

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.5388**

TO BE ANSWERED ON WEDNESDAY, MARCH 28, 2018

ATOMIC CLOCK

5388. SHRIMATI K. MARAGATHAM:

Will the PRIME MINISTER be pleased to state:

- (a) whether Indian Space Research Organisation (ISRO) will soon launch a replacement navigation satellite fitted with corrected atomic clocks to make up for the crippled satellite IRNSS-1A and if so, the details thereof;**
- (b) whether the move became imperative after all three rubidium atomic clocks on IRNSS-1A failed in mid 2016 and if so, the details thereof;**
- (c) whether the clocks for ISRO's NavIC and the European Space Agency's first 18 Galileo satellites came from the same Swiss company and had developed similar problems around the same time; and**
- (d) if so, the details thereof?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

- (a) Yes Madam. A navigation satellite, IRNSS-1I is scheduled for launch using PSLV launch vehicle in April 2018.**

- (b) Atomic clock of IRNSS-1A has become non-functional, but the satellite is being used for providing messaging services like disaster alerts, potential fishing zones information dissemination to fishermen, etc. IRNSS-1I will be added to NavIC constellation for providing intended navigation services.**
- (c) Yes Madam.**
- (d) The atomic clocks used in NavIC and Galileo satellites are manufactured by M/s SpectraTime, Switzerland. Some of these clocks have failed in NavIC and Galileo. The reason for the failures has been analyzed and understood and the corrective actions have accordingly been taken on remaining clocks for upcoming satellites including IRNSS-1I.**
