



**UNIVERSITY OF SWAZILAND  
FINAL EXAMINATION PAPER**

**PROGRAMME: DIPLOMA IN AGRICULTURE 1  
DIPLOMA IN AGRICULTURAL EDUCATION 1  
REMEDIAL YEAR IN AGRICULTURE  
REMEDIAL YEAR IN AGRIC. EDUCATION**

**COURSE CODE: LUM 101**

**TITLE OF PAPER: AGRICULTURAL GEOGRAPHY**

**TIME ALLOWED: TWO (2) HOURS**

**SPECIAL MATERIAL REQUIRED: NONE**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO  
OTHER QUESTIONS.**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN  
GRANTED BY THE CHIEF INVIGILATOR**

**SECTION 1: COMPULSORY QUESTION**

**QUESTION ONE**

- a) Describe the climate classification for the world in terms of rainfall and explain how the agricultural activities are influenced by the different climatic regimes. (20 marks)
  
- b) Briefly explain the factors that affect infiltration. (10 marks)
  
- c) Describe how man's activities influences and accelerate the rate of erosion. (10 marks)

**SECTION TWO: ANSWER TWO QUESTIONS FROM THIS SECTION**

**QUESTION TWO**

- a) Using the Daltons' law, calculate the evaporation for the month of January from a pond if the surface water temperature was 15 degrees C, the average wind speed was 4 km/hr, and the average temperature and relative humidity was 20° C and 40% respectively. (15 marks)
  
- b) Briefly describe the factors that affect the amount of runoff water. (15 marks)

**QUESTION THREE**

- a) Give a brief explanation of the factors which consumptive use depends on. (12 marks)
- b) Describe what accounts for the difference between readings of the wet and dry bulb thermometers when measuring relative humidity? (10 marks)
- c) Estimate the air temperature at 3 km above the ground based on the principles of “lapse rate” if the ground was 26°C. (8 marks)

**QUESTION FOUR**

- a) What is difference between active and passive remote sensing? (10 marks)
- b) Explain the three major uses of aerial photographs. (15 marks)
- c) Briefly describe the relationship between temperature and atmospheric relative humidity. (5 marks)

Table 1: Saturated vapour pressure as a function of temperature  $t$  (negative values of  $t$  refer to conditions over ice: 1 mm Hg = 1.33 mbar).

$t$ (°C)	$e_s$									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
-10	2.15									
-9	2.32	2.30	2.29	2.27	2.26	2.24	2.22	2.21	2.19	2.17
-8	2.51	2.49	2.47	2.45	2.43	2.41	2.40	2.38	2.36	2.34
-7	2.71	2.69	2.67	2.65	2.63	2.61	2.59	2.57	2.55	2.53
-6	2.93	2.91	2.89	2.86	2.84	2.82	2.80	2.77	2.75	2.73
-5	3.16	3.14	3.11	3.09	3.06	3.04	3.01	2.99	2.97	2.95
-4	3.41	3.39	3.37	3.34	3.32	3.29	3.27	3.24	3.22	3.18
-3	3.67	3.64	3.62	3.59	3.57	3.54	3.52	3.49	3.46	3.44
-2	3.97	3.94	3.91	3.88	3.85	3.82	3.79	3.76	3.73	3.70
-1	4.26	4.23	4.20	4.17	4.14	4.11	4.08	4.05	4.03	4.00
-0	4.58	4.55	4.52	4.49	4.46	4.43	4.40	4.36	4.33	4.29
0	4.58	4.62	4.65	4.69	4.71	4.75	4.78	4.82	4.86	4.89
1	4.92	4.96	5.00	5.03	5.07	5.11	5.14	5.18	5.21	5.25
2	5.29	5.33	5.37	5.40	5.44	5.48	5.53	5.57	5.60	5.64
3	5.68	5.72	5.76	5.80	5.84	5.89	5.93	5.97	6.01	6.06
4	6.10	6.14	6.18	6.23	6.27	6.31	6.36	6.40	6.45	6.49
5	6.54	6.58	6.54	6.68	6.72	6.77	6.82	6.86	6.91	6.96
6	7.01	7.06	7.11	7.16	7.20	7.25	7.31	7.36	7.41	7.46
7	7.51	7.56	7.61	7.67	7.72	7.77	7.82	7.88	7.93	7.98
8	8.04	8.10	8.15	8.21	8.26	8.32	8.37	8.43	8.48	8.54
9	8.61	8.67	8.73	8.78	8.84	8.90	8.96	9.02	9.08	9.14
10	9.20	9.26	9.33	9.39	9.46	9.52	9.58	9.65	9.71	9.77
11	9.84	9.90	9.97	10.03	10.10	10.17	10.24	10.31	10.38	10.45
12	10.52	10.58	10.66	10.72	10.79	10.86	10.93	11.00	11.08	11.15
13	11.23	11.30	11.38	11.75	11.53	11.60	11.68	11.76	11.83	11.91
14	11.98	12.06	12.14	12.22	12.96	12.38	12.46	12.54	12.62	12.70
15	12.78	12.86	12.95	13.03	13.11	13.20	13.28	13.37	13.45	13.54
16	13.63	13.71	13.80	13.90	13.99	14.08	14.17	14.26	14.35	14.44
17	14.53	14.62	14.71	14.80	14.90	14.99	15.09	15.17	15.27	15.38
18	15.46	15.56	15.66	15.76	15.96	15.96	16.06	16.16	16.26	16.36
19	16.46	16.57	16.68	16.79	16.90	17.00	17.10	17.21	17.32	17.43
20	17.53	17.64	17.75	17.86	17.97	18.08	18.20	18.31	18.43	18.54
21	18.65	18.77	18.88	19.00	19.11	19.23	19.35	19.46	19.58	19.70
22	19.82	19.94	20.06	20.19	20.31	20.43	20.58	20.69	20.80	20.93
23	21.05	21.19	21.32	21.45	21.58	21.71	21.84	21.97	22.10	22.23
24	22.27	22.50	22.63	22.76	22.91	23.05	23.19	23.31	23.45	23.60
25	23.75	23.90	24.03	24.20	24.35	24.49	24.64	24.79	24.94	25.08
26	25.31	25.45	25.60	25.74	25.89	26.03	26.18	26.32	26.46	26.60
27	26.74	26.90	27.05	27.21	27.37	27.53	27.69	27.85	28.00	28.16
28	28.32	28.49	28.66	28.83	29.00	29.17	29.34	29.51	29.68	29.85
29	30.03	30.20	30.38	30.56	30.74	30.92	31.10	31.28	31.46	31.64
30	31.82	32.00	32.19	32.38	32.57	32.76	32.95	33.14	33.33	33.52