(2) above and multiply the non-fractional result by 5 (for using the outcome in the final calculation, represented by "B"). Residual balance, too, is useable in the final calculation, represented by "C", as necessary.

(5) Ascertain the number of leap-years preceding the number represented by "C" above from the Khayyam Table, which number will be used in the final calculation (represented by "D").

(6) Add up the figures represented by "A + B + C + D" and divide the sum by 7 to give or obtain a balance figure that will indicate or identify the week-day of the first day of the year under consideration.

If the aforementioned balance figure is zero, Nowroz will be on a Saturday; if it is one, that will be a Sunday, and so on as indicated earlier.(Naba´i,A. 1366)

The application of the procedure can be exemplified as under for, say, Nowroz of 1380 A.H. (Solar):

(1) 1380 + 2346 = 3726

(2) 3726: 2820 = 1 (leaving a fractional balance of 906)

(3) 1 + 1 = 2, 2 × 3 = 6, **A = 6**

(4) 906 : 128 = 7 (leaving 10 as the fractional balance, and thenon-fractional 7 is multiplied by 5)

7 × 5 = 35 , **B = 35** , **C = 10**

(5) The number of leap-years preceding 10(C) in the Khayyam Table is 2 **D = 2**

(6) A + B + C + D = 6 + 35 + 10 + 2 = 53, SUM = 53

and divide the sum by 7 to obtain the week-day number, which in this case is 4, representing a wednesday. Thus, the first day or Nowroz of 1380 A.H. (Solar) will be a wednesday.

THE METHOD OF A CHRISTIAN LEAP-YEAR COMPUTATION

In the case of the Gregorian Calendar, every four years the annual total of days increases to 366 days from 365 days. This is due to the occurrence of leap-year which affects the month of February. February of a leap-year has 29 days instead of the normal 28 days.

The Gregorian Calendar's twelve months, from January to December, has day-totals adjusted and formalised as follows: January:

31 days, February = 28 (29 in leap-years), March = 31, April= 30, May = 31, June = 30, July = 31, August = 31, September = 30, October = 31, November = 30, and December = 31 days.

The method of a Christian leap-year computation is given below: If a given year is divisible by 4, it will be a leap-year; if not, it will be an ordinary or a non-leap year. If the figure of a given year ends in two zeros (as in the case of a century), it is to be divided by 400. Exceptions in this regard are 1900, 1800 and 1700, since, despite their divisibility by 4, they are not leap - years. On the other hand, the year 2000 is a leap-year.**(Bitashk, A. 1367)**

With due attention to the foregoing information and the relevant rules governing reccurrence of months of an year, beginning of an year, etc., this compiler has prepared conversion tables for A.H. (Solar) and A.D. Calendars, which are presented in this article. The tables will be particularly helpful in computing a date or a week-day of occurrence of a significant event in the past.

TABLE - II : THE 338-YEAR A.H.(SOLAR) CALENDAR

(1073-1410 A.H.)

1- The years

1073*		1074	1075	1076	1077*		1078	1079	1080	1081*		1082	1083	1084	1085	1086*		1087	1088	1089	1090*		1091	1092	1093	1094*	
1095	1096	1097	1098*		1099	1100	1101	1102*		1103	1104	1105	1106*		1107	1108	1109	1110*		1111	1112	1113	1114*		1115	1116	1117
1118	1119*		1120	1121	1122	1123*		1124	1125	1126	1127*		1128	1129	1130	1131*		1132	1133	1134	1135*		1136	1137	1138	1139*	
1140	1141	1142	1143*		1144	1145	1146	1147	1148*		1149	1150	1151	1152*		1153	1154	1155	1156*		1157	1158	1159	1160*		1161	1162
1163	1164*		1165	1166	1167	1168*		1169	1170	1171	1172*		1173	1174	1175	1176*		1177	1178	1179	1180	1181*		1182	1183	1184	1185
	1186	1187	1188	1189*		1190	1191	1192	1193*		1194	1195	1196	1197*		1198	1199	1200	1201*		1202	1203	1204	1205*		1206	1207
1208	1209*		1210	1211	1212	1213	1214*		1215.	1216	1217	1218*		1219	1220	1221	1222*		1223	1224	1225	1226*		1227	1228	1229	1230
	1231	1232	1233	1234*		1235	1236	1237	1238*		1239	1240	1241	1242*		1243	1244	1245	1246	1247*		1248	1249	1250	1251*		1252
1253	1254	1255*		1256	1257	1258	1259*		1260	1261	1262	1263*		1264	1265	1266	1267*		1268	1269	1270	1271*		1272	1273	1274	1275
1276*		1277	1278	1279	1280*		1281	1282	1283	1284*		1285	1286	1287	1288*		1289	1290	1291	1292*		1293	1294	1295	1296*		1297
1298	1299	1300*		1301	1302	1303	1304*		1305	1306	1307	1308	1309*		1310	1311	1312	1313*		1314	1315	1316	1317*		1318	1319	1320
1321*		1322	1323	1324	1325*		1326	1327	1328	1329*		1330	1331	1332	1333*		1334	1335	1336	1337*		1338	1339	1340	1341	1342*	
1343	1344	1345	1346*		1347	1348	1349	1350*		1351	1352	1353	1354*		1355	1356	1357	1358*		1359	1360	1361	1362*		1363	1364	1365
1366*		1367	1368	1369	1370*		1371	1372	1373	1374	1375*		1376	1377	1378	1379*		1380	1381	1382	1383*		1384	1385	1386	1387*	
1388	1389	1390	1391*		1392	1393	1394	1395*		1396	1397	1398	1399*		1400	1401	1402	1403	1404*		1405	1406	1407	1408*		1409	1410

