Code No: 115AC

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November - 2015
WATER RESOURCES ENGINEERING-I
(Civil Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

1.a)	Explain isohyetal method.	[2]
b)	What do you mean by Return period and Exceedence probability?	[3]
c)	Distinguish between Direct runoff and base flow.	[2]
d)	Define Synthetic Unit Hydrograph. What is the significance of it?	[3]
e)	Distinguish between perennial and intermittent streams.	[2]
f)	Define radius of influence, yield of a well and well interference.	[3]
g)	Briefly explain different Indian soils along with their suitability	[2]
h)	What is GCA, CCA and Irrigation intensity?	[3]
i)	Explain rational formula.	[2]
j)	What is meant by balancing depth?	[3]

PART - B (50 Marks)

2.a)	What is double mass curve? Explain how it is plotted and used.	
b)	Describe different infiltration indices.	[5+5]
	OR	
3.a)	Define API. Also, explain the factors affecting infiltration.	
b)	Describe different evaporation pans with neat sketches.	[5+5]
4.a)	Describe briefly how the total precipitation is transformed into the total runoff.	
b)	How do you derive unit hydrographs for complex storms?	[5+5]
	OR	
5.a)	Explain the principle of linearity and principle of time invariance.	
b)	Describe how do you find DRH from the given UH.	[5+5]
6.a)	Derive an expression for discharge in case of an unconfined aquifer.	
b)	Write short note on well construction.	[5+5]
	OR	
7.a)	Describe the occurrence of ground water.	
b)	Write short note on Artesian wells and well development.	[5+5]
8.a)	Explain different methods of improving soil fertility.	
b)	Derive the relation between duty, delta and base period.	[5+5]
	OR	
9.a)	Explain the frequency of irrigation with a neat sketch.	
b)	What do you mean by drip irrigation? Explain it in detail.	[5+5]

10.a) How do you design a canal using Kennedy's theory.

b) Describe SCS curve number method in detail. [5+5]

OR

11.a) Design a canal given that discharge is 10 cumecs and Lacey's silt factor is 1.

b) Discuss the IS standards for a canal design. [5+5]

---ooOoo---