

HYDROLOGY

ET 1001

Assignment NO: 08b

Assignment name: answer the question that given.

Date: 04/09/2020

index number: 2019T00503

For a small catchment of 150 km² area, following are the observations of flow from a six-hour duration storm. The values of the base flow are given.

Derive and plot a six-hour unit hydrograph. Calculate the rainfall excess due to the storm

Depth of rainfall(rainfall excess) = total volume of direct runoff / area of the catchment.

$$= 0.36 \text{ t (Ex) / A}$$

$$= 0.36 \times (180+300+220+140+85+50+22) \text{ ms}^{-1} / 150 \text{ km}^2$$

$$= 14.36$$

UHG ordinates = ordinates of direct runoff / rainfall excess

$$= \text{DRG} / 14.36$$

Date	Hour	Time	Flow m ³ /s	Base flow m ³ /s	DRH m ³ /s	UGH m ³ /s/cm
15 th july	0000	0	15	15	0	0
	0600	6	190	10	180	12.53
	1200	12	305	5	300	20.89
	1800	18	227	7	220	15.32
16 th july	0000	24	148	8	140	9.75
	0600	30	94	9	85	5.92
	1200	36	61	11	50	3.48
	1800	42	35	13	22	1.53
17 th july	0000	48	15	15	0	0