PROGRAM	:	NATIONAL DIPLOMA
		ENGINEERING : CIVIL
SUBJECT	:	**HYDROLOGY 3B**
CODE	:	**CEW3B21**
DATE	:	SUMMER SSA EXAMINATION 2015
		10 DECEMBER 2015
DURATION	:	(SESSION 1) 08:00 - 11:00
WEIGHT	:	40 : 60
TOTAL MARKS	:	75

EXAMINER	:	MR LF SHIRLEY	
MODERATOR	:	DR AM CASSA	2296
NUMBER OF PAGES	:	2 PAGES	

INSTRUCTIONS	:	THIS IS AN OPEN BOOK EXAMINATION.
	:	*Flood Hydrology* by Haarhoff and Cassa **only** may be brought into the examination venue.
	:	THE QUESTION PAPER MUST BE HANDED IN.
REQUIREMENTS	:	ONE SHEET SIZE A4 GRAPH PAPER.

INSTRUCTIONS TO CANDIDATES:

ANSWER ALL THE QUESTIONS.

QUESTION 1

Calculate the peak discharge for a rainstorm of return period 5 years from a catchment of area 8,50km^2 in basin 1 (Straun) with length of longest water course 3,250km and 1085 slope of 0,050m/m by means of the rational method. Take C = 0,250.   **[15]**

QUESTION 2

Calculate the peak discharge for a rainstorm of return period 10 years from a catchment of area 10 000km^2 in basin 5 (Leydsdorp) with length of longest water course 100km and 1085 slope of 0,001250m/m by means of the standard design flood method.   **[25]**

QUESTION 3

Given the following 10mm 1 h unit hydrograph and net rainfall profile:

Unit hydrograph data:

Time (h)	0	1	2	3	4	5	6	7	8	9
Runoff (m^3/s)	0	10	35	60	50	30	15	0	0	0

Net rainfall profile:

Time (h)	0		1		2		3
Net rainfall (mm)		5		0		15	

3.1   Plot the surface runoff hydrograph on the graph paper provided to suitable scales;   (10)

3.2   Determine the volume of water that runs off.   (5)
                                                                              [15]

QUESTION 4

Use the Franco-Rodier approach to estimate the (a) RMF and (b) flood peak corresponding to a return period of 100 years for a catchment in region 4 having a effective drainage area of 5000km^2.   **[20]**

[Total = 75]