

UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE

Level III Semester II Examination

Dec/Jan 2015/2016

LIM 3261- Statistical Hydrology

Answer for both the questions

Time – 01 hour

- (1) i. Briefly describe the importance of statistical analysis in hydrological studies. (10 marks)
- ii. How does partial duration series differ from the complete duration series? Justify your answer with a suitable example. (15 marks)
- iii. Determine the probability of occurrence that 50-year storm,
a. may occur within the next 10 years.
b. may not occur within the next year itself. (25 marks)

- (2) i. Following table shows the annual maximum discharges of a river for a period of 10 years.

year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Discharge (m ³ /s)	1065	645	1005	1350	860	150	2260	650	2840	990

- a. Calculate the magnitudes of 25 and 50 year flood fitting to the Gumbel Extreme Value Distribution (Note: the Gumbel Extreme Value Frequency Factors (k) for the recurrence interval of 25 and 50 years are 2.632 and 3.321 respectively. The coefficient of variation (CV) of the above data set is 0.64). (20 marks)
- b. What is the chance of occurring the third largest flood within the next 20 years? (10 marks)
- ii. Discuss the risk based method and its importance in hydrological design. (20 marks)

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