2-The months

FARVARDIN	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M
ORDIBEHESHT	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S
KHORDAD	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N
TIR	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U
MORDAD	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I
SHAHRIVAR	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H
MEHR	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E
ABAN	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N
AZAR	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H
DAY	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S
BAHMAN	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I
ESFAND	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M	H	U	S	E	I	N	M

*Leap years

3- The days of the week

H						U						S						E					
SAT.	1	8	15	22	29	SAT.		7	14	21	28	SAT.		6	13	20	27	SAT.		5	12	19	26
SUN.	2	9	16	23	30	SUN.	1	8	15	22	29	SUN.		7	14	21	28	SUN.		6	13	20	27
MON.	3	10	17	24	31	MON.	2	9	16	23	30	MON.	1	8	15	22	29	MON.		7	14	21	28
TUE.	4	11	18	25		TUE.	3	10	17	24	31	TUE.	2	9	16	23	30	TUE.	1	8	15	22	29
WED.	5	12	19	26		WED.	4	11	18	25		WED.	3	10	17	24	31	WED.	2	9	16	23	30
THU.	6	13	20	27		THU.	5	12	19	26		THU.	4	11	18	25		THU.	3	10	17	24	31
FRI.	7	14	21	28		FRI.	6	13	20	27		FRI.	5	12	19	26		FRI.	4	11	18	25	

I						N						M					
SAT.		4	11	18	25	SAT.	31	3	10	17	24	SAT.	30	2	9	16	23
SUN.		5	12	19	26	SUN.		4	11	18	25	SUN.	31	3	10	17	24
MON.		6	13	20	27	MON.		5	12	19	26	MON.		4	11	18	25
TUE.		7	14	21	28	TUE.		6	13	20	27	TUE.		5	12	19	26
WED.	1	8	15	22	29	WED.		7	14	21	28	WED.		6	13	20	27
THU.	2	9	16	23	30	THU.	1	8	15	22	29	THU.		7	14	21	28
FRI.	3	10	17	24	31	FRI.	2	9	16	23	30	FRI.	1	8	15	22	29

This calendar has three Tables: (1) years, (2) months, and (3) days, respectively. It covers the period from 1073 to 1410 A.D., consisting of Ordinary and the Leap years.

HOW TO USE:

This calendar makes it possible to ascertain the day of the week for a given year, month and date, as follows:

First find the year in the table (t.1). Then follow it downward in the same column towards the intersection with the table of the months (t.2). At this point of intersection a letter appears. At the end of the column there will be another intersection with the table of the days (t.3) where the presence of the same letter shows the corresponding day of the week.

NOTE: A leap year has 366 day in the A.H. (Solar) calendar, and in the relevant table it is shown by an asterisk.

Prepared by Hussein Mehrjerdi

TABLE - III : THE 169-YEAR A.D. CALENDAR

(1843-2011 A.D.)

