No. of Printed Pages : 3

ET-535(B)

B.Tech. Civil (Construction Management)

Term-End Examination

December, 2018

00973

ET-535(B) : HYDRAULIC STRUCTURES

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any* ***five*** *questions. All questions carry equal marks.*

1. (a) Explain how you would determine safe yield from the reservoir of a given capacity. 7

   (b) Describe the different types of reservoirs in brief. 7

2. Distinguish clearly between a "low gravity dam and high gravity dam". Derive the expression used for such a distinction. Determine the critical height of a low gravity dam of concrete, taking the specific gravity of concrete as 2·40 and allowable compressive stress as 340 t/m^2. *5+5+4*

3. (a) With the help of a diagram, explain various components of a diversion head work. 7

(b) "A weir helps in raising the water level or pond level." Justify this statement. 7

4. (a) Using Lacey's basic regime equations, show that

$P = 4{\cdot}75\sqrt{Q}$, where

P = Wetted perimeter of channel section,

Q = Discharge. 7

(b) Describe the Kennedy's method of channel design where Q, N, m and S are given. 7

5. (a) Describe the general requirements of a fish ladder. 7

(b) Discuss the necessity of lining irrigation channels. 7

6. (a) Discuss in brief the design parameters of a "Cross Drainage Work". 7

(b) Explain the various types of falls commonly adopted on canals. Also explain the suitability of each type. 7

7. Write short notes on the following : $4 \times 3\frac{1}{2} = 14$

(a) Adverse Impact of Dams and Reservoirs on Environment

(b) Drainage Behind Lining

(c) Economics of Canal Lining

(d) Bligh's Creep Theory

8. Differentiate between the following : $4 \times 3\frac{1}{2} = 14$

(a) Inundation and Permanent Canals

(b) Syphon Aqueduct and Canal Syphon

(c) Alluvial and Non-Alluvial Canals

(d) Weir and Barrage