Q.1 Find the surface area of the part of the cone \( z = \sqrt{x^2 + y^2} \) that lies inside the cylinder \( x^2 + y^2 = 2x \).
Answer: \( \sqrt{2}\pi \).

Q.2 Find the surface area of the portion of the paraboloid \( z = 4 - x^2 - y^2 \) that lies inside the cylinder \( x^2 + y^2 = 1 \).
Answer: \( \frac{\pi}{6}(5\frac{3}{2} - 1) \).

Q.3 Find the surface area of the portion of the paraboloid \( z = 6 - x^2 - y^2 \) that lies inside the cone \( z = \sqrt{x^2 + y^2} \).
Answer: \( \frac{\pi}{6}(17\frac{1}{2} - 1) \).

Q.4 Find the volume of the region \( Q \) under the plane \( z = x + y \) and over the region of in the \( xy \)-plane bounded by the parabola \( y = x^2 \) and the line \( y = 2x \).
Answer: \( \frac{84}{15} \).

Q.5 Find the volume of the region \( Q \) bounded by the paraboloid \( z = x^2 + y^2 \) and the planes \( z = 1 \) and \( z = 2 \).
Answer: \( \frac{3\pi}{2} - \frac{8}{15} \).

Q.6 Find the volume of the solid bounded by the cylinder \( y = x^2 \) and the planes \( y + z = 4 \) and \( z = 0 \).
Answer: \( \frac{256}{15} \).

Q.7 Find the volume of the region \( Q \) bounded by the graphs of the equations \( z = 3x^2 \), \( z = 4 - x^2 \), \( y = 0 \) and \( y + z = 6 \).
Answer: \( \frac{304}{15} \).