Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Sc.(Agriculture) (2014 to 2018) (Sem.–5)

FUNDAMENTALS OF SOIL AND WATER ENGINEERING

Subject Code : BSAG-501

M.Code : 74165

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.**

SECTION-A

1. Write short notes on :

a. Azimuth

b. Fore sight

c. Engineering measures of erosion control.

d. Differentiate between flow irrigation and lift irrigation.

e. Bearing

f. Formula for discharge through Cipolleti weir with units.

g. Universal soil loss equation and its units.

h. Direct levelling

i. Sprinkler irrigation

j. Positive displacement pump and its examples.

SECTION-B

2. What is contour? What are the characteristics of contour line?

3. What is Drip irrigation system? What are the main components of drip irrigation system? Write its advantages and disadvantages. Draw a labeled layout diagram of drip irrigation system.

4. What is pump characteristics curve? Draw a neat diagram and discuss how it is important for selection of any suitable pump?

5. What are the precautions to be taken while installing weir for measurement of irrigation water?

6. Discuss the factors responsible for soil erosion in detail.

SECTION-C

7. A Single acting reciprocating pump has piston of diameter 120 mm and stroke length 300 mm, the piston makes 60 double strokes per minute. The suction and delivery heads are 5 m and 20 m respectively. Find :

   a. discharge capacity of the pump in litres per minute.

   b. Force required to work the piston during the suction and delivery strokes if the efficiency of suction and delivery strokes are 65% and 75% respectively.

   c. Power required to operate the pump.

8. What are the different agronomic and engineering soil and water conservation measures? Discuss all in detail.

9. Calculate the capacity and velocity of flow of an unlined trapezoidal channel with bottom width 50 cm and depth of water of 30 cm and channel gradient is 0.2%. Side slope of channel is 1:1 and Manning's Roughness coefficient is 0.035.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.