The three dimensional formulae are not covariant under Lorentz transformation

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Reg. No. : .....

[98 23 46]

(For the candidates admitted during 1998 only)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2000.

Second Semester

Branch III — Physics

Paper VI — ELECTROMAGNETIC THEORY AND ELECTRODYNAMICS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. The relation connecting $\vec{P}$, $\vec{D}$ and $\vec{E}$ is

(a) $\vec{P} = \vec{E} + \vec{D}$ (b) $\vec{P} = \varepsilon_0 \vec{E} + \vec{D}$

(c) $\vec{D} = \varepsilon_0 \vec{E} + \vec{P}$ (d) $\vec{E} = \vec{D} + \vec{P}$.

2. The Claussius–Mosotti formula is $\alpha =$

(a) $\frac{3}{N}\left(\frac{K+1}{K-2}\right)$ (b) $\frac{3\varepsilon_0}{N}\left(\frac{K+2}{K-1}\right)$

(c) $\frac{3\varepsilon_0}{N}\left(\frac{K-1}{K+2}\right)$ (d) $\frac{N}{3\varepsilon_0}\left(\frac{K-1}{K+2}\right)$