Medium | Deputy Executive Engineer (Electric | 2026 | orts Authority of Gujarat / Assistant Engineer (El

A two-port network has defined Z-parameters. Then 1. Defined under open-circuit conditions. 2. Z11 represents input impedance. 3. Z12 represents transfer

A	All of the above	Correct
B	1 and 4 only	
C	2 and 3 only	
D	1, 2 and 3 only	

Correct Answer: A

Full Detailed Explanation

Correct Answer: A - All of the above Quick Concept Explanation For a linear two-port, terminal voltages are expressed in terms of terminal currents. Open-circuiting a port forces its current to zero and isolates the required coefficient. Key relation: V1 = Z11 I1 + Z12 I2; V2 = Z21 I1 + Z22 I2. Z11=(V1/I1)|I2=0, Z12=(V1/I2)|I1=0.Exam focus: Memorize the condition Z open circuit (I=0) and Y short circuit (V=0) . Common trap: Do not label Z12=Z21 as symmetry; that equality is the reciprocity condition. Statement-wise Verification Statement 1 - Correct.Defined under open-circuit conditions.Z-parameters are determined using open-circuit conditions because the defining current at the other port is set to zero. Statement 2 - Correct.Z11 represents input impedance.Z11 = V1/I1 with I2=0, so it is the driving-point/input impedance at port 1 under output open circuit. Statement 3 - Correct.Z12 represents transfer impedance.Z12 = V1/I2 with I1=0 is a transfer impedance (reverse transfer impedance in the usual port convention). Statement 4 - Correct.Can be used in network interconnections.Two-port parameter sets are used to analyze interconnected networks; Z-parameters are especially convenient for series-type interconnections and general two-port modeling. Core Concept For a linear two-port, terminal voltages are expressed in terms of terminal currents. Each Z