

FACULTY OF ENGINEERING**B.E. 4/4 (Civil) I - Semester (Main) Examination, December 2016****Subject : Water Resource Engineering - II****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 What is trap efficiency? (2)
- 2 What is middle third rule? (2)
- 3 Define Phreatic line. (2)
- 4 Write a note on energy dissipator. (2)
- 5 Define primary power and secondary power. (2)
- 6 The compressive stress of a concrete dam is 2200 kN/m^2 and specific gravity of dam material is 2.4. Compute maximum limiting height of dam. (3)
- 7 Write a note on elementary profile of gravity dam. (3)
- 8 Spill way is a safety valve for a dam Justify. (3)
- 9 State any two applications of hydraulic jump. (3)
- 10 Classify the hydro power plants under various considerations. (3)

PART – B (50 Marks)

- 11 (a) What is meant by reservoir? Describe briefly the procedure of computing the storage capacity of a Reservoir. (5)
(b) Explain the factors governing the selection of site for a Reservoir. (5)
- 12 Check the stability of a 100m high concrete gravity dam trapezoidal in cross section has upstream face vertical, crest width 6m base width 75m and freeboard 4m. Considering self weight of dam, water pressure and full uplift. Find the principal and shear stress at toe and heel of the dam. The specific weight of concrete is 2.4 t/m^3 coefficient of friction 0.7 and shear strength of concrete 14 kgf/cm^2 . (10)
- 13 (a) Explain briefly the criteria for safe design of a dam. (5)
(b) Explain with a neat sketch, the component parts and functions of Reck fill dams. (5)
- 14 (a) Write the various classification of spillways under different considerations for selection of each type. (5)
(b) Explain Ogee spillway with a neat sketch. (5)
- 15 (a) What are surge tanks? Explain the functions of surge tanks. (5)
(b) What is draft tube? List the types of draft tubes and purpose of it. (5)
- 16 (a) Explain various types of earth dams. (5)
(b) Describe roller bucket type of energy dissipater with a sketch. (5)
- 17 Write short notes on any **two** of the following: (2x5)
 - (a) Galleries in gravity dam
 - (b) Jump height curve and tail water rating curve
 - (c) Methods to control sedimentation of reservoirs