GENERAL APTITUDE

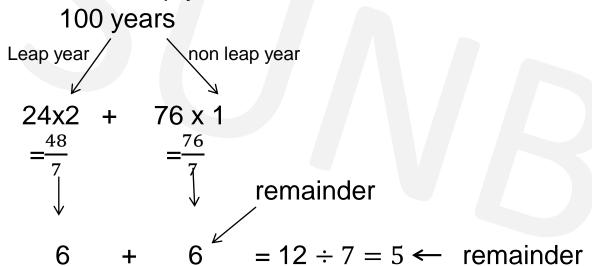Trainer : Sujata Mohite

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Calendar

- In Non Leap year –
  - 365 days
  - 1 year = 52 weeks + 1 odd day(extra day)
  - 28th February

- In Leap year –
  - 366 days
  - 1 year = 52 weeks + 2 odd days
  - 29th February

- A **century leap year** is a **year** that is exactly divisible by 400
  - **years** 1600 and 2000 were **century leap years**; (400,800,1200,1600,2000 – century leap years till date)
  - **years** 1700, 1800, and 1900 were not **century leap years**.

- To find the day of a week on a given date we use the concept of "**odd days**".

- 01/01/0001 A.D(Anno Domini) was a Monday and 1st day of week so 1st January 0001 was a Monday.

Calendar

- In a century,
  - 24 leap year
  - 76 non leap years

    100 years

Leap year   non leap year

$$24 \times 2 \quad + \quad 76 \times 1$$

$$= \frac{48}{7} \qquad = \frac{76}{7}$$

remainder

$$6 \quad + \quad 6 \qquad = 12 \div 7 = 5 \leftarrow \text{remainder}$$

5 extra(odd) days in a century (100 years)

100 years = 5 odd days $\longleftarrow$ remainder

200 years = $10 \div 7 = 3$ odd days

300 years = $15 \div 7 = 1$ odd days

400 years = 0 odd days (as century leap year)

Calendar

Years	No. of odd
Ordinary year	1
Leap year	2
100 years	5
200 years	3
300 years	1
400 years	0

Calendar

Day of week	No. of odd
Sunday	0
Monday	1
Tuesday	2
Wednesday	3
Thursday	4
Friday	5
Saturday	6

Calendar

Month		Remainder
January	31 ÷ 7	3
February	28 ÷7 or 29 ÷ 7	0(non leap) or 1(leap)
March	31 ÷ 7	3
April	30 ÷ 7	2
May	31 ÷ 7	3
June	30 ÷ 7	2
July	31 ÷ 7	3
August	31 ÷ 7	3
September	30 ÷ 7	2
October	31 ÷ 7	3
November	30 ÷ 7	2
December	31 ÷ 7	3

Calendar

Q. What was the day of the week on 15th August, 1947?

Soln:

Completed till 1946

1946

$\frac{1900}{400}$ = 300 $\frac{46}{4}$ = 11(quotient)

1 odd day   46 + 11 = 57 $\frac{57}{7}$ = 1(remainder)

In 1946, odd days are,

1900   46

1   +   1   = 2 odd days

              1946   month   date

Total odd days = 2   +   2   + 1   = 5 odd days

As per table for days of a week , 5 ⟷ Friday

As month is August, go till July as per table,

J   F   M   A   M   J   J

3 + 0 + 3 + 2 + 3 + 2 + 3 = 16

Now, $\frac{16}{7}$ = 2 (remainder)

For date ,

$\frac{15}{7}$ = 1 (remainder)

Calendar

For Months -

J	F	M	A	M	J	J	A	S	O	N	D
0	3	3	6	1	4	6	2	5	0	3	5

For years -

1600 – 1699	6
1700 – 1799	4
1800 – 1899	2
1900 – 1999	0
2000 – 2099	6

Calendar

Q. What was the day of the week on 26th January, 1947?

Soln:

1. Last 2 digits of the year → 47

2. Divide by 4 (47 ÷ 4) = 11(quotient)

3. Take the date → 26

4. Take the no. of month → 0 (from table)

5. Take the no. of year → 0 (from table)

   $\overline{\qquad\qquad}$

   84 (add)

6. Divide by 7 → $\frac{84}{7}$ = 0 (remainder)

Check table for day of the week

0 ←——→ Sunday

Calendar

Q. What was the day of the week on 29th February, 2012?

Soln:

1. Last 2 digits of the year →   12

2. Divide by 4 (12 ÷ 4) =   03(quotient)

3. Take the date →   29

4. Take the no. of month →   03 (from table)

5. Take the no. of year →   06 (from table)

$$\overline{}$$

                  53   (add)

6. Divide by 7 → $\dfrac{53}{7}$ = 4 (remainder)   subtract 1 from remainder

In this case for all dates of **January & February** in a leap year , 4 -1 =3

Check table for day of the week

3   ⟷   Wednesday

Calendar

It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?

A. Sunday   B. Saturday   C. Friday   D. Wednesday

Ans: C

On 31st December, 2005 it was Saturday.

Number of odd days from the year 2006 to the year 2009 = (1 + 1 + 2 + 1) = 5 days.

 On 31st December 2009, it was Thursday.

on 1st Jan, 2010 it is Friday.

