(b) Manning's Formula

The Manning's formula is :

$$V = \frac{1}{n} r^{2/3} S^{1/2}$$

For circular conduits:

$$V = \frac{3.968 \times 10^{-3} \times d^{2/3} \times S^{1/2}}{n} \quad \text{and}$$

$$Q = 8.661 \times 10^{-7} \times (1/n) \times d^{8/3} \times S^{1/2}$$

Where,

Q	=	discharge in cubic metre per hour
S	=	slope of hydraulic gradient
d	=	diameter of pipe in mm,
r	=	hydraulic radius in meteres,
V	=	velocity in mps, and
n	=	Manning's coefficient of roughness