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Q66

**In the context of hereditary diseases, consider the following statements: 1. Passing on mitochondrial diseases from parent to child can be prevented by mitochondrial replacement therapy either before or after in vitro fertilization of egg. 2. A child inherits mitochondrial diseases (a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2 Official key: C.**

UPSC Civil Services Prelims 2021 · General Studies · 2 marks · Current Affairs and GK  
Current events, government schemes, miscellaneous GK - Prelims GS Paper I.

**Explanation**

**(a)**

1 only. Maternal inheritance of mitochondria is also true.

**(b)**

2 only. Mitochondrial replacement can be done around IVF.

**(c) Official key**

Both. **MRT** can be used with IVF; a child inherits mitochondrial DNA from the mother.

**(d)**

Neither. Both hold.

**Summary**

Official key is (c) both. Mitochondrial disease is transmitted through the egg. Replacement therapy (three-person IVF and related methods) can be applied in the IVF window to break that line.

**Related possible facts**

These can be asked in a future Prelims paper.

**mtDNA**

Maternal; little paternal contribution.

**MRT**

Pronuclear or spindle transfer; UK 'three-parent' babies.