

- (b) “Spillway is a safety valve in the dam” Discuss. What are different components of the spillway? (7)
- Q-4 Attempt all questions (14)**
- (a) Discuss various classifications of soils. (7)
- (b) Explain the important characteristics of soil used to design the embankment dam. (7)
- Q-5 Attempt all questions (14)**
- (a) What are the functions and types of galleries in dams? (7)
- (b) What are the different ways by which a concrete gravity dam may fail, and how will you ensure its safety against each type of failure? (7)
- Q-6 Attempt all questions (14)**
- (a) Draw the elementary profile of a gravity dam and explain various forces acting on it. (7)
- (b) Distinguish clearly between a low gravity dam and high gravity dam. Derive An expression used for such a distinction. (7)
- Q-7 Attempt all questions (14)**
- (a) Explain design criteria for the (i) Cut-off trench and (ii) D/S drainage system of the earth dam. (7)
- (b) Determine the computation of seepage rate using flow net. (7)
- Discuss the method of flow net construction for: (a) Zoned earth dam, (b) Earth dam of an isotropic soil.
- Q-8 (14)**
- Design an Ogee spillway for the following data:
- Height of the spillway crest above river bed = 100 m
- Designed discharge = 12000 cumecs
- Number of spans = 6
- Clear distance between piers = 15 m
- Thickness of pier = 3 m
- Slope of d/s face of the overflow section = 0.8 : 1
- Assume any other data if required.

