**Question 1:** Some softwares used in carrying out hydrologic study of a place include:

* MOD FLOW: MOD FLOW is used in the category of hydro geological modeling. MOD FLOW is a code which performs groundwater modeling based on developed finite differences. It is able to simulate groundwater 2D and 3D flux and simulate the principal processes related to the groundwater regime such as recharge, evapotranspiration, pumping, drainage, e.t.c.
* Python: Python is a scientific tool which is used for programming. This is the best tool for water resources, scientific and environment analysis. It is a complete tool for the processing, manipulation and plotting of data.
* HEC RAS: This is a software used in the category of river modeling. HEC RAS used the gradient topography to evaluate the flow depth; flooded zones and velocities. It can also be used to calculate sediment transport and water temperature.
* SWAT: SWAT is a software used in the category of hydrologic modeling. It is used to evaluate soil and water at a basin scale. SWAT focuses on the transport of water and solutes through surface flow and also precipitation-runoff modeling. It predicts the impacts of soil management practices in water resources and sediments.
* SAGA SIS: This software is used in the category of geographical information systems.SAGA SIS is a powerful tool which is also simple with information focused on spatial analysis and basins characterization.

**Question2**:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| time | runoff | base-flow | depth of direct runoff | 2hr unit hydrograph ordinate | | |
|  |  |  |  |  | | |
| 1 | 110 | 110 | 1.415 | 0 |  |  |
| 2 | 120 | 110 | 1.415 | 7.067138 |  |  |
| 3 | 230 | 110 | 1.415 | 84.80565 |  |  |
| 4 | 570 | 110 | 1.415 | 325.0883 |  |  |
| 5 | 640 | 110 | 1.415 | 374.5583 |  |  |
| 6 | 430 | 110 | 1.415 | 226.1484 |  |  |
| 7 | 290 | 110 | 1.415 | 127.2085 |  |  |
| 8 | 200 | 110 | 1.415 | 63.60424 |  |  |
| 9 | 160 | 110 | 1.415 | 35.33569 |  |  |
| 10 | 120 | 110 | 1.415 | 7.067138 |  |  |
| 11 | 90 | 90 | 1.415 | 0 |  |  |
| 12 | 80 | 80 | 1.415 | 0 |  |  |