R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, December - 2019
IRRIGATION AND HYDRAULIC STRUCTURES
(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 as sub questions.

PART – A
(25 Marks)

1.a)	What are the difference between low dams and high dams?	[2]
b)	What is a Distribution reservoir?	[3]
c)	Why drainage gallery is provided in a dam?	[2]
d)	Define following terms: i) Hydraulic height of dam ii) Toe and heel of dam.	[3]
e)	List the major factors on which the capacity of the spillway is fixed.	[2]
f)	Define phreatic line. What are its characteristics?	[3]
g)	What are the main functions of head regulator?	[2]
h)	Compare silt excluder and silt ejector.	[3]
i)	How will you select the type of fall suitable for a particular site?	[2]
j)	Define canal outlet.	[3]

PART – B
(50 Marks)

2. Discuss the various types of reservoir and how do you estimate the capacity of reservoir.
[10]

OR

3. Explain the method of calculating reservoir capacity for a specified yield, from the mass inflow curve.
[10]

4. Describe elementary profile of gravity dam and how is it determined.
[10]

OR

5. Design practical profile for a gravity dam holding a water depth of 88 m, wave height 2 m, specific gravity of concrete 2.4 and permissible compressive strength of 300 tonne/m², top width of dam is 5 m.
[10]

6. Explain the methods of seepage control in an earthen dam with the help of neat sketches.
[10]

OR

7. Define chute spillway. Discuss the design principles involved in the chute spillway. Why is it preferred to ogee and other types of spillways?
[10]

8. Draw a neat sketch of fish ladder and explain its working. [10]

OR

9. Explain with a neat sketch the working of a weir with its component parts. [10]

10.a) Classify the various types of falls. List their advantages and disadvantages.
   b) Explain Notch type fall. [4+6]

OR

11.a) Differentiate between syphon aqueduct and canal syphon.
   b) Classify cross drainage works in common use. Explain the necessity of providing cross drainage works. [4+6]

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