Total No. of Printed Pages:2

SUBJECT CODE:- 111

FACULTY OF ENGINEERING AND TECHNOLOGY

T.E. (CIVIL) Examination Nov/Dec 2015

Water Resource Engineering - I

(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

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

N.B i) Q.No.1 and Q.No.6 are compulsory.
ii) Attempt any two questions from remaining from each section.
iii) Assume suitable data, if necessary.

SECTION-A

Q.1	a)	What is a s-curve hydrograph? How is it constructed?	04
	b)	Explain an automatic stage recorder.	04
	c)	What is importance of hydrology?	02
Q.2	a)	What is a rainfall hyetograph? How is it derived from a rainfall mass curve.	05
	b)	How is evaporation measured by using ISI standard pan?	05
	c)	The total observed runoff volume during 8h storm with a uniform intensity of 1.6cm/h is $25 \times 10^6 \mathrm{m}^3$. If the area of the basin is 280 km^2, find the average infiltration rate for the basin.	05
Q.3	a)	Explain with sketch construction of master depletion curve.	05
	b)	The ordinates of a 4h U.H of a basin of area $250km^2$ measured at 1h intervals are 8, 20, 46, 80, 110, 90, 85, 65, 50, 42, 38, 30 28, 21, 15, 7, 5, 3 and $1.0m^3/s$ respectively. Obtain the ordinates of a 3h U.H for the basin using s- curve technique.	10
Q.4	a)	Explain with a neat sketch the method of measuring the velocity at a point in a stream by using a current meter.	06
	b)	Describe the method of estimating a T_r- year flood using Gumbel's distribution	09
Q.5	Write short notes on		
	i)	Factors affecting floods.	05
	ii)	Base flow separation	05
	iii)	Determination of average precipitation over the catchment	05

SECTION-B

Q.6	a)	Explain with neat sketch earthen gully plugging	04
	b)	Explain core of depression and drawdown.	04
	c)	What do you mean by micro-irrigation?	02
Q.7	a)	Define duty, delta and derive a relation between them.	05
	b)	The discharge at an outlet is 0.2m^3/s. Average losses from outlet to field are 10% of water flowing through the outlet. If Kor period and Kor depth for wheat and rice are 3 weeks, 120mm and 2 weeks, 250mm, calculate how much area can be irrigated for each crop?	08
	c)	Define irrigation efficiencies.	02
Q.8	a)	Obtain an expression for discharge through open well by recuperation test.	08
	b)	A tube well fully penetrates a confined aquifer of thickness 30m and coefficient of permeability 38m/day. Determine the radius of the well if the yield required is 40lit/sec under a drawdown of 4.0m. the radius of influence is 250m.	07

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Q.9	a)	Discuss erosion control of soil	05
	b)	What do you mean by valley line treatment?	05
	c)	Enlist the factors on which watershed management structures selected.	05
Q.10	a)	What are causes of water – logging?	05
	b)	Explain coefficient of transmissibility and storage coefficient	05
	c)	Define specific yield and specific retention	05

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