20171137
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Q1) Area of reservoir = $1km^2$ = $(10^6 m^2)$ = 100 hec.

Surface inflow = 10 hec.m

Outflow = 20 he.m

Evapor = 12cm, precipitation = 3cm.

Calibrated pan factor = 0.7.

Evaporation (12 cm)

$= (12 \times 10^{-2} \times 10^6 m^3) = (12 \text{ hec.m})$

precipitation = 3 hec.m.

(Total inflow) − (total outflow) = ΔS

$(10 + 3) - (20 + (12 \times 0.7) + \text{seepage loss}) = \Delta S$

$\Delta S = -9cm \times 1km^2$

$= -10^2 \times 100 \text{ hec.m} \times 20$

$= -90 \text{ hec.m}$

$10 + 3 - 90 - 8.4 + 90 = \text{loss}$

$33 - 28.4 \text{ he.m} = \text{loss}$

$\text{loss} = 4.6 \text{ he.m}$ //

Q2) Basin Area = $2000 mi^2$ = $(2000 \times 63360)^2 inch^2$

$= 1.0036224 \times 10^{13} inch^2$.

Precipit = 25 inch/year.

streamflow = 650 cfs = $\dfrac{650 \times 1728 \times 24 \times 3600 \times 365}{1.0036 \times 10^{13}}$ inch/year

= 35293 inch/year.

ϵ = Precip − streamflow

= 21.4707 inch/year.

P3) Area = 1750 km^2

$= 1750 \times 10^6 m^3$

Precipitation = 1250 mm

$= (1250 \times 10^{-3} \times 1750 \times 10^6) m^3$

$= 2.1875 \times 10^9 m^3$

Total runoff = precipitation in the yr

$= 2.1875 \times 10^9 m^3$ //