1- The years

O.*	L.**	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.	O.	L.
1843			1844			1845		1846		1847			1848			1849		1850		1851			1852			1853	
1854		1855			1856			1857		1858		1859			1860			1861		1862		1863			1864		
1865		1866		1867			1868			1869		1870		1871			1872			1873		1874		1875			1876
		1877		1878		1879			1880			1881		1882		1883			1884			1885		1886		1887	
	1888			1889		1890		1891			1892			1893		1894		1895			1896			1897		1898	
1899		1900		1901		1902		1903			1904			1905		1906		1907			1908			1909		1910	
1911			1912			1913		1914		1915			1916			1917		1918		1919			1920			1921	
1922		1923			1924			1925		1925		1927			1918			1929		1930		1931			1932		
1933		1934		1935			1936			1937		1938		1939			1940			1941		1942		1943			1944
		1945		1946		1947			1948			1949		1950		1951			1952			1953		1954		1955	
	1956			1957		1958		1959			1960			1961		1962		1963			1964			1965		1966	
1967			1968			1969		1970		1971			1972			1973		1974		1975			1976			1977	
1978		1979			1980			1981		1982		1983			1914			1985		1986		1987			1988		
1989		1990		1991			1992			1993		1994		1995			1996			1997		1998		1999			2000
		2001		2002		2003			2004			2005		2006		2007			2008			2009		2010		2011	

2-The months

January	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M
February	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S
March	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E
April	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M
May	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U
June	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I
July	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M
August	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S
September	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N
October	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H
November	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E
December	N	M	M	H	H	U	U	S	S	E	E	I	I	N	N	M	M	H	H	U	U	S	S	E	E	I	I	N

*O. = Ordinary years **L. = Leap years

3- The days of the week

H					
SUN.	1	8	15	22	29
MON.	2	9	16	23	30
TUE.	3	10	17	24	31
WED.	4	11	18	25	
THU.	5	12	19	26	
FRI.	6	13	20	27	
SAT.	7	14	21	28	

U					
SUN.		7	14	21	28
MON.	1	8	15	22	29
TUE.	2	9	16	23	30
WED.	3	10	17	24	31
THU.	4	11	18	25	
FRI.	5	12	19	26	
SAT.	6	13	20	27	

S					
SUN.		6	13	20	27
MON.		7	14	21	28
TUE.	1	8	15	22	29
WED.	2	9	16	23	30
THU.	3	10	17	24	31
FRI.	4	11	18	25	
SAT.	5	12	19	26	

E					
SUN.		5	12	19	26
MON.		6	13	20	27
TUE.		7	14	21	28
WED.	1	8	15	22	29
THU.	2	9	16	23	30
FRI.	3	10	17	24	31
SAT.	4	11	18	25	

I					
SUN.		4	11	18	25
MON.		5	12	19	26
TUE.		6	13	20	27
WED.		7	14	21	28
THU.	1	8	15	22	29
FRI.	2	9	16	23	30
SAT.	3	10	17	24	31

N					
SUN.	31	3	10	17	24
MON.		4	11	18	25
TUE.		5	12	19	26
WED.		6	13	20	27
THU.		7	14	21	28
FRI.	1	8	15	22	29
SAT.	2	9	16	23	30

M					
SUN.	30	2	9	16	23
MON.	31	3	10	17	24
TUE.		4	11	18	25
WED.		5	12	19	26
THU.		6	13	20	27
FRI.		7	14	21	28
SAT.	1	8	15	22	29

This calendar has three Tables: (1) years, (2) months, and (3) days, respectively. It covers the period from 1843 to 2011 A.D., consisting of Ordinary and the Leap years.

HOW TO USE:

This calendar makes it possible to ascertain the day of the week for a given year, month and date, as follows:

First find the year in the table (t.1). Then follow it downward in the same column towards the intersection with the table of the months (t.2). At this point of intersection a letter appears. At the end of the column there will be another intersection with the table of the days (t.3) where the presence of the same letter shows the corresponding day of the week.

NOTE: A leap year is 366 days long and occurs every four years in A.D. Calendar.

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Example (1): What day of the week is 20 Azar 1379 A.H. (Solar) ?

From the 333-year A.H. (Solar) Table's vertical columns the year 1379 A.H. (Solar) can be pinpointed. Proceeding downwards of this column, we find it intersecting the relevant month in the next section of this Table. There we will find the month of Azar, 1379 on the horizontal line, which also shows the letter "E".

