

B.Sc 6th Semester Sessional Test, 2016 (Electronics Major)

Paper: ECM602 (Electromagnetics)

Time: 45 minutes

T.M: 15

1. Choose the correct answer:

1x3=3

(a) Velocity of uniform plane wave in free space is
(i) 3×10^8 m/sec (ii) 3×10^8 cm/sec (iii) 3×10^6 m/sec (iv) None of these

(b) Poynting vector is given by

(i) $E \times H$ (ii) $E \cdot H$ (iii) $H \times E$ (iv) $E \times (E \times H)$

(c) Depth of penetration in free space is

(i) α (ii) $1/\alpha$ (iii) 0 (iv) $1/\beta$

2. Write very short answer of the following:

2x3=6

(a) Define parallel and perpendicular polarizations.

(b) Write four Maxwell's equations in differential form.

(c) If $\vec{A} = 3y^2z^2\hat{i} + 3xz^2\hat{j} + 3x^2y^2\hat{k}$, find $\nabla \cdot \vec{A}$.

3. Answer the following:

3x2=6

(a) Derive the wave equations in free space and conducting medium.

(b) Write down the statements of Maxwell's equations.

OR

Write down the boundary conditions of electric and magnetic fields at any surface of discontinuity.