

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q1) Differentiate between recording and non – recording type rain gauges. Explain how you can supplement precipitation record for station ‘4’ if it is incorrect for the year 2020. The recorded precipitation for station ‘4’ and station surrounding station ‘4’ is as follows:

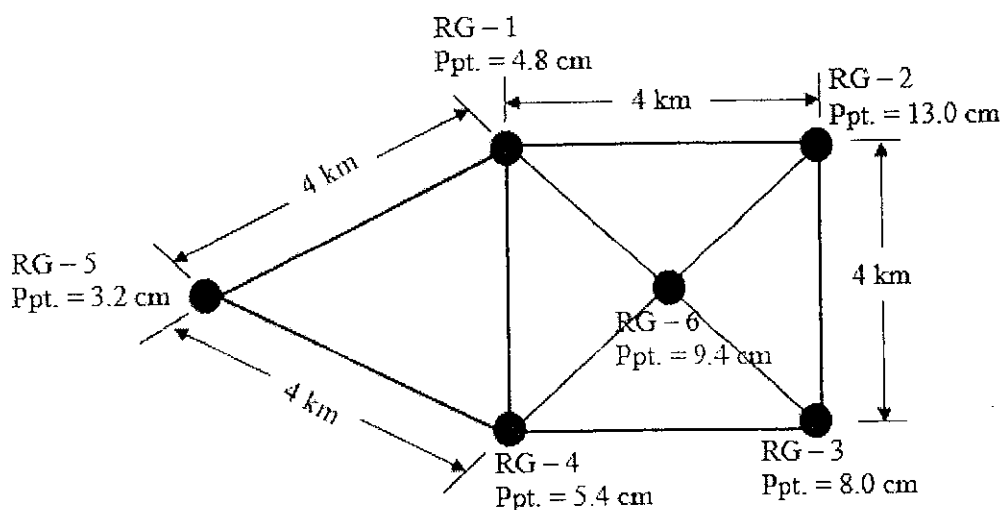
Year	2016	2017	2018	2019	2020	2021	2022	2023
Mean annual rainfall for ‘4’ (cm)	32.0	49.4	35.5	39.7	34.8	30.0	36.0	44.1
Mean annual rainfall of surrounding station (cm)	16.4	9.6	15.5	20.0	35.0	24.6	29.4	50.5

The correction factor for the plotted data is found to be 0.5. Determine the corrected years and their corrected mean annual rainfall values for station ‘4’.

CO1, CO2 [1+3 = 4]

Q2) For the following catchment area, find the mean precipitation using Thiessen’s method.

CO1 [6]



Q3) Determine the optimum number of rain gauges and additional rain gauges required in a catchment area from the following data:

- a) Number of existing rain gauges = 8
- b) Mean annual rainfall at gauges = 1000, 950, 900, 850, 800, 700, 600, and 400 mm.
- c) Permissible error = 6%

COI[4+1= 5]