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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 CONSERVATION
ENGINEERING
M Code: 74165
Subject Code: BSAG-501
Paper ID: [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) Effects of water erosion
 - b) Differentiate between flow irrigation and lift irrigation
 - c) Positive displacement pump and its examples
 - d) Sprinkler irrigation and its advantages
 - e) Bearing
 - f) Differentiate between geological erosion and accelerated erosion
 - g) Direct levelling
 - h) Azimuth
 - i) Formula for discharge through contracted rectangular weir with units
 - j) Fore sight

SECTION B

2. What are the factors responsible for soil erosion? Discuss in detail.
3. What are the precautions to be taken while installing weir for measurement of irrigation water?
4. Define the centrifugal pump. Write the principle of operation of centrifugal pump along with neat diagram of centrifugal pump.
5. What is Drip irrigation system? What are the main components of drip irrigation system? Write its advantages and disadvantages. Draw a labelled layout diagram of drip irrigation system.
6. What is contour? What are the characteristics of contour line?

SECTION C

7. A Single acting reciprocating pump has piston of diameter 14 cm and stroke length 28 cm, the piston makes 50 double strokes per minute. The suction and delivery heads are 8 m and 18 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 70 % and 80 % respectively.
 - c) Power required to operate the pump.
8. Calculate the discharge capacity and velocity of flow of an unlined trapezoidal channel with bottom width 50 cm and depth of water of 60 cm and channel gradient is 0.15%. Side slope of channel is 1:1 and Manning's Roughness coefficient is 0.040.
9. What are the different agronomic and engineering soil and water conservation measures? Discuss various agronomic and engineering measures in details.