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Q31

**In the context of the developments in Bioinformatics, the term 'transcriptome', sometimes seen in the news, refers to (a) A range of enzymes used in genome editing (b) The full range of mRNA molecules expressed by an organism (c) The description of the mechanism of gene expression (d) A mechanism of genetic mutations taking place in cells Official key: B.**

UPSC Civil Services Prelims 2016 · General Studies · 2 marks · Science and Technology  
Science, technology, space, defence, IT - Prelims GS Paper I.

**Explanation****(a)**

A range of **genome**-editing enzymes. That points to **CRISPR** nucleases or restriction enzymes, not the transcriptome. This letter is not the key.

**(b) Official key**

The full range of mRNA molecules expressed by an organism. Transcriptome means the set of RNA transcripts, especially messenger RNAs, present in a cell, tissue or organism at a time. That stored letter is the official key.

**(c)**

A description of the mechanism of gene expression. That is gene-regulation biology, not the transcriptome dataset itself. This letter is not the key.

**(d)**

A mechanism of genetic mutations in cells. Mutation mechanisms are not called the transcriptome. This letter is not the key.

**Summary**

Official key is (b) the full range of mRNA molecules expressed by an organism. Transcriptomics profiles that RNA set. Editing enzymes, expression mechanisms and mutation pathways are different bioinformatics/biology objects. Honour the stored letter (b).

**Related possible facts**

These can be asked in a future Prelims paper.

**Genome**

Complete DNA content

**Proteome**

Complete set of proteins

**RNA-seq**

High-throughput method to measure the transcriptome

**cDNA**

Complementary DNA reverse-transcribed from mRNA

**CRISPR**

Genome-editing tool-not the transcriptome

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