GANPAT UNIVERSITY

B. Tech. Semester: IV

Regular Examination – April - June 2015

2OS 401 WATER RESOURCES MANAGEMENT

Time: 3 Hours   **Total Marks: 70**

Instructions: 1 Answer to the two sections must be written in separate answer books.
2 Assume suitable data if required. Draw neat figures wherever necessary.
3 Figures to the right indicate full marks

Section-I

Q-1(a)	Define hydrology. Discuss engineering application of hydrology.	6
Q-1(b)	What is 'Hydrological cycle' Explain with the help of a sketch.	6

OR

Q-1(a)	What is precipitation? What are the various factors that affects the rainfall characteristics	6
Q-1(b)	Distinguish 'Recording' and 'Non-Recording' rain gauges. Describe Symon's rain-gauge with a sketch.	6

Q-2(a)	Define the term 'Infiltration'. What are the methods available to measure infiltration? Explain any one in brief.	6
Q-2(b)	What is hydrograph? Draw and explain the typical hydrograph.	5

OR

Q-2(a)	What do you understand by catchment area and runoff? Explain various factors that influence the runoff from a catchment area.	6
Q-2(b)	The isohyets for annual rainfall over a catchment basin were drawn. The area of strips between the isohyets is indicated below in table .find the average depth of annual precipitation over the basin.	5

Isohyets cm	Area in sq. km	Isohyets cm	Area in sq. km
75-85	580	105-115	1000
85-95	2960	115-135	610
95-105	2850	135-155	160

Q-3	Write a short note on any three of the following:-	12

(1) Forms of 'Precipitation'
(2) Draw and explain the typical infiltration curve
(3) Intensity of rainfall and average annual rainfall
(4) 'ø' Index and 'W' Index
(5) Time of concentration

[PTO]

Q-4(a) What is 'Over Irrigation'? Narrate the ill-effects of the 'irrigation'   6

Q-4(b) Why is the lift irrigation is more efficient to the conventional flow [surface]   6
irrigation? What are the disadvantages of lift irrigation?

OR

Q-4(a) Narrate the various objectives of a 'Multi-Purpose water resource Project'   6
Q-4(b) Draw a typical section of a diaphragm type Earthen Dam with details. Show the   6
different zones and mention which type of soil used in the respective zones. In
which circumstances the diaphragm type of dam is preferred?

Q-5(a) Define 'Gravity Dam'. Narrate different forces acting on a gravity dam .   6

Q-5(b) Calculate velocity and the discharge for a trapezoidal canal section given as   5
under; using Manning's formula'
Bed width b=25.00 m, Bed slope 1 in 4000, Side slope V:H :: 1:1,
Full supply depth d=2.7 m. Consider Rugosity Coefficient=0.018

OR

Q-5(a) Narrate the different forces action on the gravity dam. Draw the indicative   6
diagram of uplift pressure considering a provision of gallery.

Q-5(b) Define the terms 'Duty' and 'Delta'. Establish relation between them.   5

Q-6 Write a short notes on any three of the followings: 12
  (1) Benefits of irrigation
  (2) Methods of improving Duty
  (3) Methods of Temperature control in concrete gravity dam
  (4) Causes and precautions of hydraulic failure in Earthen dam
  (5) Consolidation grouting

END OF PAPER