

SECTION A: COMPULSORY QUESTION

Question 1

- (a) Discuss the importance of data collection in water resources. (20 marks)
- (b) Table 1 presents the current meter discharge measurement data for Mtilane River on December 20, 1999. Compute the discharge of the river on that day. (20 marks)
- (40 marks)

Table 1 Current meter flow velocity measurements for Mtilane River (December 20, 1999)

Vertical number	Distance from bank (m)	Depth (m)	$V_{0.6}$ (m/s)
0	0	0	0
1	1.22	0.29	0.095
2	2.134	0.43	0.122
3	3.049	0.61	0.101
4	3.963	0.64	0.128
5	4.878	0.70	0.134
6	5.793	0.69	0.140
7	6.707	0.67	0.152
8	7.317	0.56	0.125
9	8.00	0.48	0.120
10	8.8	0.0	0.00

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- (a) Explain the phenomenon behind the layering of the atmosphere. (15 marks)
- (b) On the basis of the global pressure systems, explain the global atmospheric circulation system. (15 marks)
- (30 marks)

Question 3

Discuss the factors that influence the runoff at the catchment outlet. (30 marks)

Question 4

Explain two methods used to estimate evaporation. (30 marks)

Question 5

Explain the major drainage basins in Swaziland and their importance in economic development. (30 marks)