UNIT IV TIME VARYING ELECTRIC AND MAGNETIC FIELDS

1. **Derive Maxwell's equations, derived from Ampere's law in integral and point form.**
2. **Explain briefly about the motional emf and derive an expression for it.**
3. **Prove that** $\nabla XE = \frac{-\delta B}{\delta t}$.
4. **Discuss about Poynting vector and Power flow.**
5. **Describe the Maxwell's equations in integral form and differential form.**
6. **Obtain the expression for instantaneous power flow/unit area.**
7. **Derive the expression for total power flow in a coaxial cable.**
8. **State Faraday's law of electromagnetic induction.**
9. **State and prove Poynting theorem.**
10. **From the fundamental law, derive the generalized Maxwell's equations in integral form.**
11. **Define Poynting vector and prove that the electromagnetic power flow is the product of electric and magnetic field intensities.**
12. **Explain Faraday's law and Ampere's law. Using the above laws derive Maxwell's equations in differential and integral form.**
13. **What is Poynting vector? Derive Poynting theorem from Maxwell's Curl equations for the general case.**
14. **Prove that Modified ampere's law consistent with time varying field.**
15. **Show that Energy produced per unit volume per second is equal to sum of energy stored per unit volume per Sec and the energy crossed per unit volume per second.**