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320732(20)

B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(Civil Engg. Branch)

WATER RESOURCES ENGINEERING-I

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each question is compulsory. Attempt any **two** parts from (b) (c) and (d). Part (a) carry 2 marks & rest of carries 7 marks.*

Unit-I

1. (a) Define base period and crop period.   2

(b) Describe the advantages and disadvantages of irrigation. 7

(c) Describe the different types of irrigation with their suitability. 7

(d) A water course has a culturable commanded area of 1200 hectares. The intensity of irrigation for crop A is 40% and for B is 35%, both the crops being Rabi crops. Crop A has 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 it is 16 cm. 7

Unit-II

2. (a) Define intensity of Irrigation. 2

(b) Draw a neat sketch of network of canals. Also describe the location of a particular type to suit the requirements. 7

(c) Write short notes on any **two** of the following : 7

(i) Garret's diagrams

(ii) Canal on alluvial soil

(iii) Maintenance of irrigation channels

(d) Design a regime channel for a discharge of 50 cumecs and silt factor $1\cdot1$, using Lacey's theory. 7

Unit-III

3. (a) Define water logging. 2

(b) Describe the remedial measures taken against water logging. 7

(c) Explain the terms-canal outlets and modular outlets through neatly drawn sketches. 7

(d) Design a concrete lined channel to carry a discharge of 50 cumecs at a bed slope of $0\cdot025$ per cent. The side slopes of channel are 40° with the vertical. The values of Manning's N may be taken as $0\cdot018$. 7

Unit-IV

4. (a) Define meandering of a river. 2

(b) Describe in brief various methods of flood control. 7

(c) Explain the following by with the help of neat sketches : 7

(i) Groynes

(ii) Guide Banks

(d) Write short notes on any **two** of the following : 7

    (i) National policy of floods

    (ii) Economics of flood control

    (iii) Flood forecasting

Unit-V

5. (a) Define trap efficiency. 2

    (b) Draw a neat sketch to depict various zones of a reservoir and also explain it. 7

    (c) Explain the procedure for estimating the safe yield of a reservoir. 7

    (d) Write shot notes on any **two** of the following : 7

        (i) Reservoir capacity from mass curve

        (ii) Soil conservation

        (iii) Storage zones of reservoirs