B Tech V Semester Back Paper Examination - 2016  
TCE 504 - Water Resource Engg-1  

M.M. 100  
Time 3 Hrs  

Note: Attempt all questions. Each question is of 20 marks.

Q.1 Attempt any 4 parts, each part is of 5 marks  
a) What is the importance and impact of irrigation projects and hydropower on environment?  
b) What do you understand by engineering economy in water resources planning?  
c) Define duty and delta, and derive their relationship.  
d) Write a short note on ‘estimating depth and frequency of irrigation on the basis of soil moisture regime concept’.  
e) Define (i) Evapotranspiration (ii) Transpiration ratio.

Q.2 Attempt any 4 parts, each part is of 5 marks  
a) Write a short note on canal escape.  
b) Differentiate between alluvial and Non-alluvial canal.  
c) Discuss the mechanics involved in sediment transport.  
d) What is the difference between the suspended load and bed load?  
e) When do you classify the channel as having attained regime condition?

Q.3 Attempt any 2 parts, each part is of 10 marks  
a) What do you understand by a head regulator? State functions of a distributory head regulator and a cross regulator.  
b) Differentiate between a weir and barrage.  
c) Write down the design procedure of a straight glacis fall.

Q.4 Attempt any 2 parts, each part is of 10 marks  
a) What is meant by afflux, and how does it affect the design of weirs and barrage.  
b) Explain the procedure of designing Sarda type fall.  
c) Name the different types of cross drainage works. Explain how you would avoid one type of cross drainage work and prefer to adapt another type by simply changing the alignment of the canal taking off from a head work.

Q.5 Attempt any 2 parts, each part is of 10 marks  
a) What are roughening devices? Discuss their use in fall construction? What roughening device would you recommend for a straight glacis fall?  
b) What is meant by hydropower? Compare hydropower with thermal power with respect to Indian conditions.  
c) How do you classify a hydro-electric scheme on the basis of its operating head?  

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