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

Consider the following statements regarding Analog Circuits Transistor: 1. A BJT operates in active region when base-emitter junction is forward biased and

A 1 and 3 only

B 1 and 4 only

C **1, 2 and 3 only** Correct

D 2 and 3 only

Correct Answer: C

Full Detailed Explanation

Correct Answer: C - 1, 2 and 3 only Quick Concept Explanation A BJT used as a linear amplifier is biased in the active region: the base-emitter junction is forward biased and the collector-base junction reverse biased. In saturation both junctions are forward biased and the transistor behaves approximately as a closed switch, not an open switch.Exam focus: Active region for amplification; cutoff/saturation for switching. Common trap: Saturation corresponds to ON/closed-switch behavior. Statement-wise Verification Statement 1 - Correct.A BJT operates in active region when base-emitter junction is forward biased and collector-base junction is reverse-biased.A BJT used as a linear amplifier is biased in the active region: the base-emitter junction is forward biased and the collector-base junction reverse biased. Statement 2 - Correct.Current gain of transistor is defined as ratio of collector current to base current.Common-emitter current gain is IC/IB. Statement 3 - Correct.Transistor can be used as amplifier in active region.A BJT used as a linear amplifier is biased in the active region: the base-emitter junction is forward biased and the collector-base junction reverse biased. Statement 4 - Incorrect.In saturation region, transistor acts as open switch.A saturated BJT is approximately an ON/closed switch; cutoff corresponds to open-switch behavior.Core Concept A BJT