Printed Pages : 1 **EAG-604**

(Following Paper ID and Roll No. to be filled in your Answer Books)										
PAPER ID :	**Roll No.**									

B.TECH.
Theory Examination (Semester-VI) 2015-16
SOIL AND WATER CONSERVATION ENGINEERING

Time : 3 Hours ***Max. Marks : 100***

Note: The question paper is divided in to three sections. Attempt each section.

SECTION-A

1. Attempt *all* the questions. **(2x10=20)**

(a) Write the factors that affect water erosion.
(b) Write the different forms of soil transportation by running water.
(c) Write the different geological actions generated by flowing water over the land surface due to which soil erosion takes place.
(d) Write the difference between geological erosion and accelerated erosion.
(e) Write the different forms of soil erosion.
(f) Write the stages of gully erosion.
(g) Write the different phases of the occurrence of wind erosion.
(i) Write the general types of strip cropping.
(j) Write the classification of bench terrace on the basis of, slope of the bench.

SECTION-B

2. Attempt any *five* questions. **(10x5=50)**

(a) Explain gully erosion with its classification and different stages of gully erosion.
(b) Explain water erosion its mechanics and illustrate the factors that affects water erosion.
(c) List the types of agronomical practices to control the soil erosion and define them briefly.
(d) Explain EI_{30} index and KE >25 index methods for estimation of erosivity from rainfall data separately with suitable examples.
(e) Write down the design steps of bench terracing.
(f) Explain wind erosion and also define the three different phases of the occurrence of wind erosion.
(g) Define strip cropping and explain the various types of strip cropping.
(h) Design a grassed waterway with trapezoidal cross-section. The relevant data are given as under: bottom width (b) =2.5m, Peak runoff rate (Q) = $4m^3/s$, Bed slope (S) = 0.2%, Manning's roughness coefficient (n) = 0.04, side slope = 2:1.

SECTION-C

Attempt any two questions. **(15x2=30)**

3. (a) What do you mean by erosivity and erodibility? Write the factors that affect rain storm erosivity and also define its relationship with erodibility.
(b) Explain contour trenching as a soil conservation measure with its classification and design details.
4. (a) Explain universal soil loss equation for soil loss estimation and its applications.
(b) Calculate the area of protection from a wind break of 300m in length and 15 m height. The angle of deviation of the prevailing wind perpendicular to the barrier is 25°. The actual wind velocity is 15 km/h at 15m height and minimum wind velocity that is capable of moving the soil fraction is 20 km/h at 15m height.
5. (a) Write down the design steps of contour bunding.
(b) Explain different temporary structures for controlling the gully erosion with suitable figures.