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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(Agriculture) (2014 & Onwards) (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

Q1. Write short notes on :

- a) Prismatic compass
- b) Flow irrigation
- c) Differentiate between Engineer's chain and Gunter's chain.
- d) Turning point
- e) Survey stations
- f) Differentiate between direct ranging and indirect ranging.
- g) Differentiate between centrifugal pump and submersible pumps.
- h) Tie line
- i) Advantages of Drip irrigation
- j) Engineering measures of erosion control



SECTION-B

- Q2. What is profile levelling? Discuss its procedure in detail.
- Q3. What is Sprinkler irrigation system? What are the main components of sprinkler irrigation system? Write its advantages and disadvantages. Draw a labelled layout diagram of sprinkler irrigation system.
- Q4. What are the different components of underground pipe line system? Write the function of each component. Draw the neat labelled diagram of layout of underground pipeline system.
- Q5. What are the precautions to be taken while installing wire for measurement of irrigation water?
- Q6. What are the factors affecting soil erosion? Discuss the mechanics of water erosion.

SECTION-C

- Q7. A pump lifts 1600 litres of water per minute against a total head of 21 metres. Compute the water horse power. If the pump has an efficiency of 75%. What size of motor is required to operate the pump? If a direct drive electric motor having an efficiency of 85% is used to operate the pump, compute the cost of electrical energy in a month of 30 days. The pump is operated for 8 hours daily for 30 days. The cost of electrical energy is Rs. 3.5 per unit.
- Q8. What are the different agronomic and engineering soil and water conservation measures? Discuss various agronomic and engineering measures in detail.
- Q9. Assume an earth channel on a grade of 0.15% with the depth of water as 0.9 m, bottom width as 60 cm and side slopes 1.5:1. Calculate the velocity of flow and carrying capacity of the channel. The 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.