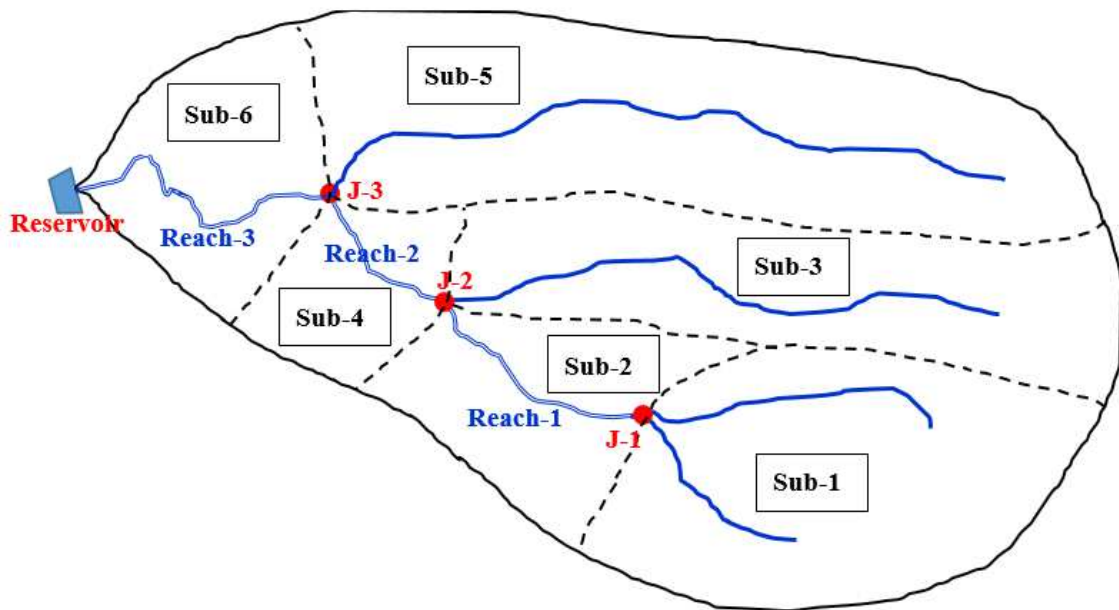


## Applied Hydrology Homework-4

A watershed and its subbasins are shown in the following figure.

Design storm and properties of subbasins are also shown in the following tables. Use HEC-HMS to calculate the hydrographs of the reservoir inflow and river flows at J-1, J-2, and J-3.



### 24-hr, 100-yr rainfall depths

Gauge-1: 816 mm (Sub-1, Sub-2, Sub-3, Sub-5)

Gauge-2: 738 mm (Sub-4, Sub-6)

### Design hyetograph

Hour	1	2	3	4	5	6	7	8	9	10	11	12
%	0.51	0.74	0.82	0.94	1.08	1.21	1.99	2.23	2.54	2.75	3.00	3.17
Hour	13	14	15	16	17	18	19	20	21	22	23	24
%	4.06	4.82	5.85	6.81	8.53	11.25	9.92	8.01	6.24	5.38	4.6	3.56

### Subbasin characteristics

	Sub-1	Sub-2	Sub-3	Sub-4	Sub-5	Sub-6
Area (km <sup>2</sup> )	24	13	21	7	35	12
CN	75	75	75	75	85	85
Tc (hours)	2.50	2.25	2.95	1.90	3.5	2.05
Initial discharge (cms)	10	15	15	20	20	20
Baseflow recession constant	0.85	0.85	0.85	0.85	0.85	0.85
Ratio to peak	0.15	0.15	0.15	0.15	0.15	0.15

### Reach characteristics (for Muskingum channel routing)

	Reach-1	Reach-2	Reach-3
X	0.2	0.2	0.2
K (hours)	0.9	0.7	0.7