Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐   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.