Calendar

Q. If we have preserved the calendar of 2017. Find the next immediate year in which we can reuse.

A. 2027   B.2023   C. 2025   D. 2029

Soln:

x/4 (x = given year)

$\frac{2017}{4}$ = 1 (remainder)

For any year divide by 4, the possibility of remainder is 0,1,2,3

If remainder = 0 → x + 28

If remainder = 1 → x + 6

If remainder = 2/3 → x + 11

So, $\frac{2017}{4}$ = 1(remainder)

2017 + 6 = 2023   **Ans: B**

Calendar

Q. Which of the following days can never be the last day of a century?

A. Sunday   B. Monday   C. Tuesday   D. Wednesday

- **Soln**:
- The last day of century can be only
- 1 odd day(Monday)
- 3 odd days (Wednesday)
- 5 odd days (Friday)
- 7 or 0 odd days (Sunday)
- So, century can never end in **Tuesday** , **Thursday** or **Saturday**.
- **Ans: C**

Calendar(Assignment)

- Q. The day on 5th April of a year will be the same day on 5th of which month of the same year?
- A. 5th July   B. 5th August   C. 5th June   D. 5th October

- **Ans A**

- April & July for all years have the same calendar. So, a day on any date of April will be the same day on the corresponding date in July.
- The same day will fall on 5th July of the same year.

Calendar(Assignment)

Q. What was the day of the week on your birthdate?

Q. 13th October 2019 is a Sunday. Find the day on 13th October 1989?

A.   Sunday   B. Monday   C. Friday   D. Wednesday

Ans: C

Q. 1st March 2006 falls on a Wednesday .What day does 1st March 2010 fall on?

A.   Tuesday   B. Monday   C. Friday   D. Wednesday

Ans: B

Q. Today is Monday. Which day will be after 64 days?

A. Tuesday   B. Monday   C. Friday   D. Wednesday

Ans: A

Q. Today is Monday. After 30 days it will be?

A. Tuesday   B. Monday   C. Friday   D. Wednesday

B. Ans: D

Calendar(Assignment)

Q. 15th August 1947 was a Friday. Find the day on 15th August 1977?

- Soln:

1977

- 1947
──────────
　　30 years

Leap years between 1947 to 1977

1948	1964
1952	1968
1956	1972
1960	1976

8 years

30 + 8　　= 38

total years leap

$\frac{38}{7}$ = 3 (remainder)

As 15th August 1947 was a Friday ,

So, Friday + 3 days = **Monday**

Calendar(Assignment)

Q. 4th January 2016 falls on Monday. What day of the week does 4th January 2017 lies?

A. Wednesday   B. Thursday   C. Tuesday   D. Monday

Soln:

Normal year = 1 odd day

Leap year = 2 odd days

      Jan 4, 2016 → Monday

                 +   2   (as leap year)

      Jan 4,2017 → Wednesday

Ans: A

Calendar(Assignment)

Q. Wednesday falls on 5th of a month .So which day will fall 5 days after 22nd of the same month?

A. Tuesday   B. Friday   C. Thursday   D. Wednesday

Ans: B

5th = Wednesday

                    +7

12th = Wednesday

                    +7

19th = Wednesday

22nd = Saturday

                    +5

27th = Thursday

5 days after 22nd will be **Friday**

Calendar(Assignment)

Q. What dates of May 2002 did Monday fall on?

Soln:

Lets take date = 1st May 2002

1. Last 2 digits of the year →   02

2. Divide by 4 (02 ÷ 4) =   00(quotient)

3. Take the date →   01

4. Take the no. of month →   01 (from table)

5. Take the no. of year →   06 (from table)
                              ————————
                              10   (add)

6. Divide by 7 → $\frac{10}{7}$ = 3 (remainder)

Check table for day of the week

3 ⟷ Wednesday

1st May 2002 falls on Wednesday

1	2	3	4	5	6
W	Th	F	Sa	Su	M

                    ↑
          first Monday

Now add 7 to it to find remaining Mondays

Dates on which Monday falls are -
6 , 13 , 20, 27

Calendar(Assignment)

Q. On what dates of April, 2001 did Wednesday fall?

A. 1st, 8th, 15th, 22nd, 29th B. 2nd, 9th, 16th, 23rd, 30th C. 3rd, 10th, 17th, 24th

D. 4th, 11th, 18th, 25th

Ans: D

Calendar(Assignment)

Q. What is the day on 22 April 2222?

A. Monday   B. Tuesday   C. Saturday   D. Sunday

Ans: A

Calendar(Assignment)

Which of the following is not a leap year?

A. 700   B. 800   C. 1200   D. 2000

Ans: A

The century divisible by 400 is a leap year.
The year 700 is not a leap year.

Calendar(Assignment)

Q. Today is Monday. Which day will be on 61st day?

Soln:

1 week = 7 days. Taking the multiple of 7

56 - Monday	or	63 - Monday
57 – Tuesday		62 - Sunday
58 – Wednesday		61 - Saturday
59 – Thursday		
60 – Friday		
61 - Saturday		
56 + 5 = 61 days		63 – 61 = 2 days
(add 5 days)	or	(subtract 2 days)

Calendar(Assignment)

Q. January 1, 2007 was Monday. What day of the week lies on Jan. 1, 2008?

A. Monday

B. Tuesday

C. Wednesday

D. Sunday

Ans: B

THANK YOU!