NMAC Unit-IV Model Questions

1) Find a unit normal vector to the surface at a given point.
2) Find the directional derivative of $f(x,y,z)$ at the point in the direction of a vector.
3) Find the angle between two surfaces $f(x,y,z)=c$ & $g(x,y,z)=d$.
4) Find the divergence and curl of a vector point function at a point P.
5) Find the work done in moving a particle in the force field $\bar{F}$ along (a) the straight line from A to B (b) the curve defined by $f(x,y,z)=0, g(x,y,z)=0$ from $x=a$ to $x=b$.
6) Evaluate the line integral $\int_C \bar{F}\cdot d\bar{R}$ for the given $\bar{F}$ and C.
7) Verify Green's theorem for $\oint_C \bar{F}\cdot d\bar{R}$ for a given C.
8) where $\bar{F}\cdot d\bar{R} = \phi(x,y)\,dx + \psi(x,y)\,dy$.
8) Apply Green's theorem evaluate $\oint_C (\phi\,dx + \psi\,dy)$ for the given C.
9) Verify Gauss-divergence theorem for a given $\bar{F}$ over the given closed surface
10) Apply Gauss-Divergence theorem evaluate $\int_S \bar{F}\cdot d\bar{S}$ for the given closed surface.
11) Verify Stokes's theorem for the vector field $\bar{F}$ over the open surface bounded by a closed curve C.
12) Apply Stokes's theorem evaluate $\oint_C \bar{F}\cdot d\bar{R}$ for the given curve C.