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^3/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