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B.Tech. (Sem. - 6th)

IRRIGATION ENGINEERING - I

SUBJECT CODE : CE - 306

Paper ID : [A0620]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours Maximum Marks : 60

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) *(10 × 2 = 20)*

a) Define irrigation.

b) Define intensity of irrigation.

c) What is the flooding method of irrigation?

d) What do you understand by Bandhara Irrigation?

e) What do you understand by lining of canals?

f) Why soil is rendered unproductive and infertile.

g) What are the causes of water-logging?

h) What is meant by development of a tubewell?

i) Define confined aquifer and unconfined aquifer.

j) What is meant by river training?

Section - B

(4 × 5 = 20)

Q2) What are the defects in kennedy's and lacey's theories?

Q3) Assuming the side slope 1:1, find the bed width B and the depth (D) of flow of an irrigation canal to carry an discharge of 21 m^3/sec with a velocity of 0.75m/sec. Bed slope is 1 in 5000 and value of chezy's constant C = 42.

Q4) Design a tube well to be sunk in confined aquifer of 20m thickness fully. The yield required is 2400 m^3/day. Coefficient of permeability of aquifer was found to be 40m/day. The drawdown in the well was taken to be 4m.

Q5) Explain different factors affecting water requirement by crops.

Q6) Enumerate the different methods which are used for controlling and training rivers and describe any one of these methods in details.

Section - C

(2 × 10 = 20)

Q7) Describe in detail sprinkler irrigation method and enumerate its advantages and disadvantages.

Q8) (a) What is a guide bank? Draw a good sketch of a guide bank and explain its different parts.

(b) Design a lined canal to carry 100 cumec discharge with the following data :

(i) Angle of repose of the soil = 45°

(ii) Lacey's silt factor = 1.2

(iii) B/D ration = 3

(iv) Value of N = 0.018

Q9) (a) Distinguish between marginal and retired embankments.

(b) Explain various investigations required for an irrigation project.

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