Code No: 117JN **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, April/May - 2018

WATER RESOURCES ENGINEERING-II

(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	Define dam and list the different types of dams.	[2]
b)	List the factors which effect the selection of a particular type of dam?	[3]
c)	List various forces acting on a gravity dam.	[2]
d)	Distinguish between elementary profile and practical profile of a gravity dam.	[3]
e)	What are the situations in which earthen dams are suitable?	[2]
f)	Write a short note on Ogee spillway.	[3]
g)	What is headwork? What is its necessity on a river?	[2]
h)	What are the main functions of head regulator?	[3]
i)	List the various type of falls.	[2]
j)	Define cross-drainage work.	[3]

PART-B

(50 Marks)

2.a) Define mass inflow curves and demand curves. Explain the procedure for finding storage capacity of a reservoir in order to meet a particular rate of demand.

b) Discuss the factors which are considered for the selection of site for a proposed dam. It is assumed that the type of dam has already been selected for the project. [5+5]

OR

3.a) What are the factors governing for selection of site of a dam? Discuss.

b) Under what conditions would you adopt a gravity dam or earthen dam? Explain. [5+5]

4.a) Draw the elementary and practical profile of a gravity dam and label them.

b) Draw a neat sketch of drainage gallery and explain its functions. [5+5]

OR

5.a) Explain the procedure adopted for determining the following forces acting on a gravity dam: i) Weight ii) Water pressure iii) Uplift pressure

b) List the processes involved in the construction of a gravity dam and explain them briefly. [5+5]

6.a) Explain the various steps that can be taken in the design and in the construction of an earthen dam to reduce seepage from it.

b) Enumerate and discuss briefly the various factors that determine the free board to be given for an earthen dam. [5+5]

OR

7.a) Define energy dissipation. Discuss various methods used for energy dissipation.

b) Calculate discharge over a spillway, crest length 100 m, wherein water flow depth changes from 1m to 4m in hydraulic jump formation in stilling basin. [5+5]

8.a) What is the difference between a weir and a barrage? Why is a barrage preferred to weir in modern times?

b) Discuss Khosla's theory for design of weirs on permeable foundations. Enumerate the various corrections that are needed in its application. [5+5]

OR

9.a) List the different ways by which you can control the entry of silt into the canal.

b) State the principle and design criteria for a silt excluder. [5+5]

10. State the different categories of cross-drainage works. Illustrate with the help of neat sketches. [10]

OR

11. Distinguish clearly between a super passage and an aqueduct. State the design consideration for s super passage. [10]

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