5. For the function $f(x,y,z)=xe^y+y^2cos(z)$, calculate the Hessian matrix.

$$egin{aligned} egin{aligned} O \ H = egin{bmatrix} 0 & e^y & 0 \ e^y & xe^y + 2cos(z) & 2ysin(z) \ 0 & 2ysin(z) & y^2cos(z) \end{bmatrix} \end{aligned}$$

$$egin{aligned} O \ H = egin{bmatrix} 0 & e^y & 0 \ e^y & xe^y + 2sin(z) & -2ycos(z) \ 0 & -2ycos(z) & -y^2sin(z) \end{bmatrix} \end{aligned}$$

$$\begin{array}{c} \bigcirc \\ H = \begin{bmatrix} 0 & e^y & 0 \\ e^y & xe^y + 2cos(z) & 2ysin(z) \\ 0 & 2ysin(z) & y^2cos(z) \end{bmatrix} \\ \bigcirc \\ H = \begin{bmatrix} 0 & e^y & 0 \\ e^y & xe^y + 2sin(z) & -2ycos(z) \\ 0 & -2ycos(z) & -y^2sin(z) \end{bmatrix} \\ \bigcirc \\ H = \begin{bmatrix} 0 & e^y & 0 \\ e^y & xe^y + 2cos(z) & -2ysin(z) \\ 0 & -2ysin(z) & -y^2cos(z) \end{bmatrix} \\ \bigcirc \\ \bigcirc \\ \begin{bmatrix} 0 & e^y & 0 \end{bmatrix} \\ \bigcirc \\ \end{array}$$

$$egin{aligned} egin{aligned} egin{aligned} egin{aligned} egin{aligned} & e^y & 0 \ e^y & xe^y + 2sin(z) & 2ycos(z) \ 0 & 2ycos(z) & y^2sin(z) \end{aligned} \end{aligned}$$

✓ Correct

Well done!