

Student Exam No. _____

GANPAT UNIVERSITY

B. Tech. Semester: III [All streams]

Regular Examination - December 2013

2OS 301 WATER RESOURCES MANAGEMENT

Time: 3 Hours

Total Marks: 70

- Instruction:** 1 Answer to the two sections must be written in separate answer books.
2 Assume suitable data if required.
3 Figures to the right indicate full marks

Section-I

- Q-1(a) Define the term 'Hydrology' and narrate its importance 6
Q-1(b) Describe 'Hydrological cycle' with a sketch 6
OR
Q-1(a) Describe different forms of 'Precipitation' 6
Q-1(b) State the types of 'Rain gauges' and describe any one with sketch 6
Q-2(a) Define the term 'Infiltration' and narrate factors affecting the infiltration 6
Q-2(b) A catchment has six raingauge stations. In a year, the annual rainfall recorded by gauges are as follows:- 5

STATION	A	B	C	D	E	F
RAINFALL [cm]	82.6	102.9	180.3	110.3	98.8	136.7

For a 10% error in the estimation of the mean rainfall, calculate the optimum number of stations in the catchment.

OR

- Q-2(a) Describe factors affecting 'runoff' from a catchment 6
Q-2(b) For a catchment, the mean monthly temperatures are given. Estimate the annual runoff and annual runoff coefficient by Khosla's method. 5
Khosla's Formula, $R_m = P_m - L_m$, $L_m = 0.48 \times T^0 C$

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	dec
Temp ⁰ C	12	16	21	27	31	34	31	29	28	29	19	14
Runoff R _m (cm)	4	4	2	0	2	12	32	29	16	2	1	2

Q-3 Answer any three of the following:-

- (1) Describe Factors affecting precipitation
- (2) Write a note on 'Conservation of water'
- (3) Types of 'Precipitation'
- (4) Computation of Rainfall by Thiessen Polygon method
- (5) Define 'Unit Hydrograph' and state its uses

12

[PTO]

Section-II

Q-4(a)	Define the term 'Irrigation'. State the benefits of irrigation	6
Q-4(b)	State the ill-effects of irrigation	6
OR		
Q-4(a)	State different forces acting on a Gravity Dam	6
Q-4(b)	Describe the measures to curb ill-effects of Irrigation	6
Q-5(a)	Describe classification of Earth Dam	6
Q-5(b)	Define the term 'Flood' and narrate importance of flood study	5
OR		
Q-5(a)	Draw a sketch (section) showing details of a Zoned Earth Dam	6
Q-5(b)	Describe methods of flood control	5
Q-6	Answer any three of the followings:	12
(1)	Advantages of Lift Irrigation	
(2)	Write a note on Watershed Management	
(3)	Methods of Irrigation	
(4)	Canal Structures	
(5)	Flood Forecasting system	

END OF PAPER