Jagadish Chandra Bose – radio waves, plant life and the Bose Institute

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Why in news: Jagadish Chandra Bose died on 23 November 1937 at Giridih; his birth anniversary falls a week later, on 30 November – the day in 1917 on which he founded the Bose Institute in Calcutta. Few Indian scientists bridged physics and biology as he did.

Key points

- Life: born on 30 November 1858 at Mymensingh in Bengal (now in Bangladesh); died on 23 November 1937 at Giridih (now in Jharkhand).
- Radio and microwaves: in his research of 1894–1900 he produced millimetre waves as short as 5 mm and used galena to make an early semiconductor detector. IEEE commemorates this work as a Milestone; its plaque is at Presidency University, Kolkata.
- Patent: his 'detector for electrical disturbances' received US Patent No. 755,840 in 1904 – the Bose Institute notes him as the first Asian to receive a US patent.
- Plants: he designed the crescograph to record very small movements and growth in plants and showed that plants respond to stimuli; his books include 'Response in the Living and Non-Living' (1902) and 'The Nervous Mechanism of Plants' (1926).
- Institution building: he founded the Bose Institute in Calcutta on 30 November 1917 and directed it until his death; he was elected a Fellow of the Royal Society in 1920.

In the exam: TNPSC – Indian scientists and their contributions (crescograph, Bose Institute 1917, plant response to stimuli); UPSC Prelims – history of science: millimetre-wave research, the galena detector and the 1904 US patent.

Questions

1. The crescograph, designed by Jagadish Chandra Bose, was used to:

A. Measure the intensity of earthquakes
B. Record very small growth and movements in plants
C. Detect cosmic rays
D. Measure the humidity of the air

2. In which year did Jagadish Chandra Bose found the Bose Institute in Calcutta?

A. 1905
B. 1911
C. 1917
D. 1930

Answers with explanations

1. **B) Record very small growth and movements in plants** – The crescograph magnified and recorded minute growth and movements of plants; with it Bose showed that plants respond to stimuli. Earthquakes are recorded by a seismograph and humidity by a hygrometer.

2. **C) 1917** – He founded the Bose Institute on 30 November 1917, his 59th birthday, and directed it until his death in 1937. In 1904 he had received US Patent No. 755,840 for his galena detector.

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