Printed Pages: 4   **NCE - 702**

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2289941   Roll No.

B.TECH.

Regular Theory Examination (Odd Sem - VII),2016-17
WATER RESOURCES ENGINEERING

Time : 3 Hours   *Max. Marks : 100*

Note: **Attempt all the questions.**

Section - A

1.   **Attempt all questions. All carries equal marks.(10×2=20)**

a)   What is irrigation?

b)   Define DUTY and DELTA.

c)   What is evapotranspiration?

d)   What is effective rainfall?

e)   What is irrigation efficiency?

f)   What is crop period?

g)   What is water logging?

h)   Define silting and scouring.

i) Explain the lining of canals in short.

j) Define run-off.

Section - B

2. **Attempt any five questions.**   (5×10=50)

a) What is run-off? What are the factors that affect the run-off from a catchment area? Describe the methods of computing run-off from a catchment area.

b) Write a short note on Synthetic Unit Hydrograph, how will you derive the synthetic unit hydrograph from number of unit hydrograph? Illustrate the method with suitable example in a tabular form.

c) Distinguish between flow irrigation and lift irrigation. The base period, duties at the field and area to be irrigated for various crops under a reservoir are given below.

Crop	Base period (days)	Duty ate field (hectares/ cumec)	Area (hectares)
Wheat	120	1800	2400
Rice	110	1000	3010
Sugarcane	360	900	4890
Vegetables	130	750	1650

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Find the capacity of the reservoir in hectares meter if the conveyance loss and reservoir loss are 26% and 10% respectively

d) What is meant by crop rotation? What are the advantages of crop rotation? Describe in brief with suitable examples.

e) Distinguish between perennial and inundation canal. Describe the various factors considered for alignment of a canal. What is Bandhara irrigation system.

f) Explain 'water logging'. What are the various causes of water logging? Describe the adverse effects of water logging" What are the various methods adopted as anti-water logging measures.

g) Design a concrete lined channel to triangular section to carry a discharge of 45 cumecs at a slope of I in 10km. The side slopes of the channel are 1. 25:1 and Manning's coefficient 'N' may be taken as 0.018.

h) What is the concept of, river training? What do you mean by river training for discharge, river training for depth and river training for sediment? List the various types of river training works and explain any one of them with suitable sketches.

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Section - C

3   **Attempt any two questions:**   **(2×15=30)**

a)   Water course has a culturable commanded area of 1200 hectares. The intensity of irrigation for crop A is 40 Y_0 and for B is 35% both the crops being Rabi crops. Crop A has a kor period of 20 days and crop B has kor period of 15 days. Calculate the discharge of the water course if the kor depth for crop A is 10 cm and for B is 16 cm.

b)   What do you meant by river training describe the method used for river training?

c)   Define the following terms in brief:

   i)   Well losses.

   ii)   Specific capacity

   iii)   Well efficiency.

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