

Easy

Deputy Executive Engineer (Electrician) 2026

Sports Authority of Gujarat / Assistant Engineer (Electrical)

Consider the following statements regarding Electric Field Intensity: 1. Electric field intensity at a point is defined as force experienced by a unit positive

A

2 and 3 only

B

1 and 3 only

C

1, 2 and 4 only

Correct

D

All of the above

Correct Answer: C

Full Detailed Explanation

Correct Answer: C - 1, 2 and 4 only
Quick Concept Explanation Electric-field intensity is force per unit positive test charge. Electric fields obey superposition because electrostatics is linear with respect to source charge in a fixed medium. Key relation: $E = F/q$; $E = Q/(4\pi\epsilon_0 r^2)$. Exam focus: Distance enters as r^2 and medium enters through ϵ_0 . Common trap: Do not omit permittivity when comparing different media. Statement-wise Verification Statement 1 - Correct. Electric field intensity at a point is defined as force experienced by a unit positive test charge placed at that point. Electric-field intensity is force per unit positive test charge. Statement 2 - Correct. Electric field due to a point charge decreases inversely with square of distance from the charge. Electric-field intensity is force per unit positive test charge. Statement 3 - Incorrect. Electric field is independent of the medium surrounding the charge. The electric field from a given free charge depends on permittivity of the surrounding medium Statement 4 - Correct. Superposition principle applies to electric fields generated by multiple charges. Electric fields obey superposition because electrostatics is linear with respect to source charge in a fixed medium. Core Concept Electric-field intensity is force per unit positive test charge. For a point charge in a uniform medium its magnitude follows an