CALENDER

INTRODUCTION

1. **Odd Days:**
   We are supposed to find the day of the week on a given date.
   For this, we use the concept of 'odd days'.
   In a given period, the number of days more than the complete weeks are called**odd days**.
2. **Leap Year:**
   (i). Every year divisible by 4 is a leap year, if it is not a century.
   (ii). Every 4^{th} century is a leap year and no other century is a leap year.
   Note: **A leap year has 366 days.**
   Examples:
   i. Each of the years 1948, 2004, 1676 etc. is a leap year.
   ii. Each of the years 400, 800, 1200, 1600, 2000 etc. is a leap year.
   iii. None of the years 2001, 2002, 2003, 2005, 1800, 2100 is a leap year.
3. **Ordinary Year:**
   The year which is not a leap year is called an **ordinary years**. An ordinary year has 365 days.
4. **Counting of Odd Days:**
   1. 1 ordinary year = 365 days = (52 weeks + 1 day.)
      ∴ 1 ordinary year has 1 odd day.
   2. 1 leap year = 366 days = (52 weeks + 2 days)
      ∴ 1 leap year has 2 odd days.
   3. 100 years = 76 ordinary years + 24 leap years
      = (76 x 1 + 24 x 2) odd days = 124 odd days.
      = (17 weeks + days) ≡ 5 odd days.
      ∴ Number of odd days in 100 years = 5.
      Number of odd days in 200 years = (5 x 2) ≡ 3 odd days.
      Number of odd days in 300 years = (5 x 3) ≡ 1 odd day.
      Number of odd days in 400 years = (5 x 4 + 1) ≡ 0 odd day.
      Similarly, each one of 800 years, 1200 years, 1600 years, 2000 years etc. has 0 odd days.
5. **Day of the Week Related to Odd Days:**

No. of days:	0	1	2	3	4	5	6
Day:	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.

Important Formula #1
Every year divisible by 4 is a leap year, if it is not a century.
Important Formula #2
The year which is not a leap year is called an ordinary years. An ordinary year has 365 days.
Important Formula #3
Every 4th century is a leap year and no other century is a leap year, hence 400 years would have an extra day.
Important Formula #4
Ordinary Year = 365 days = 52 weeks + 1 day = 1 Odd Day
Important Formula #5
Leap Year = 366 days = 52 weeks + 2 days = 2 Odd Days
Important Formula #6
Number of Odd Days in 100 years = 76 ordinary years + 24 leap years = (76x1 + 24 x 2) odd days = 124 odd days = 17 weeks + 5 days = 5 odd days
Important Formula #7
Number of Odd Days in 200 years = 5 x 2 = 3 days
Important Formula #8
Number of Odd Days in 300 years = 5 x 3 = 1 day
Important Formula #9
Number of Odd Days in 400 years= 5 x 4 + 1 = 0 days
Important Formula #10
Number of Odd Days in 800, 1200, 1600, 2000 years would be 0 days
Important Formula #11
First January 1 AD was Monday. So, say Sunday for 0 odd days, Monday for 1 odd day, Tuesday for 2 odd days and so on
Important Formula #12
1 minute space is the angle between one hand move i.e. 360/60 = 60
Important Formula #13
In one minute, the hour hand moves œ degrees
Important Formula #14
Angle traced by hours hand in 12 hours and angle traced by minutes hand in 60 minutes are both 360 degrees
Important Formula #15
Between H and H+1 hours is the two hands of the clock coincide at 60H/11 minutes past H o'clock
Important Formula #16
The two hands of the clock will be at right angles between H and (H+1) hours is (5H±15)12/11 minutes past H o'clock
Important Formula #17
The two hands of the clock will be in same line but not together between H and (H+1) hours
-(5H+30)12/11 minutes past H o'clock when H < 6
-(5H-30)12/11 minutes past H o'clock when H > 6
Important Formula #18
Angle between two hands:
When minute hand is behind the hour hand, angle at M minutes past H
30 (H – M/5)+M/2 degrees
When minute hand is ahead of the hour hand, angle at M minutes past H
30 (M/5 - H)-M/2 degrees

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EXERCISE

01. If it was Thursday on 1st day of a month then what was the day on 28 of the month -
(a) Monday **(b)** Tuesday **(c)** Sunday **(d)** Wednesday **(e)** None

02. If it was Thursday on 1st February 1920, What was the day on 5 march 1920 -
(a) Wednesday **(b)** Thursday **(c)** Tuesday **(d)** Monday **(e)** None

03. If it was Monday on 3rd day of a month. What was the day on 5 days earlier the 21 -
(a) Sunday **(b)** Monday **(c)** Tuesday **(d)** Wednesday **(e)** None

04. If Thursday falls on the 7th of the month, then which day will fall on 22 of the month -
(a) Tuesday **(b)** Monday **(c)** Saturday **(d)** Wednesday **(e)** None

05. If it was Wednesday on 15 January 1997, What was the day on 15 February 2006 -
(a) Monday **(b)** Tuesday **(c)** Wednesday **(d)** Thursday **(e)** None

06. Rama remember that she mat with her brother on Saturday which was after 20 of the month. If it was Thursday on 1st of the month. When was she meet him -
(a) 23 **(b)** 24 **(c)** 25 **(d)** 26 **(e)** None

07. If it was Sunday on 23 of the month then what was the day on fourth day and 2 week earlier -
(a) Monday **(b)** Tuesday **(c)** Wednesday **(d)** Thursday **(e)** None

08. If Thursday was the day after the day, then what was the day after one day on tomorrow -
(a) Monday **(b)** Tuesday **(c)** Friday **(d)** Saturday **(e)** None

09. If Monday falls on 1st of November, then which day will fall on 25th November -
(a) Tuesday **(b)** Thursday **(c)** Wednesday **(d)** Friday **(e)** None

10. If Thursday was the day after the day, then what was the day after one day on tomorrow -
(a) Friday **(b)** Sunday **(c)** Monday **(d)** Tuesday **(e)** None

11. If Sunday falls on the 2nd of the month, then which day falls on 31st of month -
(a) Tuesday **(b)** Saturday **(c)** Friday **(d)** Monday **(e)** None

12. If it was Friday on 9 April 2000, then what was the day on 17 July 2000. -
(a) Friday **(b)** Wednesday **(c)** Saturday **(d)** Sunday **(e)** None

13. If it was Wednesday after three day of tomorrow then what was the day on three days earlier on yesterday
(a) Friday **(b)** Monday **(c)** Sunday **(d)** Thursday **(e)** None

14. If Friday falls on 1st March 1997, then which day falls on 1st March 2000 -
(a) Monday **(b)** Tuesday **(c)** Wednesday **(d)** Friday **(e)** None

ANSWER SHEET

CALENDAR EXERCISE

1	2	3	4	5	6	7	8	9	10	11	12	13	14
D	C	A	C	C	D	C	D	B	A	D	C	B	B