

CALENDAR - 1

(Answers on page 2 & 3)

- 1) How many odd days in the year 1938?
a) 4 b) 1 c) 3 d) 2
- 2) Which is the leap year among the following?
a) 1800 b) 1100 c) 1600 d) All of these
- 3) If July 5, 2017 is a Wednesday, then what day of the week is July 5, 2018?
a) Tuesday b) Friday c) Thursday d) Wednesday
- 4) If October 18, 1986 was a Saturday, then the day of the week on October 18, 1985 was
a) Friday b) Tuesday c) Sunday d) Monday
- 5) February 27th of a certain year falls on a Saturday, then what day of the week is Labour Day in the same year?
a) Saturday b) Wednesday c) Sunday d) Data Inadequate
- 6) On the planet earth, how many odd days in 853 days?
a) 4 b) 6 c) 3 d) None of these
- 7) If a 21-day lock down announced from 12am on 25 March of 2020 which is a Wednesday, then which day of the week the lock down is expected to be lifted away? (Day after 21 days?)
a) Monday b) Sunday c) Tuesday d) Wednesday
- 8) On the planet earth, how many odd days in 900 years?
a) 5 b) 3 c) 1 d) 0
- 9) What day of the week is 1501 January 11?
a) Sunday b) Thursday c) Friday d) None of these
- 10) What day of the week is 1802 March 24?
a) Wednesday b) Monday c) Tuesday d) Friday
- 11) What day of the week 'Indian Independence Day' celebrated in 1978?
a) Friday b) Tuesday c) Saturday d) Saturday
- 12) If there are four Sundays and five Mondays in the month of January, then which day is one day before the second last day of January?
a) Monday b) Thursday c) Saturday d) Data Inadequate
- 13) Which is the same calendar year of the year 1596?
a) 1608 b) 1636 c) 1624 d) 1640
- 14) Which day is New Years' Eve, if there are five Tuesdays and five Wednesdays in the month of December?
a) Friday b) Wednesday c) Thursday d) Data Inadequate

Basic facts of calendars (Answers next page):

1) Odd Days

Number of days more than the complete weeks, are called odd days in a given period.

2) Leap Year

A leap year has 366 days.

In a leap year, the month of February has 29 days.

Every year divisible by 4 is a leap year, if it is not a century.

Examples:

1932, 2004, 1580 etc. are leap years.

1971, 2007 etc. are not leap years

Every 4th century is a leap year and no other century is a leap year.

(It means every century year which is a multiple of 400 is a leap year.)

Examples:

800, 1200, 1600 etc. are leap years.

300, 700, 1800 etc. are not leap years

3) Ordinary Year (Non Leap Year)

The year, which is not a leap year is an ordinary year.

An ordinary year has 365 days

4) Counting odd days and calculating day of any particular date

1 ordinary year \equiv 365 days \equiv (52 weeks + 1 day)

Hence number of odd days in 1 ordinary year = 1.

1 leap year \equiv 366 days \equiv (52 weeks + 2 days)

Hence number of odd days in 1 leap year = 2.

100 years \equiv (76 ordinary years + 24 leap years)

\equiv (76 x 1 + 24 x 2) odd days \equiv 124 odd days \equiv (17 weeks + 5 days) \equiv 5 odd days

Hence number of odd days in 100 years = 5.

Number of odd days in 200 years = (5 x 2) = 10 \equiv 3 odd days

Number of odd days in 300 years = (5 x 3) = 15 \equiv 1 odd days

Number of odd days in 400 years = (5 x 4 + 1) = 21 \equiv 0 odd days

Similarly, the number of odd days in all 4th centuries (400, 800, 1200 etc.) = 0

Mapping of the number of odd days to the day of the week

Number of ODD days	Day of the week
0 (7)	Sunday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday

5) Same calendar year

For the calendars of two different years to be the same, both years must be of the same type. i.e., both years must be ordinary years or both years must be leap years

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Answer Key:

- 1) b (1) (1938 is not a multiple of 4, hence it is a non-leap year with 365 days. To find the odd days, divide the 365 with 7, the remainder would be the 'odd day'. $365 / 7$ remainder 1. So the number of odd days is 1)
(Further explanations watch 'Calendar vidoes' in 'The Walnut Training' YouTube Channel.
Calendar 1: <https://youtu.be/U-mz0sqf3tw> Calendar 2: <https://youtu.be/R5NIDjx4ZH0>)
- 2) c (1600) (Normal rule is NOT applicable in the case of century years. If a century year is a leap year it must be a multiple of 400.)
- 3) c (Thursday) (It is exactly one year from 5 July 2017 to 5 July 2018. February in between is in the year 2018 and February has only 28 days. So, total numbers of days in the given one-year period is 365 and $365 / 7$ remainder 1. Add this 1 with given Wednesday.)
(Further explanations Calendar 2: <https://youtu.be/R5NIDjx4ZH0>)
- 4) a (Friday)
- 5) d (Data Inadequate) (Year is not specified. We have NO IDEA whether February has 28 or 29 days in the given year.)
- 6) b (6) ($853 / 7$ remainder is 6.)
- 7) d (Wednesday) ($21 / 7$ remainder is '0'. Wednesday plus '0' would be a Wednesday.)
- 8) a (5) (Number of odd days in first 100 years is 5
200 years is 3
300 years is 1
400 years is 0

$$\begin{aligned} \text{Number of odd days in 900 years} &= 400 + 400 + 100 \\ &= (0 \text{ odd}) + (0 \text{ odd}) + (5 \text{ odd}) \end{aligned}$$

- 9) c (Friday)

1501 January 11

Number of years completed from AD-1 = 1500 (Year 1501 is not completed)

Number of odd days in 1500 years = $1200 + 300 = 1$ odd day

Number of odd days in 11 days in Jan = $11 / 7 = 4$ odd days

Total $1 + 4 = 5$ odd days

Look at the chart:

Days:	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Odd days:	(0)	(1)	(2)	(3)	(4)	(5)	(6)

- 10) a (Wednesday) : 1802 March 24

Number of years completed from AD 1 = 1801

Number of odd days in 1801 years = $1600 + 200 + 1 = 4$ odd days

Number of odd days in Jan, Feb, March = $3 + 0 + 3 = 6$ odd days

Total $4 + 6 = 10$ odd days = $10 / 7 = 3$ odd days

Look at the chart:

Days:	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Odd days:	(0)	(1)	(2)	(3)	(4)	(5)	(6)

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11) b (Tuesday)

12) a (Monday) (According to the given condition, 1st January is a Monday)

13) c (1624) (1596 is a leap year + 28 years)

14) d (Data Inadequate) (According to the given condition 1st December is either Tuesday or Wednesday. So, the data inadequate to find the exact answer)

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