2019

B.Tech Even Semester (CBCS) Exam., May—2019

AGRICULTURAL ENGINEERING

(8th Semester)

Course No. : AECC–40

(Land and Water Resources Management)

Full Marks : 50
Pass Marks : 15

Time : 2 hours

Note : 1. Attempt *any* **five** questions.
2. Begin each answer in a new page.
3. Answer parts of a question at a place.
4. Assume reasonable data wherever required.
5. The figures in the margin indicate full marks for the questions.

1. Write short notes on the following : 5+5=10

(a) Well screen slot openings

(b) Gravel pack design of well

2. *(a)* What do you understand by well development? List the different methods employed in well development. 2+1=3

(b) Discuss about the development of well by backwashing and high velocity jetting. 4+3=7

3. Describe the cable tool method of drilling of well. 10

4. Define farm pond. What are the different methods of determining the pond capacity of a farm pond? 2+8=10

5. Write the criteria for selection of best site for construction of a farm pond. 10

6. A rectangular pond (50 m × 100 m) has top dyke width of 3 m, side slope 2 : 1 on both sides and a height of 5 m. The depth of water in the pond is 4·5 m and the depth of impermeable bed below the ground level is 5 m. Coefficient of permeability of dyke material = 0·5 mm/min and that of the foundation = 0·1 mm/min. Determine the seepage loss through the pond dyke per day in m^3 volume as well as in cm depth. 10

7. *(a)* Write short notes on the following : 3+3=6

(i) Saline soil

(ii) Alkaline soil

(b) What are the main causes of development of salinity and alkalinity in soils? 4

8. *(a)* Define the following : 2×4=8

(i) Leaching requirement

(ii) Sodium adsorption ratio

(iii) Exchangeable sodium percentage

(iv) Cation exchange capacity

(b) Express 6400 p.p.m. salt concentration in micromhos, millimhos and mhos/cm. 2

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