

**320732(20)**

**BE (7<sup>th</sup> Semester)  
Examination, April - May, 2017  
[ New Scheme ]**

**Water Resources Engineering-I**

*Time Allowed : 3 hours*

*Maximum Marks : 80*

*Minimum Pass Marks : 28*

**Note :** (i) Part (a) of each question is compulsory. Attempt any two parts from (b), (c) and (d) of each question.

(ii) The figures in the right-hand margin indicate marks.

**UNIT - I**

- 1. (a) Define Irrigation. [2]
- (b) The sprinkler system of Irrigation is an excellent method but not used in India. Discuss critically and briefly. [7]
- (c) What are the factors affecting duty of Irrigation water? [7]
- (d) After how many days will you supply water to soil in order to ensure sufficient Irrigation of the given crop, if-
  - (i) field capacity of the soil = 28%
  - (ii) permanent wilting point = 13%

- (iii) dry density of soil = 1.3 gm/cc
- (iv) effective depth of root zone = 70 cm
- (v) daily consumptive use of water for the given crop = 12 mm? [7]

**UNIT - II**

- 2. (a) Define Cultural Commanded Area (CCA). [2]
- (b) Write short notes on :
  - (i) Lacey's idea of Shock and Garrent diagrams [2]
  - (ii) Watershed canal and contour canal [2]
  - (iii) Difference between true regime and final regime [2]
  - (iv) True regime [1]
- (c) With a neat sketch, explain the classification of canal based on discharge. [7]
- (d) A channel section has to be designed for the following data :

Discharge  $Q = 30$  cumecs, Silt factor  $f = 1.0$ ,

Side slope =  $\frac{1}{2} : 1$ .

Find also longitudinal slope. [7]

**UNIT - III**

- 3. (a) Define canal outlet. [2]
- (b) Describe in brief the various causes of water-logging. [7]

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- (c) How will you justify economically the necessity of canal lining? [7]
- (d) Design a trapezoidal shaped concrete lined channel to carry a discharge of 100 cumecs. At a slope of 25 cm/km, the side slopes of channel are 1.5:1. The value of *N* may be taken as 0.016, assuming the limiting velocity as 1.5 m/sec. [7]

UNIT-IV

- 4. (a) Define the term River training. [2]
- (b) What are cutoffs and how are they artificially introduced? What are their advantages? [7]
- (c) Write short notes on any *two* of the following :
  - (i) National policy of floods [3½]
  - (ii) Economics of flood control [3½]
  - (iii) Flood forecasting [3½]
- (d) Explain in brief different methods of flood estimation. http://www.csvtuonline.com [7]

UNIT-V

- 5. (a) Define bank and valley storage. [2]
- (b) Explain capacity elevation and area elevation curves of a reservoir site. How is

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- capacity-elevation curve derived from area-elevation curve? [7]
- (c) Explain the procedure for calculation of life of reservoir. [7]
- (d) Explain in brief Graphical method of flood routing. [7]

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