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**CE-701 (GS)**  
**B.E. VII Semester**  
 Examination, December 2017  
**Grading System (GS)**  
**Design of Hydraulic Structure**  
*Time : Three Hours*

Maximum Marks : 70

Note: i) Answer any five questions.

ii) All questions carry equal marks.

iii) Assume data suitably if required.

1. a) How will you calculate the capacity of reservoir by mass inflow and mass-demand curves?  
 b) What are the causes of failure of earthen dams and what are the design criteria?
2. a) Discuss step by step the analytical procedure, adopted for analysis of stability of gravity dams.  
 b) Describe briefly the component parts of design procedure of "Ogee spill way".
3. a) Discuss briefly the various types of energy dissipaters used under different relative positions of T.W.C. and J.H.C.  
 b) What is meant by "Cross drainage works"? Explain the different types of C.D. works.
4. a) Enlist various Hydro-power plants and describe any one in detail with sketch.

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- b) Write short notes on.
  - i) Draft tube
  - ii) Surge tank
5. a) Compare "Bligh's Creep theory" with "Khosla's theory".  
 b) Explain the design details of a "Syphon Spillway".
6. a) Explain the design of:
  - i) Water ways
  - ii) Crust levels
  - iii) Length of impervious flow.
 b) List different turbines used in Hydro power station and mention their selection criteria.
7. a) Explain in detail design procedure of "Sarda type fall".  
 b) Explain in short.
  - i) Galleries in gravity dams
  - ii) Foundation treatment for gravity dams.
8. Write short notes on any four of the following.
  - a) Zones of storage in reservoir
  - b) Slip-circle method
  - c) Seepage control in earthen dams
  - d) Design of channel transitions
  - e) Compare Weir and Barrages
  - f) Life of reservoir

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