Then we come to the last Table (t.3), showing the letters and the numbers for days in its vertical columns. It is notable that the year 1379 is a leap-year distinguished by an asterisk. Thus, we find that 20 Azar 1379 A.H. (Solar) is a Sunday.

Example (2): What day of the week is 14 April 2001?

We can trace from the 169-year A.D. Calendar Table's vertical columns the year 2001 (A.D.). Going down the column we come across the horizontal line of the next section where the month of April appears and where the relevant letter "H", too, appears. This letter can be found in the third section of this Table, where the fourteenth April (14) indicates a Saturday. We also note from the position of the year in the vertical column of the first section that it is an ordinary year, and not a leap-year.

ANOTHER METHOD OF TRACING THE DAY OF THE WEEK

In the Table-IV months of the A.H. (Solar) and A.D. Calendar years are given in the upper portion. Every month of each year has been given a specific number, which changes from year to year. The fixed numbers are related to the first day of the year in the respective calendars shown separately in the Table mentioned above.

Once the first day of the year is known it will be possible to ascertain the fixed number of each month of the year from the Table. The fixed numbers of the months of the A.H. (Solar) and A.D. Calendar years, if added to the given number of the relevant day of the week and then the resultant sum is divided by seven, the balance or residual figure will correspond to the actual day of the week. It is notable that astronomers have given the following numbers to the days of the week:

Saturday (0), Sunday (1), Monday (2), Tuesday (3), Wednesday (4), Thursday (5), and Friday (6).

Thus, if the above-mentioned residual number is zero, the relevant day will be a Saturday, and so on. Furthermore, for using the Christian Calendar Table it is necessary to specify as to whether or not it is a leap-year. If it is a leap-year the months marked "*" should be used.

TABLE - IV

SHOWING MONTHS OF A.H. (SOLAR) AND A.D. CALENDARS AND FIGURES FOR IDENTIFYING WEEK-DAYS OF ALL YEARS

MONTHS OF THE .. CALENDAR								
	A.D.	January	May	August	February	June	September	April
		October	October*	May*	March	March*	December	July
		April*	-	-	November	November*	June*	september*
		July*	-	-	August*	-	-	December*
	A.H	Farvardin	Shahrivar	Tir	Ordibehesht	Mehr	Mordad	Khordad
		Esfand	Azar	-	Day	-	Bahman	Aban
FIRST DAY OF THE YEAR								
SUNDAY(1)		0	1	2	3	4	5	6
MONDAY(2)		1	2	3	4	5	6	0
TUESDAY(3)		2	3	4	5	6	0	1
WEDNESDAY(4)		3	4	5	6	0	1	2
THURSDAY(5)		4	5	6	0	1	2	3
FRIDAY(6)		5	6	0	1	2	3	4
SATURDAY(0)		6	0	1	2	3	4	5

Based on Table-IX, P. 259, "Taghveem wa Taghvemm Negari dar Tarikh" (Naba'i, A., 1366)

HOW TO USE THE TABLES?

Here are a few more examples:

Example (1): What day of the week is 12 September, 2000 A.D?

First January, 2000 A.D., the first day of the year, fell on a Saturday with its fixed number "O", which leads further to the fixed numbers of the months of that year, as well. Since 2000 A.D. is a leap-year, it is traceable in the column of the Table meant for leap-years in which the Christian months are also shown. From the column pertaining to the month of September with an asterisk (for leap-year) if we proceed downwards to the intersection of the vertical line with the horizontal line at "O"(zero), we will find the number 5, The number 5 represents the fixed number for September, 2000 (A.D.). Now, if we add this 5 to 12 (i.e. the twelfth of September) we get: 5 + 12 = 17, which contains the equivalent of two weeks (14 days), leaving the balance of 3 days. The number 3 is indicated for Tueseday. Thus, we find that 12 September, 2000 was a Tueseday.

Example (2): What day of the week is 17 Esfand 1379?

First day of 1379 A.H. (Solar) was a Monday; with the fixed number 2 which leads further to the fixed numbers for the months of the year in the Table.

The column for the month of Esfand is a vertical one, downwards of which we come to the horizontal line of the year 1379. At this point of intersection a number appears which represents that for the month of Esfand, 1379. Now the number one is added to 17 to give the sum of 18, which contains the equivalent of two weeks (14 days) leaving a balance of 4 days. This number 4 indicates a Wednesday. So, 17 Esfand, 1379 A.H. (Solar) will be a Wednesday.

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