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B. Tech
CPCE 8308

Sixth Semester Examination – 2008

IRRIGATION ENGINEERING

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.

All parts of a question should be
answered at one place.



1. Explain the following questions : 2×10
- (i) Distinguish between the term G.C.A. and C.C.A.
- (ii) Under what condition a channel is known as regime ?

- (iii) What do you understand by crop ratio ?
- (iv) What do you understand by valley storage ?
- (v) Explain convective precipitation.
- (vi) Define “Duty of water” and give a relation between the duty, delta and the base period.
- (vii) How can we prevent the piping failure in a weir ?
- (viii) What do you understand by leaching requirement ?
- (ix) What do you mean by piping ?
- (x) Explain the chute spill way.
2. (a) What is unit hydro graph ? How is it derived ? 5
- (b) What are the factors affecting ‘duty’ ? How can duty be improved ? 5

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Contd.

3. What is a spillway ? What are its functions ?
Enumerates various types of spillways. Describe briefly on ogee-shaped spill way. 10
4. What are the methods of computing run-off from a catchment area ? Give various formulas stating clearly the area for which each is applicable. 10
5. (a) Explain the methods of stability analysis of u/s slope during sudden draw down. 5
- (b) Explain the techniques used for seepage control through earth dam. 5
6. (a) What do you understand by the elementary profile of a gravity dam ? Derive an expression for determining base width of such a dam based on stress criterion. 5

- (b) 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 $340t/m^2$. 5
7. (a) Explain the various methods of determining flood discharge in a stream. 5
- (b) Distinguish between aqueduct and super passage. 5
8. (a) What are the ill effects of Water logging ? 5
- (b) Enumerate various types of lining used for channel. 5