

IV B.Tech I Semester Supplementary Examinations, April/May 2005
IRRIGATION-II
(Civil Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe the techniques that are employed for computing the storage capacity of a reservoir for different water surface elevations.
(b) Describe the various investigations required for reservoir planning.
2. (a) Discuss the structure of buttress dam with a neat sketch
(b) Give the advantages and disadvantages of buttress dams
3. Explain and derive the method of determining principal and shear stresses in a gravity dam.
4. (a) Discuss the various methods of seepage control in earth dams and foundations.
(b) A flow net is plotted for a homogeneous earth dam of height 30m and free board 2m. The results obtained are: Number of potential drops = 10, Number of flow channels = 4. The dam has a horizontal filter of 30m length at the downstream end and the coefficient of permeability of dam material is 6×10^{-4} cm/sec. Calculate the discharge per metre run of the dm. Derive the equation used.
5. Design a suitable section for the overflow portion of a concrete gravity dam having a downstream face sloping at a slope of 0.7H:1V. The design discharge for the spillway is 8000cumecs. The height of the spillway is kept at RL 204.0m. The average river bed level at the site is 100.0m. The spillway length consists of 6 spans having a clear width of 10m each. Thickness of each pier may be taken to be 2.5m.
6. (a) Briefly explain about jump height curve.
(b) Briefly explain about Tail water curve.
(c) With neat sketches, explain the implications of the relative positions of jump height curve and tail water curve on the design of energy dissipator.
7. Write short notes on the following :
(a) Head Regulator.
(b) Hydraulic jump as energy dissipater.
8. List the types of cross drainage works and draw a neat sketch of any one of them. Indicate the components and their functions.
