B.TECH. (CIVIL ENGINEERING)
BTCLEVI

00734

Term-End Examination

June, 2014

BICE-015 : WATER RESOURCES ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions. **All** questions carry **equal** marks. Use of scientific calculator is **permitted.***

1.	(a)	Explain the hydrological cycle with neat sketch.	5
	(b)	Define the precipitation. Explain its importance in the study of Hydrology.	5
2.	(a)	What is base flow ? Discuss its importance in detail.	5
	(b)	State and discuss the different formulae used to estimate runoff from a catchment.	5
3.	(a)	Write the necessity, benefits and ill effects of the irrigation.	5
	(b)	Explain the different types of irrigation systems.	5
4.	(a)	The left canal of tank irrigation carries a discharge of 10 cumecs and has C.C.A of 8000 ha. The intensity of Rabi Crops is 70% and base period is 110 days. The right canal carries discharge of 24 cumecs and has a C.C.A of 15000 ha. The intensity of Rabi Crops is 80% and base period is 110 days. Compare the efficiency of two Canal.	5

(b) What are the Canal losses ? Explain the available empirical equations. 5

5. (a) Describe the various types of cross-drainage works, with neat sketches. 5

(b) What is the difference between weir and barrage ? Write the causes of failure of weir. 5

6. (a) Describe the components of diversion type canal head work. 5

(b) Describe the design procedure of Bligh's creep theory. 5

7. (a) What are the advantages of Canal linings ? Name the different lining materials. 5

(b) What do you understand by Canal fall ? Discuss its importance in detail. 5

8. (a) What is gravity dam ? Discuss the various forces acting on the gravity dam. 5

(b) Explain the different modes of failure of gravity dam. 5

9. (a) State the spillways and describe the different types of spillways. 5

(b) What is Aquifer ? Derive the expression of discharge for the unconfined Aquifer. 5

10. Write short notes on **any four** : **4x2.5=10**

(a) Mean precipitation
(b) Design floods
(c) Water requirements of crop
(d) Reservoir losses
(e) Canal outlets
(f) Intake structures