Roll.No									36

B.E / B.Tech. (Full Time) DEGREE END EXAMINATION, NOV / DEC 2012

AGRICULTURAL AND IRRIGATION ENGINEERING BRANCH

V SEMESTER – (REGULATIONS 2008)

AI 9301 – IRRIGATION ENGINEERING

Time : 3 hours. Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. What is the difference between the gross command area and culturable command area?
2. How many hectare of paddy can be irrigated to satisfy a field duty and delta of 98 cm of water over a base period of 99 days, when the canal is maintained at 122 cumec.
3. What is the purpose of lysimeter study?
4. What is direct and storage irrigation systems with examples?
5. State the reasons that earth dams have been and still continue to be in very common use.
6. How will you select the site for location of spillway?
7. Difference between spur and groyne.
8. Explain the term meandering?
9. What is a Water Users Association?
10. What is PIM?

Part – B (5 x 16 = 80 Marks)

11. i) Intensity of irrigation, duties and base periods of various crops under a Krishna canal system are given in the Table below. If reservoir losses are 10% and conveyance in canal system 20%.Find out the storage capacity of the dam. (11)

Crop	Wheat	Sugarcane	Cotton	Rice	Vegetables
Base Period (days)	120	330	210	130	100
Duty (hectare/cumec)	1800	800	1200	800	700
Area under each crop in hectares	6400	6800	2300	3890	1325

ii) Calculate the volume of water required to be diverted from the headwork's to irrigate of 4500 ha using the data given in the table below. Assume 80% as the effective precipitation to take care of the consumptive use of the crop. Assume 50% efficiency of water application in the field and 75% as the conveyance efficiency of canal. (5)

Month	Temp °F	% hrs of sunshine	Rainfall mm	Consumptive coefficient
Sept	71.6	8.40	115	0.85

Oct	69.5	7.84	105	0.65
Nov	55.3	7.25	130	0.65
Dec	47.1	6.42	75	0.60
Jan	48.8	8.62	0	0.60
Feb	53.9	9.95	0	0.70

12. a. i) Explain system of irrigation practiced in India and describe briefly the Mote, Denkli and Wind lass. (12)
ii) Write down the advantage and disadvantage of drip irrigation method. (4)

Or

b. i) Explain briefly various surface and sub-soil method of distribution of water to field with a neat sketch. (12)
ii) Write down the advantage and disadvantage of sprinkler method of irrigation. (4)

13. a. i) What are different types of arch dam? Explain any one of them with sketch. (4)
ii) Design the practical profile of a gravity dam of cement concrete. R.L. of base of dam 1350 m, R.L. of level HFL 1400 m, free board as 2.5 m, Max allowable compressive stress in concrete 3000 kN/m^2, specific gravity of cement concrete is 2.5, ht of waves as 0.9 m and assume the density of water. (6)
iii) Differentiate between low gravity dam and high gravity dam. What do you understand by the limiting height of a low dam? (6)

Or

b. i) What are the different types of earth dams that are usually adopted. Explain each type with a neat sketch. (12)
ii) Explain the theoretical profile of la gravity dam. (4)

14. a i) Give detailed classification of stages of river flow. (4)
ii) What do you understand by level crossing? Under what circumstances level crossing are preferred? (2)
ii) Explain any 4 different types of drops with a neat sketch. (10)

Or

b. i) Draw a neat sketch of a diversion head wok and name its various parts. Give brief explanation on each part. (16)

15. a. i) Explain the neat sketch of structure of 3 tier of farmer's organization. (6)
ii) Differentiate between the warabandhi and shejpali system of scheduling water for irrigation practiced in India. (6)
iii) Write short note on assessment an area basis and volumetric rate of assessment? (4)

Or

b. Describe briefly artificial methods of rainwater harvesting with neat sketch- kunds, absorption pit method, absorption well method, well cum bore method. (16)