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Total number of printed pages – 2

B. Tech  
PCCI 4305

**Sixth Semester Examination – 2013**

**IRRIGATION ENGINEERING**

**BRANCH : CIVIL**

**QUESTION CODE : A 178**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory and any **five** from the rest.*

*The figures in the right-hand margin indicate marks.*

1. Answer the following questions : 2×10
  - (a) For which types of crop basin flooding and furrow method of irrigation are adopted ?
  - (b) In which situation perennial irrigation is adopted ?
  - (c) Write two disadvantages of drip irrigation.
  - (d) Explain ultimate wilting point.
  - (e) Why duty of a canal at various sections differ ?
  - (f) What is incoherent alluvium soil ?
  - (g) In which situation syphon is adopted ?
  - (h) Write four functions of galleries in a concrete dam.
  - (i) How does failure occur in earthen dam by spreading ?
  - (j) What is piping failure in pervious foundation ?
  
2. The gross command area (G.C.A) of an irrigation canal is 120,000 hectares. The culturable command area is 75% of G.C.A and the intensity of irrigation for Kharif and Rabi crop are 40% and 55% respectively. If the duty of water at the canal are 800 and 1550 hectares per hectares for Kharif and Rabi crop respectively, determine the head discharge of the canal. 10

**P.T.O.**

3. Describe various methods of irrigation. 10
4. Discuss the design consideration of C.D. work from the point of view of
  - (a) Afflux and head loss in the drainage barrel 5
  - (b) Fluming of canal 5
5. Discuss the failure of concrete dam by sliding. 10
6. (a) Discuss the defects in Lacey's approach to design a canal section. 5  
(b) Design an irrigation channel to carry a discharge of 50 cumecs at a slope of 1:5000. Take Kutter's  $N = 0.0225$  and  $m = 0.9$ . Do two trials considering 2.5m as the depth of flow in first trial. 5
7. Why lining is necessary in the canal ? Discuss various types of lining in the canal. 10
8. Write short notes on : 5×2
  - (a) Head regulator and cross regulator
  - (b) Necessity of canal fall