

320832(20)

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

(New Scheme)

(Civil Engg. Branch)

WATER RESOURCES ENGINEERING-II

Time Allowed : Four hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) is compulsory in each question having 2 marks each. Attempt any two parts from (b), (c) & (d) for remaining question having 7 marks each. The figure in the right-hand side margin in digit indicates marks.

1. (a) What you mean by dam and reservoir? 2
- (b) What do you mean by element profile of gravity dam? 7

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- (c) Describe mode of failure of gravity dam. 7
- (d) Design a 1.5 metres Sarda Type fall for a canal carrying a discharge of 40 cumecs with the following data : 7
- Bed level upstream = 205.0 m
- Bed level downstream = 203.5 m
- Side slopes of channel = 1:1
- Full supply level upstream = 206.8 m
- Full supply level downstream = 205.3 m
- Berm level u/s = 207.4 m
- Bed width u/s and d/s = 30 m
- Safe exit gradient for Khosla's Theory = 115
2. (a) What do you mean by spillway? 2
- (b) Write short notes on the following : 7
- (i) Syphon well drop
- (ii) Roughening Devices
- (iii) Wing wall for flumed falls

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- (c) Write short notes on the following : 7
- (i) Chut spillway
- (ii) Stilling basing
- (d) Discuss the various methods for energy dissipation below spillway. 7
3. (a) Write a difference between wier and barrage. 2
- (b) Draw layout of diversion head works and describe the different components of it. 7
- (c) Briefly explain salient features of Khosla's theory and how it used to design of permeable foundation. 7
- (d) Discuss the causes of failure of wier on permeable foundation and their remedies. 7
4. (a) What is canal drop? 2
- (b) Explain the different methods for designing the channel transition. 7
- (c) Write short notes on any the following : 7
- (i) Syphon well drop
- (ii) Trapezoidal notch fall

- (d) What is meant by "Canal Escapes" Describe with neat sketches the different type of canal escapes. 7
5. (a) Describe cross drainage works. 2
- (b) Discuss the possible causes of failure of cross drainage works. 7
- (c) Explain Hind's method for design of channel transition. 7
- (d) Write short note : 7
- (i) Super passage
- (ii) Syphon aqueduct