Code No: **R32014** **R10** **Set No. 1**

III B.Tech II Semester Supplementary Examinations, November - 2018
WATER RESOURCES ENGINEERING-II
(Civil Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks
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1 a) Discuss the main causes of failure of weirs founded on pervious foundation. Also discuss the important theories which have been put forward for designing such weirs to avoid there failure due to the above causes. [7M]

b) Following data refer to a weir; [8M]
Total number of vertical gates = 51
Span of each gate = 10 m
Full reservoir level (u/s) = 110 m
Crest level = 106 m
Coefficient of end contraction for piers = 0.02
Coefficient of discharge (in Francis formula) C_d = 1.70
Compute the maximum flood discharge which can safely pass over the weir without exceeding the full reservoir level. Neglect velocity of approach.

2 a) What are the factors on which selection of site for a dam depends? [7M]

b) Explain how the area-elevation curve and elevation storage curve are prepared. What is the use of these curves in reservoir planning? [8M]

3 a) Mention various forces acting on a gravity dam. How are they determined? [7M]

b) What is a low gravity dam and high gravity dam? Explain in detail with sketches. Obtain a relationship between the limiting height of a low profile dam and the limit stress at the foundation. What is middle third rule? [8M]

4 a) Explain with the help of a sketch, the components of a zoned embankment dam, with their functions. [7M]

b) Explain the remedial measures you would undertake to control the seepage through earthen dam body? [8M]

5 a) What is a spillway? What are its functions? Enumerate various types of spillways. [7M]

b) Discuss briefly the various types of energy dissipaters that are used for energy dissipation below overflow spillways, under different relative positions of T.W.C. and J.H.C. [8M]

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6 a) Discuss the comparative merits and demerits of Notch falls and Sarada type falls. [7M]

b) Following data were observed in a canal fall: [8M]
Full supply level= 118 m.
Bed level of canal =115 m.
Bed width of canal = 18 m.
Full supply discharge = 33 cumecs
Side slopes of canal =2(H):1(V)
Length of crest of the fall = 12m (crest section is rectangular)
Coefficient of discharge over crest =1.65.
Calculate the crest level.

7 a) What do you understand by a head regulator? State functions of a distributary head regulator and a cross regulator. [7M]

b) What is meant by the terms 'flexibility', 'proportionality', 'setting' and 'sensitivity' as applied to modules. [8M]

8 a) What are the different types of cross drainage works that are necessary on a canal alignment? State briefly the conditions under which each one is used. [7M]

b) Under what conditions of drainage and canal crossings are siphons provided? Draw a plan and section through a typical branch canal siphon. [8M]

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