

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**Subject& Code** : Electromagnetic Fields & Transmission Lines (22EC416PC)

**Course** : B. Tech. **Academic Year** : 2023-24

**Year & Semester** : II Year & II Sem **Date** :

**Exam** : Mid-1 **Regulation** : R22

**Branch** : ECE **Max Marks** : 30

**Duration** : 2 hours,

Q. No	Question	Marks	Bloom's Taxonomy	CO
1	State and explain coulombs law using vector form of coulombs force expression. A charge of $-0.3\mu\text{C}$ is located at A(25,-30,15) and a second charge of $0.5\mu\text{C}$ located at B(-10,8,12). Find the electric Force ( $\vec{F}$ ) at point P(15,20,50)	5	Evaluate	1
2	State and explain gauss law in point form and integral form. Using gauss law derive an expression for electric field intensity due to infinite sheet charge of charge density $\rho_s \text{ C/m}^2$ and it is placed at $z=0 \text{ m}$	5	Analyze	1
3	Define geometry and capacitance of a capacitor and obtain an expression for capacitance of coaxial capacitor	5	Evaluate	1
4	Define and explain amperes law in point form and integral form. Find the magnetic field intensity at a point 'P' due to infinite sheet current placed at $z=0 \text{ m}$ .	5	Understand	2
5	Derive an expression for magnetic vector potential.	5	Understand	2
6	Explain inconsistency of amperes law in detail.	5	Understand	3