

Total No. of Questions : 8]

SEAT No. :

PC2355

[Total No. of Pages : 2

[6354]-471

B.E. (Civil Engineering)

DAMS AND HYDRAULIC STRUCTURES  
(2019 Pattern) (Semester - VIII) (401011)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks for the sub-questions.
- 4) Assume suitable data if necessary and state them in your answer clearly.
- 5) Use non-programmable pocket size electronic calculator is allowed.

- Q1)** a) Define spillway and explain anyone type of spiliway with proper sketch. [5]  
b) Explain main components of spillway. [5]  
c) Explain energy dissipation device and its importance. [7]

OR

- Q2)** a) Explain ski jump bucket with suitable diagram. [5]  
b) Differentiate between controlled and uncontrolled spillway. [5]  
c) Design an ogee spillway for concrete gravity dam, for the following data. [7]  
i) Average river bed level = 160 m  
ii) Slope of D/S = 0.75 H: 1V, u/s face is vertical  
iii) Spillway crest RL = 265 m  
iv) Design discharge = 5750 m<sup>3</sup>/s  
v) Spillway length is 6 spans with a clear length of 7 m each.  
Pier thickness = 2m.

- Q3)** a) Enlist different causes of failure of earthen dams and explain any one. [5]  
b) Define earthen dam & explain in details limitations of earth dam. [5]  
c) Explain various seepage control measures in earthen dam. [8]

OR

- Q4)** a) Explain the function of hearting and rock toe in earthen dam. [5]  
b) Define phreatic line for an earth dam & explain phreatic line for an earth dam with horizontal filter at the downstream. [5]  
c) Explain Swedish slip circle method of stability analysis of an earth dam. [8]

P.T.O.

- Q5)** a) Explain the advantage and disadvantages of lining of canals. [5]  
b) Explain the components of canal system with neat sketch. [5]  
c) Explain design of canal by Kennedy's theory. [7]

OR

- Q6)** a) Explain necessity of canal lining. [5]  
b) What are the drawbacks of Kenned's theory. [5]  
c) Write short note on. [7]  
i) canal regulators  
ii) canal escapes

- Q7)** a) Draw a labelled sketch of diversion headworks. [5]  
b) Compare bligh's and lane's creep theories of seepage. [5]  
c) Explain in brief: [8]  
i) inlet and outlet  
ii) aqueduct

OR

- Q8)** a) Explain the importance of exit gradient. [5]  
b) Explain lane's creep theories of seepage. [5]  
c) Explain in brief: [8]  
i) Level crossing  
ii) Super passage

