(15) $F(x,y,z) = \langle z\cos y,\ xz\sin y,\ x\cos y \rangle$

$\text{curl } F = \langle (-\cancel{x}\sin y - x\sin y), (\cancel{\cos}y - \cos y), (z\sin y + z\sin y) \rangle$

$= \langle -2x\sin y, 0, 2z\sin y \rangle \neq \langle 0,0,0 \rangle$ $\boxed{\text{Not conservative}}$

(17) $F(x,y,z) = \langle e^{yz}, xze^{yz}, xye^{yz} \rangle$ $\text{curl } F = \left\langle \left(\frac{\partial R}{\partial y} - \frac{\partial G}{\partial z}\right), \left(\frac{\partial P}{\partial z} - \frac{\partial R}{\partial x}\right), \left(\frac{\partial G}{\partial x} - \frac{\partial P}{\partial y}\right)\right\rangle$

$\text{curl } F = \langle ((xe^{yz} + xyze^{yz}) - (xe^{yz} + xyze^{yz})), (ye^{yz} - ye^{yz}), (ze^{yz} - ze^{yz}) \rangle$

$= \langle 0,0,0 \rangle = 0$ $\therefore$ Conservative

$f_x = e^{yz}$ $f_y = xze^{yz}$ $f_z = xye^{yz}$

$f(x,y,z) = xe^{yz} + g(y,z)$ $\frac{\partial f}{\partial y} = xze^{yz}$ $f(x,y,z) = xe^{yz} + g(x,y)$

$g'(x,y) = 0$

$F = \int xze^{yz}\,dy$

$g'(y,z) = 0$

$v = yz$ $dv = z\,dy$

$\frac{1}{z}dv = dy$

$f(x,y,z) = xe^{yz} + g(x,z)$

$g'(x,z) = 0$

$g(y,z) = g(x,z) = g(x,y) = C$

$\boxed{\text{Conservative vector field. } f(x,y,z) = xe^{yz} + C}$