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BT-6/M-20 **36035**

IRRIGATION ENGG.–I

Paper : CE-304E

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *five* questions in all selecting at least *one* question from each unit. All questions carry equal marks. Assume any missing data.

UNIT–I

1. (a) How flow irrigation is different from lift irrigation? Give names of districts in Tamilnadu state where they are practiced mostly. 10

(b) Write down sowing time and harvesting time for the following crops :

Sugarcane, Ground nut, Potato, Peas and Maize. 10

2. (a) Find the discharge required at the head of main canal taking time factor as 0.8.

Name of Crop	Crop period (days)	Area to be irrigated (hect)	Duty at the head of the main canal (hect/cumec)
Sugarcane	280	315	630
Overlap of Sugarcane in hot weather	100	100	630
Jowar	120	5000	1600
Bajra	120	5600	2800
Vegetables (Hot season)	120	450	700

20

UNIT–II

3. (a) Explain with sketch how to classify an irrigation canal on the basis of alignment. 10

(b) Differentiate between initial and final regimes in the Lacey's theory of design of channels. Discuss how to use Lacey diagrams in design of the regime channels. 10

4. (a) What are the different components of a canal distribution system? Explain them briefly with a suitable diagram. 10

(b) Design a regime channel for a discharge of 52 cumecs and a silt factor 1.1 using Lacey's theory. 10

UNIT–III

5. (a) List various types of lining. Discuss salient features of Shotcrete type of lining. 10

(b) Design a concrete lined triangular channel to carry 15 cumecs of discharge at a bed slope of 1 in 9000. The side slopes are 1.25H : 1V and value of N for lining material = 0.015. 10

6. (a) Explain with neat sketches different types of layouts of tile drains. 10

(b) What do you understand by waterlogging? Explain its causes, effects and preventive measures. 10

UNIT–IV

7. (a) Explain the different types of spurs with neat sketches which are commonly used for controlling Indian rivers. 10

(b) Write short notes on Cut-off ratio, Aggrading and degrading rivers, Mean and low water trainings. 10

8. (a) What are outlets? Enumerate different types of outlets. Describe Gibb's module with a neat sketch. 10

(b) Design a pipe outlet for the following data :

Full supply discharge at the head of water course = 110 Lt/sec, FSL in distributory = 205.50 m, FSL in water course = 204.50 m. 10