JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- OCTOBER 2019
B.Tech V Semester

COURSE CODE: 10B11CE513   MAX. MARKS: 25

COURSE NAME: Water Resource Engineering

COURSE CREDITS: 04   MAX. TIME: 1.5 HR

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume suitable data if required and not provided.*

1. The ordinates of a flood hydrograph resulting from two successive storms each of 4 hour duration producing rainfall depths of 3.6 cm and 4.6 cm respectively are given below. The average infiltration rate in the catchment is 0.4 cm/hr. Determine the resulting direct runoff from the first storm.

Time(hrs)	0	4	8	12	16	20	24	28	32	36	40	44	48
Discharge(m³/sec)	05	45	125	185	240	275	275	210	160	110	50	05	05

[6]

2. The data on the current meter observation taken at 0.6 depth is given below in the tabular form. The equation of the current meter is V(m/s)=0.65Ns÷0.03 where Ns is in revolutions per second. Calculate the discharge in the stream. [5]

Distance from one bank(m)	Depth(m)	Current meter observation at 0.6 depth	
		No. of revolutions	Time in sec
3.0	0.4	30	150
6.0	0.8	50	130
9.0	1.2	70	100
12.0	2.0	100	80
15.0	3.0	150	60
18.0	2.5	200	50
21.0	2.2	130	40
24.0	1.0	90	130

3. In a watershed 4 non-recording gauges A, B, C and D have been installed to record rainfall data. Their last year rainfall records are 100, 120, 140 and 80 cm respectively. Assuming an error of 10% in estimation of mean rainfall, find the optimum number of rain gauges required for the watershed. [3]

4. Write short notes on the following with neat figures:

     (a) Propeller type current meter
     (b) Bubble gauge recorder
     (c) Ultrasonic method of discharge measurement   [4+4+3]