



**SF-7041**

**B. E. (Sem - VI) (Civil) Examination**

**May/June - 2011**

**Irrigation Engineering - I**

Time : 3 Hours]

[Total Marks : 100

**Instructions :**

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवडी पर अवश्य बपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
← B. E. (Sem - VI)	<input type="text"/>
Name of the Subject :	<input type="text"/>
← Irrigation Engineering	<input type="text"/>
← Subject Code No. : <input type="text"/> 7 <input type="text"/> 0 <input type="text"/> 4 <input type="text"/> 1	← Section No. (1, 2,.....) : <input type="text"/> 1, <input type="text"/> 2
	Student's Signature

- (2) All the questions are compulsory.
- (3) Figures to the right indicate full marks.
- (4) Draw and label neat sketches wherever required.
- (5) Assume suitable data if required and mention the same clearly.

**SECTION - I**

- 1 (a) In what type of climate irrigation schemes are necessary and with large storage structures. Draw the plan layout of an irrigation storage scheme showing a pick up weir. **6**
- (b) A canal has a bed width of 6 metre full supply depth of 2.6 metre, bank width 2.5 metre, slope in cutting 1:1 and slope in filling 1:5:1 and a free board of 0.5 metre, calculate the balancing depth. **6**
- (c) (1) Draw a neat sketch to discuss the working of a fish ladder. **8**
- (2) Compare the efficiency of sprinkler and drip irrigation in terms of percentage efficiency.

- 2 (a) Draw sketches and discuss classification of canal based on alignment. 7
- (b) Differentiate between head regulator and cross regulator. Draw a neat sketch of a head regulator and give the design consideration of components. 8

**OR**

- (b) Explain the necessity of canal fall and explain how the location of a canal fall decided.
- 3 Write short notes on any three of the following : 15
- (1) Methods of improving duty
  - (2) Economics of canal lining
  - (3) Canal escape
  - (4) Remedial measures for water logging

## **SECTION - II**

- 4 (a) Explain component parts of a diversion head work with figure. 8
- (b) With a neat sketch discuss the mutual interference of piles in the redistribution of pressure for a diversion head work. 8
- 5 (a) Draw a neat sketch of Kennedy's gauge outlet. 6
- (b) Design a vertical drop weir on Bligh's theory for the following data : 12
- (1) Maximum flood discharge = 1500 cumecs
  - (2) MFL before construction of weir = 174.5 M
  - (3) River bed level = 169.0 M
  - (4) FSL of canal = 172.0 M
  - (5) Allowable afflux = 1 M
  - (6) Coefficient of creep = 12
- Assume any other data not given, show hydraulic calculations only.

**OR**

- (b) A weir is founded on previous soil and it has a height of 6M above river bed. The length of floor on the u/s side of the weir is 6M and total length of floor is 20 metres. The depth of u/s and d/s piles are 5.5 metres and 7.5 metres respectively. Find the average hydraulic gradient, thickness of floor of points located at 8M, 12M and 16M from u/s end of the floor. The specific gravity of material is 2.24. Use Blighs theory. **12**
- (c) Write in detail about the requirement of a canal outlet. **6**

- 6** Write any four : **16**
- (1) Causes of failure of weir and their remedies
  - (2) Selection of suitable type of cross drainage work
  - (3) Classification of falls
  - (4) Types of weir depending upon the material
  - (5) Silt control devices.
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