

**I.D. No. 24514**

**B.Tech. 7th Semester F. Scheme (Civil Engineering-XI)**

**Examination, May-2014**

**IRRIGATION ENGINEERING-II**

**Paper-CE-407-F**

*Time allowed : 3 hours]*

*[Maximum marks : 100*

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*Note : (i) Question No. 1 is compulsory.*

*(ii) Attempt one question from each section.*

*(iii) All questions carry equal marks.*

*(iv) Attempt five questions in all.*

*(v) Assume missing data, if any, suitably.*

1.
  - (a) What are the factors governing the design of guide banks ?
  - (b) Name various components of diversion headwork.
  - (c) What is the width of launching apron of the guide banks ?
  - (d) Briefly describe by silt control devices.
  - (e) What are the different types of cross drainage works ?
  - (f) Differentiate between aqueduct and super passage.
  - (g) What is the purpose of straight glacis fall ?
  - (h) What are spillways and where they are provided ?

**Section-A**

2. Design a guide bank required for a bridge on a river for the following data :

Design flood discharge = 50000 cumecs

Silt factor = 1.10

Bed level of river = 130 m

High flood level = 140 m 20

3. What is hydraulic design of a weir ? Explain the design for different components of a weir. 20

**Section-B**

4. Design a siphon aqueduct for the following data : 20

(a) Discharge of the canal : 25 cumecs.

(b) Bed width of the canal : 20 m

(c) Depth of water in the canal : 1.5 m

(d) Bed level of the canal : 160.00m.

(e) High flood discharge of the drainage: 400 cumecs.

(f) High flood level of the drainage : 160.50m.

(g) Bed level of the drainage : 158.00m.

5. What do you mean by flood routing ? Explain the procedure of different methods of flood routing in detail. 20

**Section-C**

6. Design a 2.0 m Sarda type fall for a canal with the following data :
- (i) Upstream bed level = 105 m
  - (ii) Side slopes of channel = 1:1 m
  - (iii) Downstream bed level = 101 m
  - (iv) Full supply level (upstream) = 107 m
  - (v) Bed width (u/s and d/s) = 1.2 m

The canal having a discharge of 20 cumecs. Assume soil is good loam and Bligh's coefficient as 6. 20

7. For a homogeneous earthen dam the following data is given :
- (i) HFL of reservoir = 195 m
  - (ii) Upstream slope and downstream slope = 3 : 1 and 2 : 1 respectively.
  - (iii) Top level of dam = 200 m

**Section-D**

8. Draw a neat cross section of a earthen dam describing all the components of a dam. Also describe the general design criteria of an earthen dam briefly. 20
9. (a) Briefly explain the design procedure for the standard stilling basin (type I). 10
- (b) Compute the discharge over an ogee spillway with a coefficient of discharge 2.5 at a head of 4 m. the effective length of the spillway is 100 m. Neglect the velocity of approach. 10