

24/5/07

Irrigation Engg

Con/2874-07.

(REVISED COURSE)
(3 Hours)

ND-902
[Total Marks : 100

MASPER

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions out of remaining **six** questions.
 (3) Assume any **suitable** data if **necessary** and mention it **clearly**.
 (4) **Figures** to the **right** indicates **full** marks.

1. (a) Establish relation between duty, delta and base period. 5
 (b) What are the methods of irrigation explain any one with neat sketch. 7
 (c) Explain with neat sketch procedure to determine seepage line for a homogenous earth dam with horizontal drainage blanket. 8

2. (a) An irrigation canal has gross commanded area of 80,000 hectares out of which 85% is culturable irrigable. The intensity of irrigation for Kharif season is 30% and for Rabi season 60%. Find the discharge required at the head of the canal if the duty at its head is 800 hectares/cumec for Kharif season and 1700 hectares/cumec for Rabi season. 8
 (b) Explain unit hydrograph theory. 5
 (c) Explain recording and non-recording raingauges draw neat sketch of Simon's raingauge. 7

3. (a) A tube well fully penetrates a confined aquifer of thickness 30 m and coefficient of permeability 38 m/day. Determine the radius of the well if the yield required is 40 litres/second under a drawdown of 4 m. Use radius of circle of influence as recommended by Schardt. 10
 (b) Explain with sketch interference among wells. 5
 (c) Explain recuperation test. 5

4. (a) Design an irrigation channel to carry a discharge of 38 cumec. Take $N = 0.0225$ and critical velocity ratio as 1. The channel bed slope is 0.17 meters per kilometer. 10
 (b) Write detailed report on maintenance of irrigation channels. 10

5. (a) List methods of design of gravity dam. Explain gravity method in detail. 10
 (b) What is water logging with relevance to canal? Why canal lining is necessary, explain any two types of canal lining? 10

6. (a) Explain Bligh's creep theory alongwith design criteria. 10
 (b) Explain design method of Sarda Fall with sketch. 10

7. Write short notes on : 20
 - (a) Components of diversion head works with sketch
 - (b) Aqueduct and superpassage
 - (c) Bandhara irrigation
 - (d) Hydrological cycle with detail explanation and sketch.
