SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[2]**

B.Tech. || CE || 4th Sem
Irrigation Engineering-I
Subject Code:BTCE-405
Paper ID:

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**

PART A (10x 2marks)

Q. 1. Short-Answer Questions: All COs

(a) What are the purposes of irrigation?
(b)How would you describe perennial irrigation and inundation irrigation?
(c)What are the classifications of canal alignment?
(d)How would you describe alluvial and non-alluvial soils?
(e) What do you mean by true regime?
(f) What is the difference between suspended load and bed load?
(g) What is meant by land drainage and where is it needed?
(h) Why trapezoidal channel is more economical than triangular channel?
(i) What do you mean by meandering length ?
(j)What are aquifers and aquiclude?

PART B (5×8marks)

Q.2. Discuss in detail various methods of irrigation? CO1

OR

What is meant by delta ? Enumerate the different terms by which duty can be improved and what are the factors affecting duty and also calculate the value of delta for a base period of paddy is 120 days, if the duty for this crop is 900 hectares per cumec. CO1

Q.3.What is meant by tubewells? What are their types? Describe the widely used type of tube well with a neat sketch. What are the approximate values of the average yield and depth of such a tube well? CO2

OR

A well penetrating an aquifer which is underlain and overlain by impermeable layers was tested with a uniform discharge of 1000 litres/min, The steady state drawdowns measured in two observation wells which were at 1 m and 10 m radial distances from centre of the pumped well were 13.40 m and 4.2 m respectively . Determine the hydraulic properties of the aquifer, if its saturated thickness is 10 m. CO2
(Transmissibility= 0.0398m^2/min , Hydraulic conductivity= 0.0398m/min)

Q.4. Design a concrete lined channel to carry a discharge of 350 cumecs at a CO3

slope of 1 in 5000. The side slopes of the channel taken as 1½:1. The value of n for lining is 0.014. Assume limiting velocity in the channel as 2m/sec and channel is trapezoidal.

OR

What is canal lining? What are its advantages? Write the requirements of good lining materials. Also enumerate various types of linings used for canals. CO3

Q.5. Explain the classification of projects and what investigation measures you would adopt after the preparation of irrigation projects. CO4

OR

Determine the size of a tile at the outlet of a 6 hectare drainage system, if D.C. is 1cm and the tile grade is 0.3%. Assume the rugosity coefficient for the tile drain material as 0.011 and what precautions you should adopt before laying of tile drain project. CO4

Q.6. What is meant by River Training Works? What are its objectives? Also explain their different types in detail. CO5

OR

What do you understand by Guide banks. Sketch a suitable cross-section of a guide banks as used in river training works. Explain the process of launching a aprons in such works. CO5