

FACULTY OF ENGINEERING

Third Year (Civil) Examination Dec - 2014

Water Resources Engg-I (Revised)

[Time: THREE Hours]

[Max. Marks: 80]

"Please check whether you have got the right question paper."

N.B

- 1) Question no 1 and question no. 6 is compulsory.
- 2) Answer any three questions from each section
- 3) Figure to the right indicate full marks.
- 4) Assume suitable data, if necessary.

SECTION A

- Q.1 Answer the following: (any five) 10
- 1) Draw neat sketch of hydrological cycle.
 - 2) Distinguish between hydrograph and hyetograph
 - 3) What are the different types of precipitation?
 - 4) Enlist various types of recording raingauges.
 - 5) Mention various methods of computing average depth of precipitation.
 - 6) State the various factors that affect infiltration capacity.
 - 7) Give three empirical formulae those are commonly used to estimate the design flood.
 - 8) What are the uses of unit hydrograph?
- Q.2 a) Flow evaporation in reservoir's is estimated? Explain different types of evaporimeters. 06
b) Explain a procedure for estimation of missing data. 04
- Q.3 A 4-h unit hydrograph ordinates are given below using s-wave method determine the 12-h unit hydrograph ordinates. 10
- | Time (h) | Discharge (m ³ /s) |
|----------|-------------------------------|
| 0 | 0 |
| 4 | 50 |
| 8 | 100 |
| 12 | 180 |
| 16 | 240 |
| 20 | 320 |
| 24 | 250 |
| 28 | 150 |
| 32 | 50 |
| 36 | 0 |
- Q.4 a) What are different methods of stream flow measurement? Explain in brief the velocity area method 06
b) Discuss the factors that affect the evaporation from a water body. 04
- Q.5 Write short note on (any two) 10
- a) Isohyetal method
 - b) Evapotranspiration
 - c) Gumbel's distribution.
 - d) Infiltrimeters.
 - e) Recording raingauge.

SECTION B

Q.6	Answer the following (any five)	10
	1) Define gross command area and culturable command area.	
	2) Explain the terms 'duty' and delta'.	
	3) What do you understand by crop rotation?	
	4) State Darcy's law.	
	5) What are the different types of irrigation efficiency?	
	6) Find the delta for a crop ,if the duty for a base period of 110 day's is 1400 hectares/cumec.	
	7) A crop requires a total depth of 92 cm of water for a base period of 120 days. Find the duty of water	
	8) Distinguish between gravitational water and capillary water.	
Q.7	Derive an expression for discharge from a well in unconfined aquifer the well fully penetrates it.	10
Q.8	a) Find the field capacity of a soil for the following data	07
	Root zone depth=2m	
	Existing water content = 5%	
	Dry density of soil = 15 KN/M ³ .	
	Water applied to the soil =- 500m ³ .water loss due to evaporation and deep peculation =10% .Area of plot = 1000sq.meters.	
	b) Explain the term 'permanent wilting point'	03
Q.9	Explain various watershed structures used in micro – water shed development.	10
Q.10	Write short note on (any two)	10
	1) Methods of improving duty.	
	2) Recharge of ground water.	
	3) Consumptive use of water.	
	4) Effect of water logging	
	5) Methods of irrigation.	