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## ⇒ BRIEF HISTORY OF SCIENCE WITH SPECIAL REFERENCE TO CONTRIBUTION OF MUSLIMS IN THE EVOLUTION AND DEVELOPMENT OF SCIENCE:

**BACKGROUND:** Muslim scholars made foundational contributions to the history of science, particularly during the Islamic Golden Age (8<sup>th</sup> - 14<sup>th</sup> centuries), developing mathematics (algebra, decimal system, zero), optics (Ibn al-Haytham), medicine (Ibn Sina's Canon), astronomy, chemistry (Jabir Ibn Hayyan), and engineering (Al-Jazari), preserving and advancing ancient knowledge from Greek and Hindu sources. These advancements were fostered by Islamic emphasis on seeking knowledge and establishing institutions like universities, laying groundwork for later scientific development.

### FOUNDATIONAL CONTRIBUTION

#### 1. MATHEMATICS:



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## • Al-Khwarizmi:

Developed the field of algebra and introduced the decimal system to the western world through his work with Indian numerals. The term "algorithm" is derived from his name.

- Muslim mathematicians also developed the concept of zero, or "sifr" (from which "cipher" is derived), revolutionizing mathematics.

## • Ibn al-Haytham:

He made early contributions to calculus by deriving formulas for the sum of the fourth power, a precursor to integral calculus.

## 2. MEDICINE:

### Ibn Sina:

He wrote canon of medicine, an encyclopedic text that served as a standard medical textbook in European schools for centuries, incorporating systematic organization and philosophical plans.



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Muslims also established the world's oldest scientific hospitals and apothecary shops, developing comprehensive medical knowledge.

### 3 OPTICS:

Ibn-al-Haytham:

He did significant work on optics challenged prevailing theories and laid the groundwork for modern optics.

### 4 CHEMISTRY:

Jabir Ibn Hayyan:

He contributed to chemistry by identifying new chemicals and developing innovative chemical processes.

### 5 ASTRONOMY:

Scientists like Abu Wafa Muhammad al-Buzanji and Abu Abdullah al-Battani made crucial advancements in trigonometry, geometry, and observational astronomy.



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## 6 ENGINEERING AND MECHANICAL DEVICES:

### • Al-Jazari:

✓ He invented numerous mechanical devices, contributing significantly to the development of mechanics and automation.

## 7 PRESERVATION AND TRANSMISSION OF KNOWLEDGE:

✓ During the Islamic Golden Age, centers of science such as Baghdad and Cordoba flourished, fostering a rich environment for scientific inquiry.

Muslim scholars not only preserved ancient knowledge from Greek and Hindu sources but also significantly expanded upon it, transmitting a wealth of information and a scientific foundation to Europe.

## 8 EMPHASIS ON KNOWLEDGE SEEKING:

✓ The teachings of the Quran and Hadith encouraged the pursuit of knowledge, inspiring Muslim scientists to understand the



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universe. This emphasis fostered a balance between religious and general sciences, leading to the development of comprehensive educational institutions like Madrasas and universities.

### CONCLUSION:

Muslim Scientists played a vital role in preserving and expanding ancient knowledge. They served as a bridge between antiquity and modernity, proving that the pursuit of knowledge is a universal heritage of mankind.

there is no need of intro in 5 marks note or 10 marks note  
over all it is fine but add chart in it  
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